



# 2

## UNITRONIC®

### Data communication systems

Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

#### Application range

- Industrial machinery and plant engineering
- Sensors and actuating elements
- Appliances
- Measurement and control technology
- Automated production processes and industrial robots
- Bus systems
- Computing and communication systems

**Low frequency data transmission cables****UNITRONIC® colour codes**

|                   |     |
|-------------------|-----|
| UNITRONIC® 100    | 280 |
| UNITRONIC® 100 CY | 280 |

**DIN colour code**

|                         |     |
|-------------------------|-----|
| UNITRONIC® LiYY         | 282 |
| UNITRONIC® LiYCY        | 283 |
| UNITRONIC® LiYY (TP)    | 285 |
| UNITRONIC® LiYCY (TP)   | 286 |
| UNITRONIC® EB CY (TP)   | 287 |
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| UNITRONIC® CY PiDY (TP) | 289 |
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| UNITRONIC® LiYD11Y      | 291 |
| UNITRONIC® PUR CP       | 292 |
| UNITRONIC® PUR CP (TP)  | 293 |

**Low capacitance**

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**Halogen-free UNITRONIC®**

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**UL/CSA-certified**

|                                   |     |
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**Highly flexible application**

|                  |     |
|------------------|-----|
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| UNITRONIC® FD CY | 309 |

**Highly flexible and UL/CSA-certified**

|                                |     |
|--------------------------------|-----|
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| UNITRONIC® FD P plus           | 313 |
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**Computer cables (RE)**

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**Installation cable for industrial electronics**

|                   |     |
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| JE-LiYCY...BD EB  | 319 |

**Telephone cables****Indoor cables**

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|----------------------------|-----|

**Outdoor cables**

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**Coaxial cables****Fixed installation and conditional flexible use**

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**Bus systems with interface RS485/RS422****Fixed Installation**

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**Continuous flexing application**

|                        |     |
|------------------------|-----|
| UNITRONIC® BUS LD FD P | 325 |
|------------------------|-----|

**Bus system AS-Interface****Fixed Installation**

|                    |     |
|--------------------|-----|
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|--------------------|-----|

**Continuous flexing application**

|                       |     |
|-----------------------|-----|
| UNITRONIC® BUS ASI FD | 327 |
|-----------------------|-----|

**Bus system PROFIBUS-DP/FMS/FIP****Fixed Installation**

|                               |     |
|-------------------------------|-----|
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| UNITRONIC® BUS PB             | 329 |
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| UNITRONIC® BUS PB FRNC FC     | 333 |
| UNITRONIC® BUS PB ARM         | 334 |
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| UNITRONIC® BUS PB YY          | 336 |
| UNITRONIC® BUS PB BURIAL FC   | 337 |
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**Continuous flexing application**

|                               |     |
|-------------------------------|-----|
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**Sub-D Bus-Connectors**

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|-------------------------|-----|
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**M12 Connectors and accessories**

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|-----------------------|-----|
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| EPIC® DATA PB M12/M12 | 353 |
| EPIC® DATA PB TR M12  | 353 |

**Bus system PROFIBUS-PA****Fixed Installation**

|                   |     |
|-------------------|-----|
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|-------------------|-----|

**Bus system CAN / DeviceNet****DeviceNet - fixed installation**

|                                   |     |
|-----------------------------------|-----|
| UNITRONIC® DeviceNet THICK + THIN | 355 |
|-----------------------------------|-----|

**DeviceNet - continuous flexing application**

|                                    |     |
|------------------------------------|-----|
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|------------------------------------|-----|

**CAN - Fixed installation and high flexibility application**

|                                 |     |
|---------------------------------|-----|
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| UNITRONIC® BUS CAN FD P         | 357 |
| <b>CAN - fixed installation</b> |     |
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| UNITRONIC® BUS CAN BURIAL       | 359 |

**Bus systems for special applications****Bus systems for utility vehicles**

|                          |     |
|--------------------------|-----|
| UNITRONIC® BUS HEAT 6722 | 360 |
|--------------------------|-----|

**Bus systems for TCN**

|                  |     |
|------------------|-----|
| UNITRONIC® TRAIN | 361 |
|------------------|-----|

**Bus system CAN / DeviceNet****Sub-D Bus-Connectors**

|                          |     |
|--------------------------|-----|
| EPIC® DATA CAN Sub-D     | 362 |
| EPIC® DATA CAN Sub-D PRO | 363 |

**M12 Cordsets**

|                                  |     |
|----------------------------------|-----|
| UNITRONIC® BUS CAN M12   M12-M12 | 364 |
|----------------------------------|-----|

**M12 Connectors and accessories**

|                        |     |
|------------------------|-----|
| EPIC® DATA CAN M12     | 365 |
| EPIC® DATA CAN M12/M12 | 365 |
| EPIC® DATA CAN TR M12  | 366 |
| EPIC® DATA CAN M12T    | 367 |
| EPIC® DATA CAN CCR     | 367 |

**Bus system ISOBUS****Flexible application**

|                   |     |
|-------------------|-----|
| UNITRONIC® BUS IS | 368 |
|-------------------|-----|

**Bus system Foundation Fieldbus****Fixed Installation**

|                   |     |
|-------------------|-----|
| UNITRONIC® BUS FF | 369 |
|-------------------|-----|

## Bus system CC-Link

### Fixed / continuous flexing application

|                             |     |
|-----------------------------|-----|
| UNITRONIC® BUS CC           | 370 |
| UNITRONIC® BUS CC FD P FRNC | 371 |

## Bus system SAFETY BUS

|                       |     |
|-----------------------|-----|
| UNITRONIC® BUS SAFETY | 372 |
|-----------------------|-----|

## Bus system INTERBUS (IBS)

### Fixed Installation

|                    |     |
|--------------------|-----|
| UNITRONIC® BUS IBS | 373 |
|--------------------|-----|

## Bus system EIB

|                          |     |
|--------------------------|-----|
| UNITRONIC® BUS EIB / KNX | 374 |
|--------------------------|-----|

## Sensor/actuator cabling

### Flexible / highly flexible applications

|                                |     |
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| UNITRONIC® SENSOR              | 376 |
| UNITRONIC® SENSOR FD           | 377 |
| UNITRONIC® ROBUST S/A FD       | 378 |

### M8 cordsets

|                          |     |
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| UNITRONIC® SENSOR M8-M8  | 380 |
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### M8 Field mountable connectors and wall ducts

|                            |     |
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| EPIC® SENSOR Flush-type M8 | 384 |

### M12 cordsets

|                                     |     |
|-------------------------------------|-----|
| UNITRONIC® SENSOR M12-M8            | 387 |
| UNITRONIC® SENSOR PVC M12   M12-M12 | 388 |

### M12 Cordsets for Food&Beverage

|                          |     |
|--------------------------|-----|
| UNITRONIC® SENSOR HD M12 | 389 |
|--------------------------|-----|

### M12 Field mountable connectors and wall ducts

|                                |     |
|--------------------------------|-----|
| EPIC® SENSOR M12               | 390 |
| EPIC® SENSOR M12 V4A           | 391 |
| EPIC® SENSOR M12/M12           | 391 |
| EPIC® SENSOR Flush-type M12    | 392 |
| EPIC® SENSOR M12 T-distributor | 393 |
| EPIC® SENSOR CCR               | 393 |

### Valve connectors

|                             |     |
|-----------------------------|-----|
| UNITRONIC® SENSOR Valve     | 394 |
| UNITRONIC® SENSOR Valve-M12 | 395 |

### Y connectors

|                            |     |
|----------------------------|-----|
| UNITRONIC® SENSOR M12Y     | 396 |
| UNITRONIC® SENSOR M12Y-M8  | 397 |
| UNITRONIC® SENSOR M12Y-M12 | 397 |
| EPIC® SENSOR M8Y   M12Y    | 398 |

### Distribution boxes

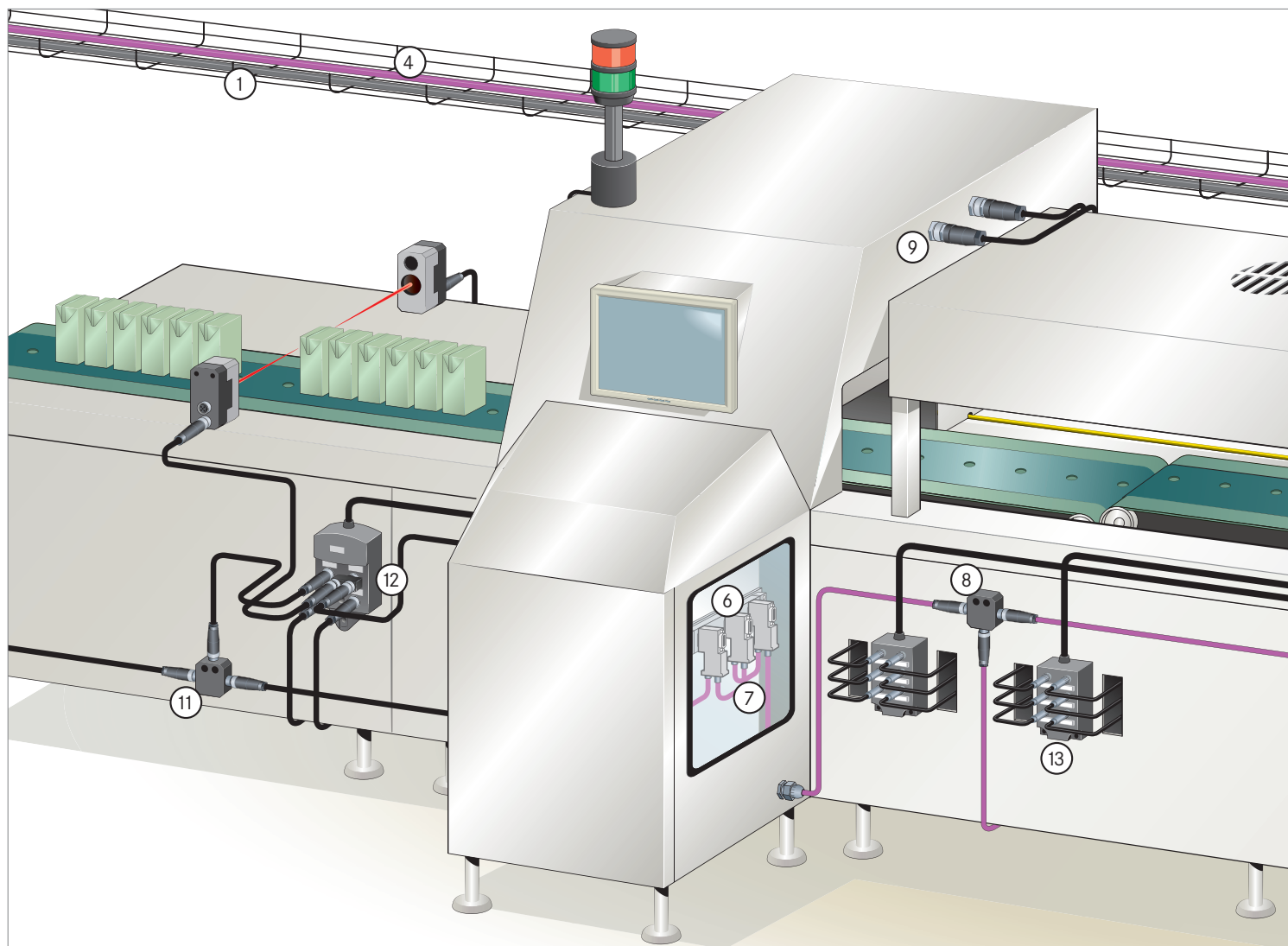
|                      |     |
|----------------------|-----|
| Distribution Box M8  | 399 |
| Distribution Box M12 | 400 |

### M12 Power cordsets (A-coded)

|                             |     |
|-----------------------------|-----|
| UNITRONIC® SENSOR M12 Power | 401 |
|-----------------------------|-----|

### M12 Connectors for power transmission (T-coded)

|                     |     |
|---------------------|-----|
| EPIC® POWER M12 60V | 402 |
|---------------------|-----|



- ① Low frequency data cables (fixed installation) from page 280
- ② Low frequency data cables (highly flexible) from page 308
- ③ AS-interface cables from page 326
- ④ PROFIBUS® cables (fixed installation) from page 328
- ⑤ PROFIBUS® cables (highly flexible) from page 339
- ⑥ PROFIBUS® Sub-D connector from page 347
- ⑦ PROFIBUS® M12 cordsets from page 351

- ⑧ PROFIBUS® M12 T distributor, page 352
- ⑨ Sensor/actuator M12 connector from page 390
- ⑩ Valve connectors from page 394
- ⑪ Sensor/actuator T distributor, page 393
- ⑫ Sensor/actuator Y distributor from page 396
- ⑬ Sensor/actuator M8 distribution boxes, page 399
- ⑭ Sensor/actuator M12 distribution boxes, page 400

### Low frequency data cables

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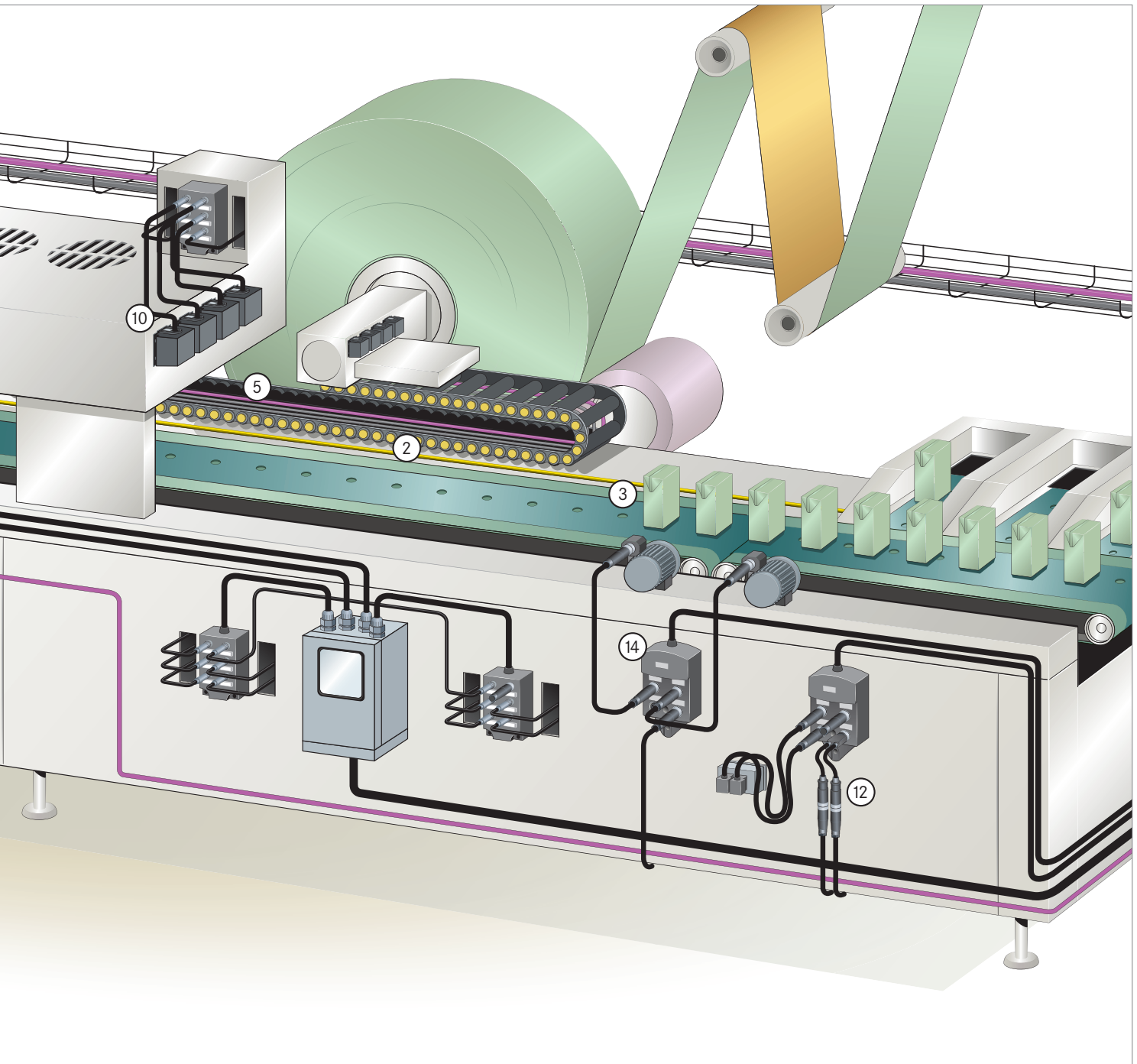
Installation/data cables for low frequency transmission – for fixed and flexible installation, continuous flexing application.

### Coaxial cables

Page 322 to page 323



RG (MIL-DTL 17 H) and RGB cables for high frequency data transmission, fixed and conditional flexing, in- and outdoor applications, extreme temperatures.



## Bus systems

Page 324 to page 374



Support of all major fieldbus systems, among others PROFIBUS® (DP and PA), CAN, DeviceNet™, CC-Link®, AS-Interface, ISOBUS, Foundation Fieldbus™, KNX®. Cables for in- and outdoor, extreme temperatures, fixed/flexible installation and high flexible application. M12- and Sub-D connectors, cordsets and accessories.

## Sensor/actuator cabling

Page 375 to page 402



The complete range of M8-, M12- and valve connectors, cables, cordsets, matching distribution boxes and accessories. Available as shielded/unshielded version, optional LEDs, with different cable materials and connection technologies.

**UNITRONIC® 100**

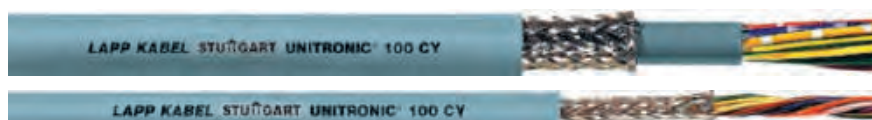
Control and signal cable with small cross-sections

**Info**

- UNITRONIC® colour code with protective conductor

**UNITRONIC® 100 CY**

Screened control and signal cable with small cross-sections

**Application range**

- These control and signal cables are used in the milliamperage range for computer systems, electronic control equipment, office machines, balances etc. and wherever the thinnest possible control cables are required.

**Product features****UNITRONIC® 100**

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow)  
2 cores (black/blue)

**UNITRONIC® 100 CY**

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Cable similar to UNITRONIC® 100, but with copper braiding
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow)  
2 cores (black/blue)

**Norm references / Approvals**

- Based on: VDE 0814 or VDE 0812

**Product Make-up****UNITRONIC® 100**

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC  
Outer sheath colour: grey (RAL 7001)

**UNITRONIC® 100 CY**

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of PVC
- Inner sheath made of PVC
- For the cross section of 0.14 mm<sup>2</sup>, a polyester tape is used underneath the screen braiding instead of the inner sheath.
- Tinned-copper braiding
- Outer sheath made of PVC  
Outer sheath colour: grey (RAL 7001)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable

**Core identification code**

Refer to Appendix T7 for the  
UNITRONIC® colour codes

**Mutual capacitance**

Approx. 120 nF/km

**Inductivity**

approx. 0.7 mH/km

**Conductor stranding**

Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire

**Minimum bending radius  
UNITRONIC® 100**

Occasional flexing: 15 x outer diameter

Fixed installation: 4 x outer diameter

**UNITRONIC® 100 CY**

Occasional flexing: 20 x outer diameter

Fixed installation: 6 x outer diameter

**Protective conductor**

Green-yellow

**Temperature range**

Occasional flexing: -5°C to +70°C

Fixed installation: -40°C to +80°C

| Article number        | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-----------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® 100</b> |                                                   |                     |                      |                |
| 0028009               | 2 x 0,14                                          | 3                   | 2.8                  | 12             |
| 0028010               | 3 x 0,14                                          | 3.2                 | 4.2                  | 17             |
| 0028012               | 5 x 0,14                                          | 3.7                 | 7                    | 22             |
| 0028014               | 7 x 0,14                                          | 4                   | 9.8                  | 27             |
| 0028015               | 10 x 0,14                                         | 5                   | 14                   | 41             |
| 0028019               | 24 x 0,14                                         | 7.2                 | 33.6                 | 94             |
| 0028025               | 52 x 0,14                                         | 10                  | 72.8                 | 198            |
| 0028030               | 3 x 0,25                                          | 3.8                 | 7.5                  | 21             |
| 0028031               | 7 x 0,25                                          | 4.9                 | 17.5                 | 48             |
| 0028032               | 10 x 0,25                                         | 6.4                 | 25                   | 77             |
| 0028033               | 14 x 0,25                                         | 6.9                 | 35                   | 95             |
| 0028034               | 16 x 0,25                                         | 7.3                 | 40                   | 112            |
| 0028035               | 21 x 0,25                                         | 8.5                 | 52.5                 | 139            |
| 0028036               | 24 x 0,25                                         | 9                   | 60                   | 163            |
| 0028037               | 27 x 0,25                                         | 9.2                 | 67.5                 | 171            |
| 0028038               | 30 x 0,25                                         | 9.9                 | 75                   | 187            |
| 0028039               | 36 x 0,25                                         | 10.7                | 90                   | 235            |
| 0028040               | 40 x 0,25                                         | 11.6                | 100                  | 266            |
| 0028042               | 52 x 0,25                                         | 12.5                | 130                  | 343            |
| 0028044               | 61 x 0,25                                         | 13.3                | 152.5                | 398            |
| 0028047               | 3 x 0,34                                          | 4.2                 | 10.5                 | 33             |
| 0028048               | 7 x 0,34                                          | 5.5                 | 22.8                 | 62             |
| 0028051               | 16 x 0,34                                         | 8.3                 | 54.4                 | 131            |

| Article number           | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® 100 CY</b> |                                                   |                     |                      |                |
| 0034006                  | 2 x 0,14                                          | 3.7                 | 12                   | 20             |
| 0034007                  | 3 x 0,14                                          | 3.9                 | 13                   | 28             |
| 0034008                  | 4 x 0,14                                          | 4.1                 | 14.3                 | 33             |
| 0034009                  | 5 x 0,14                                          | 4.4                 | 15.5                 | 38             |
| 0034010                  | 7 x 0,14                                          | 4.7                 | 20.3                 | 49             |
| 0034011                  | 10 x 0,14                                         | 5.7                 | 34.3                 | 66             |
| 0034012                  | 14 x 0,14                                         | 6.3                 | 32                   | 80             |
| 0034013                  | 16 x 0,14                                         | 6.6                 | 40.9                 | 90             |
| 0034016                  | 27 x 0,14                                         | 8.1                 | 70.6                 | 148            |
| 0031031                  | 3 x 0,25                                          | 5.4                 | 20.2                 | 48             |
| 0031066                  | 4 x 0,25                                          | 5.7                 | 24                   | 61             |
| 0031067                  | 5 x 0,25                                          | 6.3                 | 29                   | 72             |
| 0031032                  | 7 x 0,25                                          | 6.7                 | 37.6                 | 82             |
| 0031033                  | 10 x 0,25                                         | 8.2                 | 48.8                 | 129            |
| 0031034                  | 14 x 0,25                                         | 8.7                 | 64.6                 | 147            |
| 0031068                  | 2 x 0,34                                          | 5.6                 | 20                   | 45             |
| 0031048                  | 3 x 0,34                                          | 5.8                 | 24.1                 | 62             |
| 0031069                  | 4 x 0,34                                          | 6.4                 | 29                   | 65             |
| 0031070                  | 5 x 0,34                                          | 6.9                 | 42                   | 95             |
| 0031049                  | 7 x 0,34                                          | 7.3                 | 50                   | 106            |
| 0031050                  | 10 x 0,34                                         | 9                   | 67.7                 | 167            |
| 0031052                  | 16 x 0,34                                         | 10.5                | 95                   | 219            |
| 0031060                  | 52 x 0,34                                         | 17.6                | 336                  | 629            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

#### Similar products

- UNITRONIC® LiYY refer to page 282
- UNITRONIC® LiYCY refer to page 283

#### Accessories

##### UNITRONIC® 100

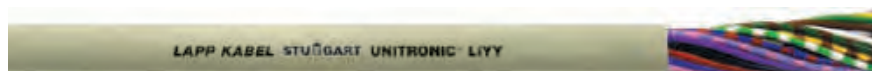
- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957

##### UNITRONIC® 100 CY

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957

**UNITRONIC® LiYY**

Data transmission cable with colour code acc. to DIN 47100

**Info**

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

**Benefits**

- Space-saving installation due to small cable diameters
- Multifunctional application possibilities
- Depending on the quantity, the outer sheath can also be produced in other colours to match your application needs

**Application range**

- UNITRONIC® LiYY is also used as a control and signal cable in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms
- Occasional flexing

**Product features**

- Despite the large number of cores, LiYY data cables have small outer diameters
- Flame-retardant according IEC 60332-1-2

**Norm references / Approvals**

- Based on VDE 0812

**Product Make-up**

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable

**Core identification code**

DIN 47100 without colour repetition,  
refer to Appendix T9

**Mutual capacitance**

Approx. 120 nF/km

**Inductivity**

approx. 0.65 mH/km

**Conductor stranding**

Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire

**Minimum bending radius**

Occasional flexing: 10 x outer diameter  
Fixed installation: 4 x outer diameter

**Temperature range**

Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

| Article number         | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYY</b> |                                                   |                     |                      |                |
| 0028202                | 2 x 0.14                                          | 3.2                 | 2.7                  | 13.2           |
| 0028203                | 3 x 0.14                                          | 3.4                 | 4.05                 | 16             |
| 0028204                | 4 x 0.14                                          | 3.6                 | 5.4                  | 18.9           |
| 0028205                | 5 x 0.14                                          | 3.9                 | 6.72                 | 22.2           |
| 0028207                | 7 x 0.14                                          | 4.2                 | 9.45                 | 28.4           |
| 0028208                | 8 x 0.14                                          | 4.9                 | 10.2                 | 35.2           |
| 0028210                | 10 x 0.14                                         | 5.2                 | 13.5                 | 41.2           |
| 0028212                | 12 x 0.14                                         | 5.6                 | 16.2                 | 48.4           |
| 0028214                | 14 x 0.14                                         | 5.8                 | 18.9                 | 52.9           |
| 0028216                | 16 x 0.14                                         | 6.1                 | 21.6                 | 59.1           |
| 0028220                | 20 x 0.14                                         | 7                   | 27                   | 70.8           |
| 0028225                | 25 x 0.14                                         | 7.8                 | 33.6                 | 87.2           |
| 0028236                | 36 x 0.14                                         | 8.6                 | 48.6                 | 126.8          |
| 0028237                | 37 x 0.14                                         | 8.9                 | 49.7                 | 118            |
| 0028240                | 40 x 0.14                                         | 9.3                 | 54                   | 139.1          |
| 0028250                | 50 x 0.14                                         | 10.4                | 67.5                 | 170.9          |
| 0028256                | 56 x 0.14                                         | 10.7                | 78.4                 | 187            |
| 0028302                | 2 x 0.25                                          | 3.8                 | 4.8                  | 18             |
| 0028303                | 3 x 0.25                                          | 4                   | 7.2                  | 22             |
| 0028304                | 4 x 0.25                                          | 4.3                 | 9.6                  | 26.2           |
| 0028305                | 5 x 0.25                                          | 4.7                 | 12                   | 31             |
| 0028306                | 6 x 0.25                                          | 5.1                 | 14.4                 | 39             |
| 0028307                | 7 x 0.25                                          | 5.1                 | 16.8                 | 42             |
| 0028308                | 8 x 0.25                                          | 6.2                 | 19.2                 | 49.2           |
| 0028310                | 10 x 0.25                                         | 6.8                 | 24                   | 58             |
| 0028312                | 12 x 0.25                                         | 7                   | 28.8                 | 67             |
| 0028314                | 14 x 0.25                                         | 7.3                 | 33.6                 | 75.3           |
| 0028316                | 16 x 0.25                                         | 7.7                 | 38.4                 | 84.3           |
| 0028318                | 18 x 0.25                                         | 8.1                 | 43.2                 | 93             |
| 0028320                | 20 x 0.25                                         | 8.6                 | 48                   | 102            |
| 0028325                | 25 x 0.25                                         | 9.6                 | 60                   | 134            |
| 0028330                | 30 x 0.25                                         | 10.3                | 72                   | 155            |
| 0028332                | 32 x 0.25                                         | 10.7                | 76.8                 | 164            |
| 0028336                | 36 x 0.25                                         | 11.1                | 86.4                 | 182.2          |
| 0028337                | 37 x 0.25                                         | 11.4                | 88.8                 | 185            |
| 0028340                | 40 x 0.25                                         | 12                  | 96.1                 | 200            |
| 0028350                | 50 x 0.25                                         | 12.9                | 120                  | 257.1          |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 0028402        | 2 x 0.34                                          | 4.2                 | 6.6                  | 25             |
| 0028403        | 3 x 0.34                                          | 4.4                 | 9.9                  | 31             |
| 0028404        | 4 x 0.34                                          | 4.8                 | 13.1                 | 43.2           |
| 0028405        | 5 x 0.34                                          | 5.5                 | 16.5                 | 53.8           |
| 0028406        | 6 x 0.34                                          | 5.9                 | 19.6                 | 55             |
| 0028407        | 7 x 0.34                                          | 5.9                 | 22.8                 | 62             |
| 0028408        | 8 x 0.34                                          | 7.1                 | 26.1                 | 73.1           |
| 0028410        | 10 x 0.34                                         | 7.6                 | 32.6                 | 82             |
| 0028412        | 12 x 0.34                                         | 7.8                 | 39.1                 | 102            |
| 0028414        | 14 x 0.34                                         | 8.2                 | 45.7                 | 109            |
| 0028416        | 16 x 0.34                                         | 8.7                 | 52                   | 127            |
| 0028420        | 20 x 0.34                                         | 9.6                 | 65.2                 | 159.3          |
| 0028421        | 21 x 0.34                                         | 10.4                | 68.6                 | 167            |
| 0028425        | 25 x 0.34                                         | 11.2                | 81.6                 | 190            |
| 0028430        | 30 x 0.34                                         | 11.6                | 98                   | 226            |
| 0028436        | 36 x 0.34                                         | 12.5                | 118                  | 284            |
| 0028440        | 40 x 0.34                                         | 13.5                | 131                  | 317            |
| 0028450        | 50 x 0.34                                         | 15                  | 163                  | 407            |
| 0028502        | 2 x 0.50                                          | 4.7                 | 9.6                  | 30             |
| 0028503        | 3 x 0.50                                          | 5                   | 14.4                 | 39             |
| 0028504        | 4 x 0.50                                          | 5.6                 | 19.2                 | 49             |
| 0028505        | 5 x 0.50                                          | 6.1                 | 24                   | 65             |
| 0028507        | 7 x 0.50                                          | 6.9                 | 33.6                 | 82             |
| 0028508        | 8 x 0.50                                          | 8                   | 38.4                 | 90             |
| 0028510        | 10 x 0.50                                         | 8.6                 | 48                   | 117            |
| 0028512        | 12 x 0.50                                         | 8.9                 | 58                   | 133            |
| 0028516        | 16 x 0.50                                         | 10.2                | 77                   | 170            |
| 0028520        | 20 x 0.50                                         | 11.4                | 96                   | 214            |
| 0028525        | 25 x 0.50                                         | 12.7                | 120                  | 265            |
| 0028530        | 30 x 0.50                                         | 13.2                | 144                  | 304            |
| 0028540        | 40 x 0.50                                         | 15.8                | 192                  | 392            |
| 0028602        | 2 x 0.75                                          | 5.1                 | 14.4                 | 48             |
| 0028603        | 3 x 0.75                                          | 5.6                 | 21.6                 | 57             |
| 0028604        | 4 x 0.75                                          | 6.1                 | 28.8                 | 69             |
| 0028605        | 5 x 0.75                                          | 6.9                 | 36                   | 78             |
| 0028607        | 7 x 0.75                                          | 7.5                 | 50                   | 112            |
| 0028608        | 8 x 0.75                                          | 8.7                 | 58                   | 126            |
| 0028610        | 10 x 0.75                                         | 9.4                 | 72                   | 149            |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 0028612        | 12 x 0.75                                         | 10.1                | 86                   | 176            |
| 0028616        | 16 x 0.75                                         | 11.2                | 115                  | 218            |
| 0028620        | 20 x 0.75                                         | 12.4                | 144                  | 274            |
| 0028625        | 25 x 0.75                                         | 14                  | 180                  | 320            |
| 0028702        | 2 x 1.00                                          | 5.6                 | 19.2                 | 55             |
| 0028703        | 3 x 1.00                                          | 5.9                 | 29                   | 70             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

#### Similar products

- UNITRONIC® LiYY (TP) refer to page 285
- UNITRONIC® LiYY A refer to page 303

#### Accessories

- SKINTOP® ST-M refer to page 680
- SKINTOP® ST-M Small PU
- STAR STRIP stripping tool refer to page 957
- SENSOR STRIP stripping tool refer to page 961



#### Info

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

#### Benefits

- Overall braid minimises electrical interference
- Multifunctional application possibilities

#### Application range

- Screened cables with small dimensions are suitable for use in computer systems, instrumentation technology, office equipment, balances.
- Dry or damp rooms

#### Product features

- Flame-retardant according IEC 60332-1-2

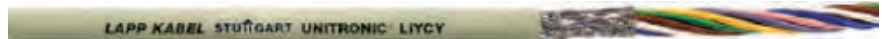
#### Norm references / Approvals

- Based on VDE 0812

#### Product Make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

| Article number         | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYY</b> |                                                   |                     |                      |                |
| 0034302                | 2 x 0.14                                          | 3.9                 | 12                   | 20             |
| 0034303                | 3 x 0.14                                          | 4.1                 | 13                   | 28             |
| 0034304                | 4 x 0.14                                          | 4.3                 | 14.3                 | 33             |
| 0034305                | 5 x 0.14                                          | 4.6                 | 15.5                 | 38             |
| 0034306                | 6 x 0.14                                          | 4.9                 | 18.2                 | 38             |
| 0034307                | 7 x 0.14                                          | 4.9                 | 19                   | 49             |
| 0034308                | 8 x 0.14                                          | 5.8                 | 21.2                 | 56             |
| 0034310                | 10 x 0.14                                         | 6.1                 | 28.5                 | 66             |
| 0034312                | 12 x 0.14                                         | 6.3                 | 30.4                 | 78             |
| 0034314                | 14 x 0.14                                         | 6.7                 | 32                   | 80             |
| 0034315                | 15 x 0.14                                         | 6.9                 | 37.8                 | 86             |
| 0034316                | 16 x 0.14                                         | 7                   | 43                   | 90             |
| 0034318                | 18 x 0.14                                         | 7.3                 | 48.8                 | 95             |
| 0034320                | 20 x 0.14                                         | 7.7                 | 53.9                 | 100            |
| 0034321                | 21 x 0.14                                         | 7.9                 | 55.5                 | 105            |
| 0034324                | 24 x 0.14                                         | 8.3                 | 61                   | 112            |
| 0034325                | 25 x 0.14                                         | 8.5                 | 63                   | 120            |
| 0034328                | 28 x 0.14                                         | 8.5                 | 66.1                 | 141            |
| 0034330                | 30 x 0.14                                         | 8.7                 | 69                   | 155            |
| 0034336                | 36 x 0.14                                         | 9.3                 | 83                   | 170            |
| 0034340                | 40 x 0.14                                         | 10.4                | 87.5                 | 178            |
| 0034344                | 44 x 0.14                                         | 10.7                | 110.5                | 185            |
| 0034350                | 50 x 0.14                                         | 11.1                | 122.5                | 195            |
| 0034402                | 2 x 0.25                                          | 4.5                 | 16                   | 32             |
| 0034403                | 3 x 0.25                                          | 4.7                 | 21                   | 37             |



#### Technical data



##### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104

ETIM 5.0/6.0 Class-Description:

Control cable



##### Core identification code

DIN 47100 without colour repetition, refer to Appendix T9



##### Mutual capacitance

C/C: approx. 120 nF/km

C/S: approx. 160 nF/km



##### Inductivity

approx. 0.65 mH/km



##### Conductor stranding

Stranded, fine-wire

0.34 mm<sup>2</sup>: 7-wire



##### Minimum bending radius

Occasional flexing: 15 x outer diameter

Fixed installation: 6 x outer diameter



##### Temperature range

Occasional flexing: -5°C to +70°C

Fixed installation: -40°C to +80°C

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 0034404        | 4 x 0.25                                          | 5                   | 24                   | 41.3           |
| 0034405        | 5 x 0.25                                          | 5.6                 | 29                   | 51.2           |
| 0034406        | 6 x 0.25                                          | 6                   | 30                   | 58             |
| 0034407        | 7 x 0.25                                          | 6                   | 37                   | 65             |
| 0034408        | 8 x 0.25                                          | 7.1                 | 42                   | 73             |
| 0034410        | 10 x 0.25                                         | 7.5                 | 46                   | 82             |
| 0034412        | 12 x 0.25                                         | 7.7                 | 53                   | 98             |
| 0034414        | 14 x 0.25                                         | 8                   | 59                   | 99             |
| 0034415        | 15 x 0.25                                         | 8.3                 | 61                   | 111            |
| 0034416        | 16 x 0.25                                         | 8.4                 | 64                   | 119            |
| 0034418        | 18 x 0.25                                         | 8.8                 | 83                   | 125            |
| 0034420        | 20 x 0.25                                         | 9.3                 | 88                   | 136            |
| 0034421        | 21 x 0.25                                         | 9.6                 | 93                   | 161            |
| 0034425        | 25 x 0.25                                         | 10.7                | 114                  | 172            |
| 0034428        | 28 x 0.25                                         | 10.8                | 126                  | 181.1          |
| 0034432        | 32 x 0.25                                         | 11.4                | 138                  | 203            |
| 0034436        | 36 x 0.25                                         | 11.8                | 148                  | 220            |
| 0034440        | 40 x 0.25                                         | 12.7                | 157                  | 248            |
| 0034450        | 50 x 0.25                                         | 13.8                | 178                  | 318            |
| 0034461        | 61 x 0.25                                         | 15                  | 205                  | 365.2          |
| 0034502        | 2 x 0.34                                          | 4.9                 | 21                   | 37             |
| 0034503        | 3 x 0.34                                          | 5.1                 | 27                   | 42             |
| 0034504        | 4 x 0.34                                          | 5.7                 | 28                   | 52             |
| 0034505        | 5 x 0.34                                          | 6.2                 | 30                   | 60             |
| 0034506        | 6 x 0.34                                          | 6.8                 | 45                   | 64             |
| 0034507        | 7 x 0.34                                          | 6.8                 | 48                   | 75             |
| 0034508        | 8 x 0.34                                          | 7.8                 | 52                   | 94             |
| 0034510        | 10 x 0.34                                         | 8.3                 | 74                   | 105            |
| 0034512        | 12 x 0.34                                         | 8.5                 | 80                   | 123            |
| 0034514        | 14 x 0.34                                         | 8.9                 | 86                   | 154            |
| 0034515        | 15 x 0.34                                         | 9.2                 | 90                   | 155            |
| 0034516        | 16 x 0.34                                         | 9.4                 | 94                   | 160            |
| 0034518        | 18 x 0.34                                         | 10.2                | 103                  | 173            |
| 0034520        | 20 x 0.34                                         | 10.7                | 112                  | 192            |
| 0034521        | 21 x 0.34                                         | 11.1                | 116                  | 199.2          |
| 0034525        | 25 x 0.34                                         | 11.9                | 135                  | 259            |
| 0034528        | 28 x 0.34                                         | 12                  | 153                  | 280            |
| 0034530        | 30 x 0.34                                         | 12.3                | 159                  | 291.1          |
| 0034532        | 32 x 0.34                                         | 13                  | 165                  | 305            |
| 0034536        | 36 x 0.34                                         | 13.4                | 179                  | 331            |
| 0034540        | 40 x 0.34                                         | 14.8                | 200                  | 365            |
| 0034550        | 50 x 0.34                                         | 15.9                | 235                  | 431            |
| 0034602        | 2 x 0.50                                          | 5.6                 | 29                   | 47             |
| 0034603        | 3 x 0.50                                          | 5.9                 | 38                   | 55             |
| 0034604        | 4 x 0.50                                          | 6.3                 | 43                   | 70             |
| 0034605        | 5 x 0.50                                          | 7                   | 51                   | 90             |
| 0034606        | 6 x 0.50                                          | 7.6                 | 59                   | 104            |
| 0034607        | 7 x 0.50                                          | 7.6                 | 65                   | 112            |
| 0034608        | 8 x 0.50                                          | 8.7                 | 70                   | 120            |
| 0034610        | 10 x 0.50                                         | 9.3                 | 88                   | 139            |
| 0034612        | 12 x 0.50                                         | 9.6                 | 99                   | 177            |
| 0034618        | 18 x 0.50                                         | 11.8                | 134                  | 239            |
| 0034620        | 20 x 0.50                                         | 12.1                | 149                  | 276            |
| 0034625        | 25 x 0.50                                         | 13.7                | 211                  | 352            |
| 0034630        | 30 x 0.50                                         | 14.5                | 230                  | 397            |
| 0034702        | 2 x 0.75                                          | 6                   | 38                   | 53             |
| 0034703        | 3 x 0.75                                          | 6.3                 | 49                   | 65             |
| 0034704        | 4 x 0.75                                          | 7                   | 58                   | 79             |
| 0034705        | 5 x 0.75                                          | 7.6                 | 67                   | 109            |
| 0034707        | 7 x 0.75                                          | 8.2                 | 100                  | 156            |
| 0034710        | 10 x 0.75                                         | 10.5                | 130                  | 187            |
| 0034712        | 12 x 0.75                                         | 10.8                | 154                  | 218            |
| 0034718        | 18 x 0.75                                         | 13                  | 195                  | 327            |
| 0034725        | 25 x 0.75                                         | 15.3                | 280                  | 454            |
| 0034730        | 30 x 0.75                                         | 15.8                | 312                  | 486            |
| 0034802        | 2 x 1.00                                          | 6.3                 | 43                   | 72             |
| 0034803        | 3 x 1.00                                          | 6.8                 | 56                   | 90             |
| 0034804        | 4 x 1.00                                          | 7.3                 | 68                   | 109            |
| 0034805        | 5 x 1.00                                          | 8                   | 79                   | 126            |
| 0034807        | 7 x 1.00                                          | 8.6                 | 118                  | 171            |
| 0034810        | 10 x 1.00                                         | 11.1                | 140                  | 228            |
| 0034812        | 12 x 1.00                                         | 11.4                | 168                  | 259            |
| 0034818        | 18 x 1.00                                         | 13.4                | 252                  | 389            |
| 0034825        | 25 x 1.00                                         | 16.2                | 335                  | 517            |
| 0034902        | 2 x 1.50                                          | 7.1                 | 58                   | 90             |
| 0034903        | 3 x 1.50                                          | 7.5                 | 74                   | 115            |
| 0034904        | 4 x 1.50                                          | 8.1                 | 108                  | 129            |
| 0034905        | 5 x 1.50                                          | 8.8                 | 129                  | 176            |
| 0034907        | 7 x 1.50                                          | 9.5                 | 164                  | 220            |
| 0034912        | 12 x 1.50                                         | 12.7                | 254                  | 376            |
| 0034918        | 18 x 1.50                                         | 15.3                | 350                  | 519            |
| 0034925        | 25 x 1.50                                         | 17.9                | 550                  | 901            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

#### Similar products

- UNITRONIC® LiYCY (TP) refer to page 286
- UNITRONIC® PUR CP refer to page 292
- UNITRONIC® LiYCY A refer to page 304

#### Accessories

- SKINTOP® MS-SC refer to page 776
- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 963



## UNITRONIC® LiYY (TP)

Data transmission cable with colour code acc. to DIN 47100 and twisted pairs



### Info

- TP = twisted pair
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)



### Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Electronic devices tend to leave little room for installing cables, meaning short travel distances and small bending radii are required. This cable ideally meets these requirements.
- Dry or damp rooms

### Product features

- Twisted in pairs to reduce decoupling. As a result, additional screening is often not required.
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100, refer to Appendix T9



#### Mutual capacitance

Approx. 120 nF/km



#### Inductivity

approx. 0.65 mH/km



#### Conductor stranding

Fine copper wire strands



#### Minimum bending radius

Occasional flexing: 10 x outer diameter  
Fixed installation: 4 x Outer diameter



#### Temperature range

Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

| Article number              | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYY (TP)</b> |                                                   |                     |                      |                |
| 0035101                     | 2 x 2 x 0.14                                      | 4.5                 | 5.4                  | 25.5           |
| 0035102                     | 3 x 2 x 0.14                                      | 5                   | 8                    | 32             |
| 0035103                     | 4 x 2 x 0.14                                      | 5.6                 | 10.7                 | 38.5           |
| 0035104                     | 5 x 2 x 0.14                                      | 5.8                 | 13.4                 | 45.5           |
| 0035105                     | 6 x 2 x 0.14                                      | 6.3                 | 16.1                 | 51             |
| 0035108                     | 10 x 2 x 0.14                                     | 8.1                 | 26.9                 | 77.5           |
| 0035110                     | 12 x 2 x 0.14                                     | 8.3                 | 32.3                 | 94.5           |
| 0035113                     | 16 x 2 x 0.14                                     | 9.2                 | 43                   | 110.5          |
| 0035160                     | 2 x 2 x 0.25                                      | 5.7                 | 9.6                  | 38             |
| 0035161                     | 3 x 2 x 0.25                                      | 6.3                 | 14.4                 | 48             |
| 0035162                     | 4 x 2 x 0.25                                      | 7                   | 19.2                 | 59             |
| 0035163                     | 6 x 2 x 0.25                                      | 7.9                 | 28.8                 | 80             |
| 0035164                     | 8 x 2 x 0.25                                      | 9.3                 | 38.4                 | 98             |
| 0035170                     | 2 x 2 x 0.5                                       | 7.3                 | 19.2                 | 72             |
| 0035171                     | 3 x 2 x 0.5                                       | 8.1                 | 28.8                 | 83             |
| 0035172                     | 4 x 2 x 0.5                                       | 8.8                 | 38.4                 | 115            |
| 0035174                     | 8 x 2 x 0.5                                       | 12.3                | 76.8                 | 206            |
| 0035175                     | 10 x 2 x 0.5                                      | 13.3                | 96                   | 247            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® LiYCY (TP) refer to page 286
- UNITRONIC® LiYCY (TP) A refer to page 305

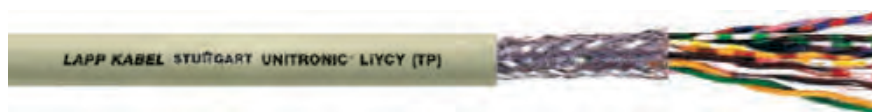
### Accessories

- SKINTOP® CLICK refer to page 682
- KS 15 cable shears



## UNITRONIC® LiYCY (TP)

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs



### Info

- TP = twisted pair
- Further dimensions/colours on request
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

### Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

### Application range

- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms

### Product features

- Good protection against capacitive interference from electric fields (e.g. power cable)
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100, refer to Appendix T9



#### Mutual capacitance

C/C: approx. 120 nF/km  
C/S: approx. 160 nF/km



#### Inductivity

approx. 0.65 mH/km



#### Conductor stranding

Fine copper wire strands



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter



#### Temperature range

Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

| Article number               | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|------------------------------|------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYCY (TP)</b> |                                                |                     |                      |                |
| 0035131                      | 2 x 2 x 0.14                                   | 5.3                 | 18.5                 | 39             |
| 0035141                      | 3 x 2 x 0.14                                   | 5.8                 | 23                   | 48             |
| 0035132                      | 4 x 2 x 0.14                                   | 6.2                 | 26.6                 | 54             |
| 0035133                      | 6 x 2 x 0.14                                   | 7.1                 | 48.5                 | 85             |
| 0035150                      | 8 x 2 x 0.14                                   | 8.2                 | 53.7                 | 97             |
| 0035134                      | 10 x 2 x 0.14                                  | 8.7                 | 59                   | 110            |
| 0035135                      | 12 x 2 x 0.14                                  | 8.9                 | 66                   | 142            |
| 0035136                      | 16 x 2 x 0.14                                  | 10.2                | 79                   | 154            |
| 0035142                      | 20 x 2 x 0.14                                  | 11.3                | 97                   | 184            |
| 0035137                      | 25 x 2 x 0.14                                  | 12.5                | 113                  | 238            |
| 0035800                      | 2 x 2 x 0.25                                   | 6.3                 | 28                   | 54             |
| 0035801                      | 3 x 2 x 0.25                                   | 7.1                 | 39.6                 | 68.5           |
| 0035802                      | 4 x 2 x 0.25                                   | 7.6                 | 44.9                 | 81             |
| 0035803                      | 6 x 2 x 0.25                                   | 8.5                 | 69.5                 | 115            |
| 0035804                      | 8 x 2 x 0.25                                   | 10.3                | 76.9                 | 130            |
| 0035805                      | 10 x 2 x 0.25                                  | 11                  | 102                  | 158            |
| 0035806                      | 12 x 2 x 0.25                                  | 11.3                | 120                  | 190            |
| 0035807                      | 16 x 2 x 0.25                                  | 12.5                | 146.5                | 238            |

| Article number | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|------------------------------------------------|---------------------|----------------------|----------------|
| 0035808        | 25 x 2 x 0.25                                  | 16.1                | 205                  | 344            |
| 0035810        | 2 x 2 x 0.50                                   | 7.9                 | 48.1                 | 93             |
| 0035811        | 3 x 2 x 0.50                                   | 8.7                 | 73.7                 | 116            |
| 0035812        | 4 x 2 x 0.50                                   | 9.4                 | 82                   | 127            |
| 0035813        | 6 x 2 x 0.50                                   | 11.1                | 110                  | 198            |
| 0035814        | 8 x 2 x 0.50                                   | 13.1                | 139                  | 259            |
| 0035816        | 12 x 2 x 0.50                                  | 14.9                | 198.3                | 354            |
| 0035817        | 16 x 2 x 0.50                                  | 16.5                | 240                  | 459            |
| 0035820        | 2 x 2 x 0.75                                   | 8.5                 | 58                   | 106            |
| 0035821        | 3 x 2 x 0.75                                   | 9.4                 | 84                   | 140            |
| 0035822        | 4 x 2 x 0.75                                   | 10.7                | 108                  | 179            |
| 0035827        | 5 x 2 x 0.75                                   | 11.1                | 126                  | 215            |
| 0035823        | 6 x 2 x 0.75                                   | 12.1                | 146                  | 246            |
| 0035824        | 8 x 2 x 0.75                                   | 14.7                | 180                  | 305            |
| 0035825        | 12 x 2 x 0.75                                  | 16.2                | 261                  | 456            |
| 0035830        | 2 x 2 x 1.00                                   | 9                   | 84                   | 142            |
| 0035831        | 3 x 2 x 1.00                                   | 10                  | 96                   | 173            |
| 0035832        | 4 x 2 x 1.00                                   | 11.3                | 121                  | 212            |
| 0035836        | 5 x 2 x 1.00                                   | 11.8                | 161                  | 266            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® CY PIDY (TP) refer to page 289
- UNITRONIC® PUR CP (TP) refer to page 293
- UNITRONIC® Li2YCY (TP) fine-wire refer to page 294
- UNITRONIC® LiYCY (TP) A refer to page 305

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® EB CY (TP)

Screened data transmission cable with twisted pairs and blue outer sheath



### Info

- Hazard protection type -i- is required where there is a risk of explosion
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)



### Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Reliable data transmission in intrinsically safe circuits
- In EMC-sensitive environments (electromagnetic compatibility)

### Product features

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
- Outer sheath colour: sky blue (RAL 5015)

### Technical data

|  |                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description:<br>Control cable |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                    |
|  | <b>Mutual capacitance</b><br>C/C approx. 100 nF/km<br>C/S approx. 140 nF/km                                           |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                              |
|  | <b>Conductor stranding</b><br>Strand, fine-wire in accordance with IEC 60228 Cl. 5                                    |
|  | <b>Minimum bending radius</b><br>Occasional flexing: 15 x outer diameter<br>Fixed installation: 6 x outer diameter    |
|  | <b>Test voltage</b><br>2500 V                                                                                         |
|  | <b>Temperature range</b><br>Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                   |

| Article number               | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® EB CY (TP)</b> |                                                   |                     |                      |                |
| 0012620                      | 2 x 2 x 0.75                                      | 8.7                 | 58                   | 106            |
| 0012621                      | 3 x 2 x 0.75                                      | 9.6                 | 84                   | 140            |
| 0012622                      | 4 x 2 x 0.75                                      | 10.9                | 108                  | 179            |
| 0012624                      | 6 x 2 x 0.75                                      | 12.3                | 146                  | 246            |
| 0012626                      | 10 x 2 x 0.75                                     | 16.1                | 220                  | 392            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- JE-LiYCY...BD EB refer to page 319

### Accessories

- SKINTOP® K-M ATEX plus blue refer to page 689
- Multipurpose shears A and B



## UNITRONIC® LiYCY-CY

Screened data transmission cable with individually screened cores



### Benefits

- Overall braid minimises electrical interference
- Individually screened cores minimise crosstalk between cables routed in parallel

### Application range

- When a lossless transmission of data has to be guaranteed in fields with strong interference, cables with individually-screened cores and an additional overall screening are used
- Dry or damp rooms

### Product features

- Wire-screen can be used as outer conductor
- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding for each core
- Inner sheath made of PVC over each screened core
- Tinned-copper braiding
- Outer sheath made of PVC
- Outer sheath colour: pebble grey (RAL 7032)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100, refer to Appendix T9



#### Mutual capacitance

Approx. 230 nF/km



#### Inductivity

Approx. 0.2 mH/km



#### Conductor stranding

Stranded conductor, fine-wire



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 7.5 x outer diameter



#### Temperature range

Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

| Article number             | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYCY-CY</b> |                                                   |                     |                      |                |
| 0032302                    | 2 x 0.25                                          | 6.9                 | 41.5                 | 69             |
| 0032303                    | 3 x 0.25                                          | 7.2                 | 53                   | 106            |
| 0032304                    | 4 x 0.25                                          | 7.8                 | 65                   | 130            |
| 0032305                    | 5 x 0.25                                          | 8.5                 | 78                   | 161            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® CY PiDY (TP) refer to page 289

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 963
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® CY PiDY (TP)

Screened data transmission cable with copper-wrapped twisted pairs



### Info

- PiDY = Pairs with copper wire wrapping and PVC sheath



### Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Individually screened pairs and the overall braid minimise electrical interference

### Application range

- Cable should be used in areas with high levels of electromagnetic interferences
- Data processing, process control systems, machining centres, security systems and electronics
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- For fixed installation and flexible use
- Dry or damp rooms

### Product features

- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Cores twisted into pairs
- Copper wrapping over pairs
- Inner sheath made of PVC over screened pairs
- Tinned-copper braiding
- Outer sheath made of PVC
- Outer sheath colour: pebble grey (RAL 7032)

### Technical data

|  |                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description:<br>Control cable |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                    |
|  | <b>Mutual capacitance</b><br>C/C: approx. 120 nF/km<br>C/S: approx. 160 nF/km                                         |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                              |
|  | <b>Conductor stranding</b><br>Stranded conductor, fine-wire                                                           |
|  | <b>Minimum bending radius</b><br>Fixed installation: 6 x outer diameter                                               |
|  | <b>Loop resistance</b><br>< 160 Ohm/km                                                                                |
|  | <b>Characteristic impedance</b><br>Approx. 65 Ohm                                                                     |
|  | <b>Temperature range</b><br>Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                   |

| Article number                 | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|--------------------------------|------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® CY PiDY (TP)</b> |                                                |                     |                      |                |
| 0034250                        | 2 x 2 x 0.25                                   | 9.3                 | 59.6                 | 112            |
| 0034251                        | 3 x 2 x 0.25                                   | 9.8                 | 72.7                 | 136            |
| 0034252                        | 4 x 2 x 0.25                                   | 10.7                | 88.2                 | 168            |
| 0034253                        | 5 x 2 x 0.25                                   | 11.7                | 103.8                | 201            |
| 0034254                        | 6 x 2 x 0.25                                   | 13.1                | 125.7                | 244            |
| 0034256                        | 8 x 2 x 0.25                                   | 15.7                | 161                  | 325            |
| 0034257                        | 10 x 2 x 0.25                                  | 16.9                | 186.8                | 342            |
| 0034258                        | 12 x 2 x 0.25                                  | 17.4                | 239.5                | 416            |
| 0034259                        | 16 x 2 x 0.25                                  | 19.3                | 316.7                | 542            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® Li2YCY PiMF refer to page 296

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092



### Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

### Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements
- Internal wiring of electronic equipment
- For fixed and limited flexible installation
- For use in dry, damp and wet rooms

### Product features

- Protection against interferences at medium and high frequencies by aluminium-laminated plastic foil, combination of flexibility and good screening (normal requirements)
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on UL AWM Style 2092 / 2093

### Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- Plastic-laminated aluminium foil with tinned copper drain wire
- Outer sheath made of PVC, Colour of the outer sheath: Similar to Silver-grey/ RAL 7001

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

2 cores: black, transparent  
3 cores: black, red, transparent



#### Mutual capacitance

C/C approx. 90 nF/km  
C/S approx. 160 nF/km



#### Inductivity

approx. 0.65 mH/km



#### Minimum bending radius

Occasional flexing: 10 x outer diameter  
Fixed installation: 6 x outer diameter



#### Characteristic impedance

Approx. 95 Ohm



#### Temperature range

Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

| Article number       | Number of conductors and AWG size | Conductor cross-section (mm²) | Core insulation material | Outer sheath material | Outer diameter [mm] | Copper index (kg/km) |
|----------------------|-----------------------------------|-------------------------------|--------------------------|-----------------------|---------------------|----------------------|
| <b>UNITRONIC® ST</b> |                                   |                               |                          |                       |                     |                      |
| 0033000              | 2 x AWG 20/7                      | 0.52                          | PE                       | PVC                   | 5.2                 | 17.2                 |
| 0033001              | 3 x AWG 20/7                      | 0.52                          | PE                       | PVC                   | 5.3                 | 23                   |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- UNIVERSAL STRIP stripping tool refer to page 963
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® LiYD11Y

Data transmission cable with copper wrapping and PUR outer sheath



### Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

### Application range

- Intended for use in industrial environments, where cables should have excellent mechanical and chemical resistance.
- Screened cables with small dimensions are suitable for use in computer systems, instrumentation technology, office equipment, balances.
- Can be used in dry or damp rooms
- Outdoor use is possible within the indicated operating temperature range

### Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion
- Low-adhesive surface
- Good UV-resistance
- Flame retardant according to IEC 60332-2-2
- Spiral versions with similar properties are also available: "UNITRONIC® SPIRAL"

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Wrapped with bare copper wires
- Outer sheath made of PUR  
Outer sheath colour: black (RAL 9005)

### Technical data

|                                                                                      |                                                                                                                       |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|   | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description:<br>Control cable |
|   | <b>Core identification code</b><br>DIN 47100 without colour repetition,<br>refer to Appendix T9                       |
|   | <b>Mutual capacitance</b><br>C/C approx. 140 nF/km<br>C/S approx. 150 nF/km                                           |
|   | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                              |
|   | <b>Conductor stranding</b><br>Stranded, extra-fine wire                                                               |
|   | <b>Minimum bending radius</b><br>Occasional flexing: 10 x outer diameter<br>Fixed installation: 6 x outer diameter    |
|  | <b>Temperature range</b><br>Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                   |

| Article number            | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYD11Y</b> |                                       |                     |                      |                |
| 0033202                   | 2 x 0.14                              | 4.1                 | 9.6                  | 20             |
| 0033203                   | 3 x 0.14                              | 4.3                 | 11                   | 25             |
| 0033204                   | 4 x 0.14                              | 4.5                 | 12                   | 27             |
| 0033205                   | 5 x 0.14                              | 4.8                 | 14.4                 | 33             |
| 0033206                   | 6 x 0.14                              | 5.5                 | 17.6                 | 38             |
| 0033207                   | 7 x 0.14                              | 5.9                 | 21.5                 | 41             |
| 0033212                   | 12 x 0.14                             | 7.2                 | 33.2                 | 62             |
| 0033218                   | 18 x 0.14                             | 8                   | 44.2                 | 83             |
| 0033302                   | 2 x 0.25                              | 4.7                 | 11.8                 | 25             |
| 0033303                   | 3 x 0.25                              | 5.3                 | 15.6                 | 31             |
| 0033304                   | 4 x 0.25                              | 5.6                 | 18.2                 | 36             |
| 0033305                   | 5 x 0.25                              | 6                   | 21.4                 | 42             |
| 0033306                   | 6 x 0.25                              | 6.8                 | 26.1                 | 49             |
| 0033307                   | 7 x 0.25                              | 7.3                 | 27.8                 | 53             |
| 0033312                   | 12 x 0.25                             | 8.4                 | 48.1                 | 81             |
| 0033318                   | 18 x 0.25                             | 9.7                 | 69                   | 117            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® SPIRAL LiF2Y11Y refer to page 265
- UNITRONIC® SPIRAL refer to page 267

### Accessories

- Multipurpose shears A and B
- UNIVERSAL STRIP stripping tool refer to page 963
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® PUR CP

Screened data transmission cable with PUR outer sheath for harsh conditions



### Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference

### Application range

- Further development of the UNITRONIC® range for harsher ambient conditions where robust and screened cables in small dimensions are required.

### Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oils and hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PUR
- Outer sheath colour: pebble grey (RAL 7032)

### Technical data

|                                                                                     |                                                                                                                       |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description:<br>Control cable |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                    |
|  | <b>Mutual capacitance</b><br>C/C: approx. 120 nF/km<br>C/S: approx. 160 nF/km                                         |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                              |
|  | <b>Conductor stranding</b><br>Stranded, fine-wire<br>0.34 mm <sup>2</sup> : 7-wire                                    |
|  | <b>Minimum bending radius</b><br>Occasional flexing: 15 x outer diameter<br>Fixed installation: 6 x outer diameter    |
|  | <b>Temperature range</b><br>Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                   |

| Article number           | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|--------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® PUR CP</b> |                                                   |                     |                      |                |
| 0032801                  | 3 x 0.25                                          | 4.7                 | 21                   | 40             |
| 0032802                  | 4 x 0.25                                          | 5                   | 24                   | 44             |
| 0032803                  | 5 x 0.25                                          | 5.6                 | 29                   | 55             |
| 0032804                  | 7 x 0.25                                          | 6                   | 37                   | 68             |
| 0032805                  | 10 x 0.25                                         | 7.5                 | 46                   | 85             |
| 0032806                  | 12 x 0.25                                         | 7.7                 | 59                   | 91             |
| 0032812                  | 4 x 0.34                                          | 5.7                 | 28                   | 49             |
| 0032813                  | 5 x 0.34                                          | 6.2                 | 30                   | 60             |
| 0032821                  | 3 x 0.50                                          | 5.9                 | 38                   | 70             |
| 0032822                  | 4 x 0.50                                          | 6.3                 | 43                   | 80             |
| 0032824                  | 7 x 0.50                                          | 7.6                 | 65                   | 115            |
| 0032830                  | 2 x 0.75                                          | 6                   | 38                   | 67             |
| 0032836                  | 12 x 0.75                                         | 10.8                | 154                  | 225            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 310
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 311
- UNITRONIC® PUR CP (TP) refer to page 293
- UNITRONIC® FD CP plus refer to page 314
- UNITRONIC® FD CP (TP) plus refer to page 315

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- SMART STRIP stripping tool



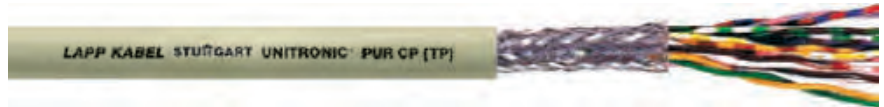
## UNITRONIC® PUR CP (TP)

Screened data transmission cable with PUR outer sheath and twisted pairs for harsh conditions



### Info

- TP = twisted pair



### Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- For harsh environmental conditions where robust and screened cables with small dimensions are necessary

### Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oils and hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PUR
- Outer sheath colour: pebble grey (RAL 7032)

### Technical data

|  |                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description:<br>Control cable |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                    |
|  | <b>Mutual capacitance</b><br>C/C: approx. 120 nF/km<br>C/S: approx. 160 nF/km                                         |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                              |
|  | <b>Conductor stranding</b><br>Fine copper wire strands                                                                |
|  | <b>Minimum bending radius</b><br>Occasional flexing: 15 x outer diameter<br>Fixed installation: 6 x outer diameter    |
|  | <b>Temperature range</b><br>Occasional flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                   |

| Article number                | Number of pairs and conductor cross section (mm <sup>2</sup> ) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------|----------------------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® PUR CP (TP)</b> |                                                                |                     |                      |                |
| 0032850                       | 2 x 2 x 0.25                                                   | 6.3                 | 28                   | 54             |
| 0032851                       | 3 x 2 x 0.25                                                   | 7.1                 | 40                   | 66             |
| 0032852                       | 4 x 2 x 0.25                                                   | 7.6                 | 45                   | 81             |
| 0032854                       | 6 x 2 x 0.25                                                   | 8.5                 | 70                   | 115            |
| 0032860                       | 2 x 2 x 0.5                                                    | 7.9                 | 48                   | 93             |
| 0032861                       | 3 x 2 x 0.5                                                    | 8.7                 | 74                   | 129            |
| 0032862                       | 4 x 2 x 0.5                                                    | 9.4                 | 82                   | 146            |
| 0032864                       | 6 x 2 x 0.5                                                    | 11.1                | 110                  | 198            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 310
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 311
- UNITRONIC® FD CP (TP) plus refer to page 315

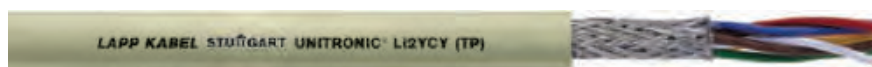
### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- SMART STRIP stripping tool



## UNITRONIC® Li2YCY (TP)

Screened data transmission cable mit PE core insulation, 7-wire strands and twisted pairs

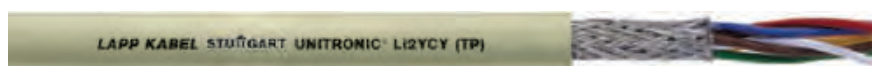


### Info

- Cables for RS485/RS422

## UNITRONIC® Li2YCY (TP) fine-wire

Screened data transmission cable mit PE core insulation, fine wire strands and twisted pairs



### Info

- Cables for RS485/RS422

## UNITRONIC® Li2YCYv (TP)

Screened data transmission cable mit PE core insulation, reinforced outer sheath and twisted pairs



### Info

- Cables for RS485/RS422

### Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Particularly suitable for wiring data systems with transmission rates up to 10 Megabits per second, and is qualified for the RS422 and RS485 interfaces.
- For fixed and limited flexible installation
- Can be used in dry or damp rooms
- Signal-, control- and measuring cable, for transmission of low, sensitive signals and high bit rates
- **UNITRONIC® Li2YCYv (TP)** with its reinforced, nominal/ minimum average wall thickness of at least 1.8 mm of the black outer sheath (Yv) is designed for indoor and outdoor use as well as for applications where a reinforced outer sheath may turn out to be advantageous

### Product features

- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

#### UNITRONIC® Li2YCY (TP)

- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
- Outer sheath colour: pebble grey (RAL 7032)

#### UNITRONIC® Li2YCY (TP) fine-wire

- Conductors: Finely stranded bare copper
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
- Outer sheath colour: pebble grey (RAL 7032)

#### UNITRONIC® Li2YCYv (TP)

- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Wall thickness of the outer sheath is increased ("Yv")
- Outer sheath colour: black (RAL 9005)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100, refer to Appendix T9



#### Mutual capacitance

At 800 Hz: max. 60 nF/km



#### Inductivity

approx. 0.65 mH/km



#### Conductor stranding

##### UNITRONIC® Li2YCY (TP)

Stranded conductor, based on VDE 0881, 7-wire

##### UNITRONIC® Li2YCY (TP) fine-wire

Stranded conductor, fine-wire

##### UNITRONIC® Li2YCYv (TP)

Stranded conductor, based on VDE 0881, 7-wire



#### Minimum bending radius

Occasional flexing: 15 x outer diameter

Fixed installation: 6 x outer diameter

#### Short-range crosstalk attenuation

Up to 1 MHz min. 50 dB

Up to 10 MHz min. 40 dB



#### Test voltage

Core/core: 2000 V

Core/screen: 1000 V



#### Characteristic impedance

100 ± 15 Ohm (> 1 MHz)



#### Temperature range

Occasional flexing: -5°C to +70°C

Fixed installation: -40°C to +80°C

| Article number                                                                          | Number of pairs and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------------------------------------------------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® Li2YCY (TP)</b>                                                           |                                                   |                     |                      |                |
| 0031320                                                                                 | 2 x 2 x 0,22                                      | 6.5                 | 24.2                 | 59             |
| 0031321                                                                                 | 3 x 2 x 0,22                                      | 7.1                 | 28.6                 | 66             |
| 0031322                                                                                 | 4 x 2 x 0,22                                      | 7.3                 | 34.2                 | 78             |
| 0031323                                                                                 | 8 x 2 x 0,22                                      | 9.1                 | 70                   | 125            |
| 0031324                                                                                 | 10 x 2 x 0,22                                     | 10.4                | 76                   | 143            |
| 0031335                                                                                 | 1 x 2 x 0,34                                      | 5.8                 | 20                   | 44             |
| 0031325                                                                                 | 2 x 2 x 0,34                                      | 7.7                 | 34.1                 | 79             |
| 0031326                                                                                 | 3 x 2 x 0,34                                      | 8.4                 | 43                   | 89             |
| 0031327                                                                                 | 4 x 2 x 0,34                                      | 8.7                 | 47                   | 101            |
| 0031328                                                                                 | 8 x 2 x 0,34                                      | 11                  | 85.8                 | 176            |
| 0031336                                                                                 | 1 x 2 x 0,5                                       | 6.3                 | 29                   | 53             |
| 0031330                                                                                 | 2 x 2 x 0,5                                       | 8.5                 | 37                   | 85             |
| 0031331                                                                                 | 3 x 2 x 0,5                                       | 9.3                 | 55                   | 105            |
| 0031332                                                                                 | 4 x 2 x 0,5                                       | 9.6                 | 60                   | 122            |
| 0031333                                                                                 | 8 x 2 x 0,5                                       | 12.7                | 113.3                | 213            |
| 0031334                                                                                 | 10 x 2 x 0,5                                      | 14.8                | 154                  | 261            |
| <b>UNITRONIC® Li2YCY (TP) fine-wire</b>                                                 |                                                   |                     |                      |                |
| 0031370                                                                                 | 1 x 2 x 0,25                                      | 5.7                 | 14                   | 38             |
| 0031371                                                                                 | 2 x 2 x 0,25                                      | 6.9                 | 28                   | 43             |
| 0031372                                                                                 | 3 x 2 x 0,25                                      | 7.5                 | 39.6                 | 64             |
| 0031373                                                                                 | 5 x 2 x 0,25                                      | 8.3                 | 50                   | 93             |
| <b>UNITRONIC® Li2YCYv (TP) black for outdoor installation and direct burial, 7-wire</b> |                                                   |                     |                      |                |
| 0031350                                                                                 | 2 x 2 x 0,22                                      | 8.1                 | 24.2                 | 79             |
| 0031351                                                                                 | 3 x 2 x 0,22                                      | 8.7                 | 28.6                 | 93             |
| 0031352                                                                                 | 4 x 2 x 0,22                                      | 8.9                 | 34.2                 | 100            |
| 0031353                                                                                 | 8 x 2 x 0,22                                      | 10.7                | 70                   | 156            |
| 0031354                                                                                 | 10 x 2 x 0,22                                     | 12                  | 76                   | 185            |
| 0031365                                                                                 | 1 x 2 x 0,34                                      | 7.4                 | 20                   | 69             |
| 0031355                                                                                 | 2 x 2 x 0,34                                      | 9.3                 | 34.1                 | 102            |
| 0031356                                                                                 | 3 x 2 x 0,34                                      | 10                  | 43                   | 117            |
| 0031357                                                                                 | 4 x 2 x 0,34                                      | 10.3                | 52.8                 | 130            |
| 0031358                                                                                 | 8 x 2 x 0,34                                      | 12.6                | 85.8                 | 206            |
| 0031366                                                                                 | 1 x 2 x 0,5                                       | 7.9                 | 29                   | 79             |
| 0031360                                                                                 | 2 x 2 x 0,5                                       | 10.1                | 37                   | 120            |
| 0031361                                                                                 | 3 x 2 x 0,5                                       | 10.9                | 55                   | 142            |
| 0031362                                                                                 | 4 x 2 x 0,5                                       | 11.2                | 60                   | 160            |
| 0031363                                                                                 | 8 x 2 x 0,5                                       | 13.9                | 113.3                | 251            |
| 0031364                                                                                 | 10 x 2 x 0,5                                      | 16                  | 148                  | 303            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

#### Similar products

- UNITRONIC® BUS LD refer to page 324

#### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 957
- Steel Gun HT-338 Cable tie pliers refer to page 1010
- LS steel cable ties refer to page 1008

**UNITRONIC® Li2YCY PiMF**

Screened data transmission cable with PE core insulation and pairs in metalfoil

**Benefits**

- Data transmission cable with low capacitance, pair screening and overall copper braiding
- Particularly suitable for wiring data systems and controls in large industrial plants
- Individually screened pairs and the overall braid minimise electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

**Application range**

- For enhanced requirements in near-end cross-talk attenuation and high electrical interference in the circuits
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- For measurement value transmission and serial 2-wire interfaces
- Intended for limited flexible use, and for fixed installation in dry or damp interiors

**Product features**

- Flame-retardant according IEC 60332-1-2

**Product Make-up**

- 7-wire or fine-wire (from 1 mm<sup>2</sup>) strands made of bare copper wires
- Core insulation made of polyethylene (PE)
- Cores twisted into pairs
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire for each pair
- Bare copper screen braiding
- Outer sheath made of PVC
- Outer sheath colour: pebble grey (RAL 7032)

**Info**

- Metal foil screened pairs

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104

ETIM 5.0/6.0 Class-Description:

Control cable

**Core identification code**

0.22 mm<sup>2</sup>-0.5 mm<sup>2</sup>:  
according to DIN 47100, see table T9  
1.0 mm<sup>2</sup>:  
a-core: white, b-core: black

**Mutual capacitance**

At 800 Hz:  
0.22 mm<sup>2</sup>: max. 70 nF/km  
0.34 mm<sup>2</sup>: max. 70 nF/km  
0.5 mm<sup>2</sup>: max. 75 nF/km  
1.0 mm<sup>2</sup>: max. 85 nF/km

**Inductivity**

Approx. 0.4 mH/km

**Conductor stranding**

Stranded conductor, based on VDE 0881, 7-wire

**Minimum bending radius**

Occasional flexing: 20 x outer diameter  
Fixed installation: 10 x outer diameter

**Test voltage**

Core/core: 2000 V  
Core/screen: 1000 V

**Characteristic impedance**

approx. 85 Ohm (&gt; 1 MHz)

**Temperature range**

Occasional flexing: -5°C to +70°C  
Fixed installation: -40°C to +80°C

| Article number                | Number of pairs and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® Li2YCY PiMF</b> |                                                   |                     |                      |                |
| <b>7-wire</b>                 |                                                   |                     |                      |                |
| 0034040                       | 2 x 2 x 0,22                                      | 7.7                 | 33                   | 75.4           |
| 0034041                       | 3 x 2 x 0,22                                      | 8.1                 | 42                   | 86             |
| 0034042                       | 4 x 2 x 0,22                                      | 8.7                 | 50                   | 99             |
| 0034043                       | 8 x 2 x 0,22                                      | 10.9                | 85                   | 161.4          |
| 0034044                       | 10 x 2 x 0,22                                     | 12                  | 100                  | 186.4          |
| 0034045                       | 2 x 2 x 0,34                                      | 9                   | 43                   | 70             |
| 0034046                       | 3 x 2 x 0,34                                      | 9.4                 | 55                   | 85             |
| 0034047                       | 4 x 2 x 0,34                                      | 9.8                 | 64                   | 103            |
| 0034048                       | 8 x 2 x 0,34                                      | 12.9                | 127                  | 191            |
| 0034060                       | 2 x 2 x 0,5                                       | 9.9                 | 51                   | 96             |
| 0034061                       | 3 x 2 x 0,5                                       | 10.4                | 66                   | 116            |
| 0034062                       | 4 x 2 x 0,5                                       | 11.3                | 71                   | 141            |
| 0034063                       | 5 x 2 x 0,5                                       | 11.8                | 92                   | 180            |
| 0034064                       | 8 x 2 x 0,5                                       | 14.5                | 153                  | 271            |
| 0034065                       | 10 x 2 x 0,5                                      | 16.6                | 182                  | 327            |
| <b>Fine wire</b>              |                                                   |                     |                      |                |
| 0034070                       | 2 x 2 x 1                                         | 11.7                | 82                   | 126            |
| 0034071                       | 3 x 2 x 1                                         | 11.8                | 109                  | 196            |
| 0034072                       | 4 x 2 x 1                                         | 12.7                | 133                  | 220            |
| 0034073                       | 10 x 2 x 1                                        | 19.7                | 326                  | 492            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

TERMI-POINT® is a registered trademark of AMP

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® RE-2Y(ST)Yv PiMF refer to page 317

**Accessories**

- KNIPEX Cable shear refer to page 952
- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- STAR STRIP stripping tool refer to page 957
- KS 20 cable shears



## UNITRONIC® ROBUST

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

**Info**

- Excellent weather resistance
- Good chemical resistance



### Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

### Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

### Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

### Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

### Product Make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special TPE
- Outer sheath colour: Black

### Technical data

|  |                                                                                                                    |
|--|--------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable    |
|  | <b>Core identification code</b><br>DIN 47100 without colour repetition, refer to Appendix T9                       |
|  | <b>Mutual capacitance</b><br>C/C approx. 60 nF/km                                                                  |
|  | <b>Specific insulation resistance</b><br>> 20 GOhm x cm                                                            |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                           |
|  | <b>Conductor stranding</b><br>Stranded, fine-wire<br>0.34 mm <sup>2</sup> : 7-wire                                 |
|  | <b>Torsion movement in WTG</b><br>TW-0 & TW-2, refer to Appendix T0                                                |
|  | <b>Minimum bending radius</b><br>Occasional flexing: 10 x outer diameter<br>Fixed installation: 4 x outer diameter |
|  | <b>Test voltage</b><br>At 0.14 mm <sup>2</sup> : 1200 V                                                            |
|  | <b>Temperature range</b><br>Occasional flexing: -40°C to +90°C<br>Fixed installation: -50°C to +90°C               |

| Article number           | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® ROBUST</b> |                                                   |                     |                      |                |
| 1032000                  | 2 x 0.14                                          | 3.2                 | 2.8                  | 15             |
| 1032001                  | 3 x 0.14                                          | 3.4                 | 4.2                  | 17             |
| 1032002                  | 4 x 0.14                                          | 3.6                 | 5.6                  | 21             |
| 1032003                  | 5 x 0.14                                          | 3.9                 | 7                    | 25             |
| 1032004                  | 7 x 0.14                                          | 4.2                 | 9.8                  | 30             |
| 1032005                  | 8 x 0.14                                          | 4.9                 | 11.2                 | 40             |
| 1032006                  | 10 x 0.14                                         | 5.2                 | 14                   | 41             |
| 1032007                  | 12 x 0.14                                         | 5.6                 | 16.8                 | 50             |
| 1032009                  | 16 x 0.14                                         | 6.1                 | 22.4                 | 63             |
| 1032011                  | 25 x 0.14                                         | 7.7                 | 35                   | 95             |
| 1032012                  | 2 x 0.25                                          | 3.8                 | 4.8                  | 21             |
| 1032013                  | 3 x 0.25                                          | 4                   | 7.2                  | 25             |
| 1032014                  | 4 x 0.25                                          | 4.3                 | 9.6                  | 31             |
| 1032015                  | 5 x 0.25                                          | 4.7                 | 12                   | 38             |
| 1032016                  | 7 x 0.25                                          | 5.1                 | 16.8                 | 47             |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 1032017        | 8 x 0.25                                          | 6.2                 | 19.2                 | 66             |
| 1032018        | 10 x 0.25                                         | 6.8                 | 24                   | 71             |
| 1032019        | 12 x 0.25                                         | 7                   | 28.8                 | 81             |
| 1032021        | 16 x 0.25                                         | 7.7                 | 38.4                 | 104            |
| 1032024        | 25 x 0.25                                         | 9.5                 | 60                   | 151            |
| 1032025        | 2 x 0.34                                          | 4.2                 | 6.5                  | 29             |
| 1032026        | 3 x 0.34                                          | 4.4                 | 9.8                  | 32             |
| 1032027        | 4 x 0.34                                          | 4.8                 | 13.1                 | 41             |
| 1032028        | 5 x 0.34                                          | 5.5                 | 16.3                 | 52             |
| 1032030        | 7 x 0.34                                          | 5.9                 | 22.9                 | 65             |
| 1032031        | 8 x 0.34                                          | 7.1                 | 26.1                 | 90             |
| 1032032        | 10 x 0.34                                         | 7.6                 | 32.6                 | 93             |
| 1032033        | 12 x 0.34                                         | 7.8                 | 39.2                 | 107            |
| 1032035        | 16 x 0.34                                         | 8.7                 | 52.2                 | 138            |
| 1032038        | 25 x 0.34                                         | 11.2                | 81.6                 | 213            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® ST-HF-M refer to page 687
- DATA STRIP stripping tool refer to page 959
- KT 11 cable shears



## UNITRONIC® ROBUST C

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

LAPP KABEL STUTTGART UNITRONIC® ROBUST C



### Info

- Excellent weather resistance
- Good chemical resistance

### Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

### Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

### Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

### Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

### Product Make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special TPE
- Outer sheath colour: Black

### Technical data

|  |                                                                                                                    |
|--|--------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable    |
|  | <b>Core identification code</b><br>DIN 47100 without colour repetition, refer to Appendix T9                       |
|  | <b>Mutual capacitance</b><br>C/C approx. 60 nF/km<br>C/S approx. 100 nF/km                                         |
|  | <b>Specific insulation resistance</b><br>> 20 GOhm x cm                                                            |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                           |
|  | <b>Conductor stranding</b><br>Stranded, fine-wire<br>0.34 mm <sup>2</sup> : 7-wire                                 |
|  | <b>Torsion movement in WTG</b><br>TW-0 & TW-2, refer to Appendix T0                                                |
|  | <b>Minimum bending radius</b><br>Occasional flexing: 10 x outer diameter<br>Fixed installation: 4 x outer diameter |
|  | <b>Test voltage</b><br>At 0.14 mm <sup>2</sup> : 1200 V                                                            |
|  | <b>Temperature range</b><br>Occasional flexing: -40°C to +90°C<br>Fixed installation: -50°C to +90°C               |

| Article number             | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® ROBUST C</b> |                                                   |                     |                      |                |
| 1032050                    | 2 x 0.14                                          | 3.9                 | 9.3                  | 25             |
| 1032051                    | 3 x 0.14                                          | 4.1                 | 10.8                 | 28             |
| 1032052                    | 4 x 0.14                                          | 4.3                 | 13.5                 | 34             |
| 1032053                    | 5 x 0.14                                          | 4.6                 | 15                   | 38             |
| 1032055                    | 7 x 0.14                                          | 4.9                 | 19                   | 46             |
| 1032056                    | 8 x 0.14                                          | 5.8                 | 22                   | 60             |
| 1032057                    | 10 x 0.14                                         | 6.1                 | 25.8                 | 63             |
| 1032058                    | 12 x 0.14                                         | 6.3                 | 28.9                 | 70             |
| 1032061                    | 25 x 0.14                                         | 8.4                 | 56.1                 | 128            |
| 1032062                    | 2 x 0.25                                          | 4.5                 | 12.7                 | 33             |
| 1032063                    | 3 x 0.25                                          | 4.7                 | 16.3                 | 40             |
| 1032064                    | 4 x 0.25                                          | 5                   | 18.8                 | 46             |
| 1032065                    | 5 x 0.25                                          | 5.6                 | 22.5                 | 57             |
| 1032067                    | 7 x 0.25                                          | 6                   | 28.6                 | 69             |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 1032068        | 8 x 0.25                                          | 7.1                 | 33.6                 | 92             |
| 1032069        | 10 x 0.25                                         | 7.5                 | 42.8                 | 101            |
| 1032070        | 12 x 0.25                                         | 7.7                 | 47.7                 | 111            |
| 1032073        | 25 x 0.25                                         | 10.6                | 86.5                 | 202            |
| 1032074        | 2 x 0.34                                          | 4.9                 | 15.7                 | 44             |
| 1032075        | 3 x 0.34                                          | 5.1                 | 20.4                 | 54             |
| 1032076        | 4 x 0.34                                          | 5.7                 | 23.6                 | 66             |
| 1032077        | 5 x 0.34                                          | 6.2                 | 28.2                 | 78             |
| 1032079        | 7 x 0.34                                          | 6.8                 | 36                   | 95             |
| 1032080        | 8 x 0.34                                          | 7.8                 | 45.3                 | 127            |
| 1032081        | 10 x 0.34                                         | 8.3                 | 53.9                 | 137            |
| 1032082        | 12 x 0.34                                         | 8.5                 | 60.7                 | 152            |
| 1032084        | 16 x 0.34                                         | 9.4                 | 77.9                 | 191            |
| 1032086        | 25 x 0.34                                         | 11.9                | 115.7                | 288            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® ST-HF-M refer to page 687
- DATA STRIP stripping tool refer to page 959
- KT 11 cable shears



## UNITRONIC® ROBUST C (TP)

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media



## Info

- Excellent weather resistance
- Good chemical resistance

LAPP KABEL STUTTGART UNITRONIC® ROBUST C (TP)



## Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

## Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

## Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

## Product Make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special TPE
- Outer sheath colour: black (RAL 9005)

## Technical data



## Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable



## Core identification code

DIN 47100 without colour repetition, refer to Appendix T9



## Mutual capacitance

C/C approx. 60 nF/km  
C/S approx. 100 nF/km



## Specific insulation resistance

> 20 GOhm x cm



## Inductivity

approx. 0.65 mH/km



## Conductor stranding

Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire



## Torsion movement in WTG

TW-0 & TW-2, refer to Appendix T0



## Minimum bending radius

Occasional flexing: 10 x outer diameter  
Fixed installation: 4 x outer diameter



## Test voltage

At 0.14 mm<sup>2</sup>: 1200 V



## Temperature range

Occasional flexing: -40°C to +90°C  
Fixed installation: -50°C to +90°C

| Article number                  | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---------------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® ROBUST C (TP)</b> |                                                   |                     |                      |                |
| 1032100                         | 2 x 2 x 0.14                                      | 5.3                 | 16.1                 | 31             |
| 1032101                         | 3 x 2 x 0.14                                      | 5.8                 | 19                   | 38             |
| 1032102                         | 4 x 2 x 0.14                                      | 6.2                 | 23.1                 | 46             |
| 1032103                         | 5 x 2 x 0.14                                      | 6.4                 | 27.2                 | 54             |
| 1032104                         | 6 x 2 x 0.14                                      | 7.1                 | 31.3                 | 63             |
| 1032105                         | 8 x 2 x 0.14                                      | 8.2                 | 43.4                 | 90             |
| 1032106                         | 10 x 2 x 0.14                                     | 8.7                 | 50.9                 | 93             |
| 1032107                         | 12 x 2 x 0.14                                     | 8.9                 | 56.6                 | 102            |
| 1032108                         | 2 x 2 x 0.25                                      | 6.3                 | 22.7                 | 43             |
| 1032109                         | 3 x 2 x 0.25                                      | 7.1                 | 28.9                 | 56             |
| 1032110                         | 4 x 2 x 0.25                                      | 7.6                 | 38.3                 | 72             |
| 1032111                         | 5 x 2 x 0.25                                      | 7.9                 | 45.1                 | 85             |
| 1032112                         | 6 x 2 x 0.25                                      | 8.5                 | 48.7                 | 96             |
| 1032113                         | 8 x 2 x 0.25                                      | 10.3                | 64.3                 | 135            |
| 1032114                         | 2 x 2 x 0.34                                      | 7.1                 | 27.6                 | 56             |
| 1032115                         | 3 x 2 x 0.34                                      | 7.8                 | 38.8                 | 74             |
| 1032116                         | 4 x 2 x 0.34                                      | 8.4                 | 47.5                 | 90             |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 1032117        | 5 x 2 x 0.34                                      | 8.8                 | 58.2                 | 110            |
| 1032118        | 1 x 2 x 0.5                                       | 5.6                 | 20.1                 | 37             |
| 1032119        | 2 x 2 x 0.5                                       | 7.9                 | 40.3                 | 72             |
| 1032120        | 3 x 2 x 0.5                                       | 8.7                 | 51.7                 | 91             |
| 1032121        | 4 x 2 x 0.5                                       | 9.4                 | 64.1                 | 112            |
| 1032122        | 5 x 2 x 0.5                                       | 10.3                | 76.6                 | 141            |
| 1032123        | 6 x 2 x 0.5                                       | 11.1                | 91.7                 | 170            |
| 1032124        | 8 x 2 x 0.5                                       | 13.1                | 123.2                | 238            |
| 1032125        | 10 x 2 x 0.5                                      | 14.5                | 146.4                | 247            |
| 1032126        | 2 x 2 x 0.75                                      | 8.5                 | 48.4                 | 84             |
| 1032127        | 3 x 2 x 0.75                                      | 9.4                 | 68.9                 | 114            |
| 1032128        | 4 x 2 x 0.75                                      | 10.7                | 86.2                 | 149            |
| 1032129        | 6 x 2 x 0.75                                      | 12.1                | 131.9                | 225            |
| 1032130        | 8 x 2 x 0.75                                      | 14.7                | 168.2                | 315            |
| 1032131        | 2 x 2 x 1.0                                       | 9                   | 64.1                 | 98             |
| 1032132        | 3 x 2 x 1.0                                       | 10.4                | 83.5                 | 135            |
| 1032133        | 4 x 2 x 1.0                                       | 11.3                | 105.7                | 168            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Accessories

- SKINTOP® ST-HF-M refer to page 687
- DATA STRIP stripping tool refer to page 959
- KT 11 cable shears

**UNITRONIC® LiHH**

Halogen-free data transmission cable with colour code acc. to DIN 47100

**Info**

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

**Benefits**

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Small outer diameters despite a high number of cores

**Application range**

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- Dry or damp rooms

**Product features**

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

**Norm references / Approvals**

- Based on VDE 0812

**Product Make-up**

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special halogen-free compound  
Outer sheath colour: pebble grey (RAL 7032)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable

**Core identification code**

DIN 47100 without colour repetition, refer to Appendix T9

**Mutual capacitance**

Approx. 80 nF/km

**Inductivity**

approx. 0.65 mH/km

**Conductor stranding**

Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire

**Minimum bending radius**

Occasional flexing: 10 x outer diameter  
Fixed installation: 6 x outer diameter

**Test voltage**

1200 V

**Temperature range**

Occasional flexing: -5 °C to +70 °C  
Fixed installation: -30 °C to +80 °C

| Article number         | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiHH</b> |                                                   |                     |                      |                |
| 0037104                | 6 x 0.14                                          | 4.4                 | 8.1                  | 25             |
| 0037120                | 2 x 0.25                                          | 4                   | 4.8                  | 22             |
| 0037121                | 3 x 0.25                                          | 4.2                 | 7.2                  | 25             |
| 0037122                | 4 x 0.25                                          | 4.5                 | 9.6                  | 28             |
| 0037124                | 6 x 0.25                                          | 5.3                 | 14.4                 | 39             |
| 0037125                | 7 x 0.25                                          | 5.3                 | 16.8                 | 42             |
| 0037126                | 8 x 0.25                                          | 6.4                 | 19.2                 | 50             |
| 0037128                | 12 x 0.25                                         | 7.2                 | 28.8                 | 67             |
| 0037140                | 2 x 0.34                                          | 4.4                 | 6.5                  | 28             |
| 0037141                | 3 x 0.34                                          | 4.6                 | 9.8                  | 30             |
| 0037142                | 4 x 0.34                                          | 5                   | 13.1                 | 40             |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 0037143        | 5 x 0.34                                          | 5.7                 | 16.3                 | 44             |
| 0037147        | 12 x 0.34                                         | 8                   | 39.2                 | 97             |
| 0037150        | 2 x 0.5                                           | 4.9                 | 9.6                  | 31             |
| 0037151        | 3 x 0.5                                           | 5.2                 | 14.4                 | 37             |
| 0037152        | 4 x 0.5                                           | 5.8                 | 19.2                 | 45             |
| 0037153        | 5 x 0.5                                           | 6.3                 | 24                   | 58             |
| 0037154        | 7 x 0.5                                           | 7.1                 | 33.6                 | 72             |
| 0037160        | 2 x 0.75                                          | 5.3                 | 14.4                 | 41             |
| 0037162        | 4 x 0.75                                          | 6.3                 | 28.8                 | 60             |
| 0037165        | 12 x 0.75                                         | 10.4                | 86.4                 | 165            |
| 0037171        | 3 x 1.0                                           | 6.1                 | 28.8                 | 57             |
| 0037172        | 4 x 1.0                                           | 6.6                 | 38.4                 | 67             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

TERMI-POINT® is a registered trademark of AMP

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® LiHCH refer to page 301

**Accessories**

- SKINTOP® ST-HF-M refer to page 687
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100



## Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)



## Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference

## Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

## Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

## Norm references / Approvals

- Based on VDE 0812

## Product Make-up

- Fine-wire/multi-wire (0.34 mm<sup>2</sup>) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound  
Outer sheath colour: pebble grey (RAL 7032)

## Technical data



## Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



## Core identification code

DIN 47100 without colour repetition,  
refer to Appendix T9



## Mutual capacitance

C/C approx. 80 nF/km  
C/S approx. 120 nF/km



## Inductivity

approx. 0.65 mH/km



## Conductor stranding

Stranded, fine-wire  
0.34 mm<sup>2</sup>: 7-wire



## Minimum bending radius

Occasional flexing: 10 x outer diameter  
Fixed installation: 6 x outer diameter



## Test voltage

1200 V



## Temperature range

Occasional flexing: -5°C to +70°C  
Fixed installation: -30°C to +80°C

| Article number          | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiHCH</b> |                                                   |                     |                      |                |
| 0037302                 | 2 x 0.14                                          | 4.1                 | 12                   | 22             |
| 0037304                 | 4 x 0.14                                          | 4.5                 | 15.9                 | 29             |
| 0037308                 | 8 x 0.14                                          | 6                   | 26                   | 41             |
| 0037312                 | 12 x 0.14                                         | 6.5                 | 30.4                 | 78             |
| 0037325                 | 25 x 0.14                                         | 8.7                 | 63                   | 149            |
| 0037402                 | 2 x 0.25                                          | 4.7                 | 15                   | 25             |
| 0037403                 | 3 x 0.25                                          | 4.9                 | 18                   | 30             |
| 0037404                 | 4 x 0.25                                          | 5.2                 | 22                   | 35             |
| 0037406                 | 6 x 0.25                                          | 6.2                 | 30                   | 49             |
| 0037407                 | 7 x 0.25                                          | 6.2                 | 32                   | 52             |
| 0037408                 | 8 x 0.25                                          | 7.3                 | 35                   | 58             |
| 0037410                 | 10 x 0.25                                         | 7.7                 | 42                   | 81             |
| 0037425                 | 25 x 0.25                                         | 10.9                | 114                  | 172            |
| 0037502                 | 2 x 0.34                                          | 5.1                 | 17                   | 30             |
| 0037503                 | 3 x 0.34                                          | 5.3                 | 21                   | 35             |
| 0037504                 | 4 x 0.34                                          | 5.9                 | 25                   | 42             |
| 0037507                 | 7 x 0.34                                          | 7                   | 42                   | 73             |
| 0037508                 | 8 x 0.34                                          | 8                   | 45                   | 84             |
| 0037510                 | 10 x 0.34                                         | 8.5                 | 63                   | 101            |
| 0037516                 | 16 x 0.34                                         | 9.6                 | 94                   | 160            |

| Article number | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 0037525        | 25 x 0.34                                         | 12.1                | 144                  | 259            |
| 0037602        | 2 x 0.5                                           | 5.8                 | 29                   | 38             |
| 0037603        | 3 x 0.5                                           | 6.1                 | 35                   | 47             |
| 0037604        | 4 x 0.5                                           | 6.5                 | 45                   | 67             |
| 0037605        | 5 x 0.5                                           | 7.2                 | 50                   | 76             |
| 0037606        | 6 x 0.5                                           | 7.8                 | 59                   | 84             |
| 0037607        | 7 x 0.5                                           | 7.8                 | 68                   | 91             |
| 0037608        | 8 x 0.5                                           | 8.9                 | 75                   | 135            |
| 0037610        | 10 x 0.5                                          | 9.5                 | 93                   | 160            |
| 0037612        | 12 x 0.5                                          | 9.8                 | 99                   | 177            |
| 0037618        | 18 x 0.5                                          | 11.7                | 134                  | 239            |
| 0037702        | 2 x 0.75                                          | 6.2                 | 35                   | 45             |
| 0037703        | 3 x 0.75                                          | 6.5                 | 46                   | 69             |
| 0037704        | 4 x 0.75                                          | 7.2                 | 56                   | 80             |
| 0037802        | 2 x 1.0                                           | 6.5                 | 43                   | 72             |
| 0037803        | 3 x 1.0                                           | 7                   | 56                   | 90             |
| 0037804        | 4 x 1.0                                           | 7.5                 | 68                   | 109            |
| 0037807        | 7 x 1.0                                           | 8.8                 | 118                  | 171            |
| 0037902        | 2 x 1.5                                           | 7.3                 | 58                   | 90             |
| 0037903        | 3 x 1.5                                           | 7.7                 | 74                   | 115            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

TERMI-POINT® is a registered trademark of AMP

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Similar products

- UNITRONIC® LiHCH (TP) refer to page 302

## Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B



## UNITRONIC® LIHCH (TP)

Screened halogen-free data transmission cable with colour code acc. to DIN 47100 and twisted pairs



### Info

- TP = twisted pair
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

### Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

### Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

### Norm references / Approvals

- Based on VDE 0812

### Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
- Outer sheath colour: pebble grey (RAL 7032)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100 without colour repetition, refer to Appendix T9



#### Mutual capacitance

C/C approx. 80 nF/km  
C/S approx. 120 nF/km



#### Coupling

At 1 kHz: approx. 300 pF/100 m



#### Inductivity

approx. 0.65 mH/km



#### Conductor stranding

Fine copper wire strands



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter



#### Test voltage

1200 V



#### Temperature range

Occasional flexing: -5 °C to +70 °C  
Fixed installation: -30 °C to +80 °C

| Article number               | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LIHCH (TP)</b> |                                       |                     |                      |                |
| 0038302                      | 2 x 2 x 0.14                          | 5.5                 | 18.5                 | 39             |
| 0038303                      | 3 x 2 x 0.14                          | 6                   | 23                   | 48             |
| 0038304                      | 4 x 2 x 0.14                          | 6.4                 | 26.6                 | 54             |
| 0038308                      | 8 x 2 x 0.14                          | 8.4                 | 53.7                 | 97             |
| 0038312                      | 12 x 2 x 0.14                         | 9.1                 | 66                   | 142            |
| 0038316                      | 16 x 2 x 0.14                         | 10.4                | 79                   | 154            |
| 0038325                      | 25 x 2 x 0.14                         | 12.7                | 113                  | 238            |
| 0038402                      | 2 x 2 x 0.25                          | 6.5                 | 28                   | 54             |
| 0038403                      | 3 x 2 x 0.25                          | 7.3                 | 39.6                 | 66             |
| 0038404                      | 4 x 2 x 0.25                          | 7.8                 | 44.9                 | 81             |
| 0038406                      | 6 x 2 x 0.25                          | 8.7                 | 69.5                 | 115            |
| 0038408                      | 8 x 2 x 0.25                          | 10.5                | 76.9                 | 130            |
| 0038412                      | 12 x 2 x 0.25                         | 11.5                | 120                  | 190            |

| Article number | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------|---------------------|----------------------|----------------|
| 0038416        | 16 x 2 x 0.25                         | 12.7                | 146.5                | 238            |
| 0038602        | 2 x 2 x 0.5                           | 8.1                 | 48.1                 | 93             |
| 0038603        | 3 x 2 x 0.5                           | 8.9                 | 73.7                 | 129            |
| 0038604        | 4 x 2 x 0.5                           | 9.6                 | 82                   | 146            |
| 0038606        | 6 x 2 x 0.5                           | 11.3                | 110                  | 198            |
| 0038608        | 8 x 2 x 0.5                           | 13.3                | 139                  | 259            |
| 0038612        | 12 x 2 x 0.5                          | 15.1                | 198.3                | 354            |
| 0038616        | 16 x 2 x 0.5                          | 16.7                | 240                  | 459            |
| 0038702        | 2 x 2 x 0.75                          | 8.7                 | 58                   | 106            |
| 0038704        | 4 x 2 x 0.75                          | 10.9                | 108                  | 179            |
| 0038708        | 8 x 2 x 0.75                          | 14.9                | 180                  | 305            |
| 0038802        | 2 x 2 x 1.0                           | 9.2                 | 84                   | 142            |
| 0038803        | 3 x 2 x 1.0                           | 10.6                | 96                   | 173            |
| 0038804        | 4 x 2 x 1.0                           | 11.5                | 121                  | 212            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B

**UNITRONIC® LiYY A**

Data transmission cable with colour code acc. to DIN 47100 - UL/CSA recognized

**Info**

- A for Advanced here: UL and CSA certifications
- Further dimensions/colours on request

**Benefits**

- For various applications

**Application range**

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

**Product features**

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

**Norm references / Approvals**

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

**Product Make-up**

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Outer sheath made of special PVC compound
- Outer sheath colour: Dark grey

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable

**Core identification code**

DIN 47100 without colour repetition,  
refer to Appendix T9

**Conductor stranding**

AWG conductor sizes, 7 or 19 wires

**Minimum bending radius**

Occasional flexing: 15 x outer diameter  
Fixed installation: 4 x Outer diameter

**Nominal voltage**

UL/CSA: 300 V

**Test voltage**

1500 V

**Temperature range**

Occasional flexing: -5°C up to +70°C  
(UL: +80 °C)  
Fixed installation (IEC): -40°C to +80°C  
UL: max. +80°C

| Article number           | Number of cores and AWG per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|--------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYY A</b> |                                       |                     |                      |                |
| 0022403                  | 3 x AWG26/7                           | 3.8                 | 4.2                  | 18             |
| 0022404                  | 4 x AWG26/7                           | 4                   | 5.6                  | 23             |
| 0022405                  | 5 x AWG26/7                           | 4.3                 | 7                    | 25             |
| 0022408                  | 8 x AWG26/7                           | 5.1                 | 11.2                 | 34             |
| 0022412                  | 12 x AWG26/7                          | 5.8                 | 16.8                 | 47             |
| 0022416                  | 16 x AWG26/7                          | 6.3                 | 22.4                 | 58             |
| 0022421                  | 21 x AWG26/7                          | 7                   | 29.4                 | 63             |
| 0022502                  | 2 x AWG24/7                           | 4                   | 4.6                  | 20             |
| 0022505                  | 5 x AWG24/7                           | 4.8                 | 11.5                 | 32             |
| 0022508                  | 8 x AWG24/7                           | 5.7                 | 18.4                 | 46             |
| 0022512                  | 12 x AWG24/7                          | 6.6                 | 27.6                 | 64             |
| 0022602                  | 2 x AWG22/7                           | 4.8                 | 6.8                  | 32.8           |
| 0022603                  | 3 x AWG22/7                           | 5                   | 10.2                 | 35             |
| 0022604                  | 4 x AWG22/7                           | 5.4                 | 13.6                 | 45.9           |
| 0022605                  | 5 x AWG22/7                           | 5.9                 | 17                   | 55.8           |
| 0022607                  | 7 x AWG22/7                           | 6.4                 | 23.3                 | 68.9           |
| 0022608                  | 8 x AWG22/7                           | 6.9                 | 27.2                 | 75.5           |
| 0022612                  | 12 x AWG22/7                          | 8.2                 | 40.8                 | 103            |
| 0022616                  | 16 x AWG22/7                          | 9.1                 | 54.4                 | 131.2          |
| 0022624                  | 24 x AWG22/7                          | 11.6                | 81.6                 | 190            |
| 0022632                  | 2 x AWG20/7                           | 5.3                 | 11.2                 | 40             |
| 0022642                  | 2 x AWG19/19                          | 5.6                 | 15                   | 48             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil 152 m; Drum 305 m

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® LiYCY A refer to page 304
- UNITRONIC® 300 / UNITRONIC® 300 S refer to page 306

**Accessories**

- SKINTOP® CLICK refer to page 682
- KT 11 cable shears
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® LiYCY A

Screened data transmission cable with colour code acc. to DIN 47100 UL/CSA recognized



### Info

- A for Advanced here: UL and CSA certifications
- Further dimensions/colours on request

### Benefits

- Overall braid minimises electrical interference

### Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

### Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

### Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

### Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of special PVC compound
- Outer sheath colour: Dark grey

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100 without colour repetition, refer to Appendix T9



#### Conductor stranding

AWG conductor sizes, 7 or 19 wires



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter



#### Nominal voltage

UL/CSA: 300 V



#### Test voltage

1500 V



#### Temperature range

Occasional flexing: -5 °C up to +70 °C  
(UL: +80 °C)  
Fixed installation (IEC): -40 °C to +80 °C  
UL: max. +80 °C

| Article number            | Number of cores and AWG per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYCY A</b> |                                       |                     |                      |                |
| 0044602                   | 2 x AWG26/7                           | 4.3                 | 15.6                 | 25             |
| 0044604                   | 4 x AWG26/7                           | 4.7                 | 18                   | 30             |
| 0044652                   | 2 x AWG24/7                           | 4.7                 | 17.6                 | 29             |
| 0044655                   | 5 x AWG24/7                           | 5.5                 | 28.5                 | 44             |
| 0044658                   | 8 x AWG24/7                           | 6.4                 | 31.1                 | 61             |
| 0044662                   | 12 x AWG24/7                          | 7.3                 | 51.8                 | 96             |
| 0044702                   | 2 x AWG22/7                           | 5.5                 | 17.6                 | 44             |
| 0044703                   | 3 x AWG22/7                           | 5.7                 | 21.2                 | 49             |
| 0044704                   | 4 x AWG22/7                           | 6.1                 | 27.3                 | 59             |
| 0044705                   | 5 x AWG22/7                           | 6.6                 | 30.8                 | 63             |
| 0044707                   | 7 x AWG22/7                           | 7.1                 | 46.4                 | 87             |
| 0044712                   | 12 x AWG22/7                          | 8.9                 | 66.8                 | 120            |
| 0044716                   | 16 x AWG22/7                          | 9.8                 | 83.9                 | 145            |
| 0044721                   | 21 x AWG22/7                          | 11.3                | 109.4                | 204            |
| 0044732                   | 2 x AWG20/7                           | 6                   | 24.4                 | 41             |
| 0044733                   | 3 x AWG20/7                           | 6.3                 | 29.9                 | 47             |
| 0044735                   | 5 x AWG20/7                           | 7.3                 | 49.2                 | 91             |
| 0044738                   | 8 x AWG20/7                           | 9.1                 | 70.8                 | 102            |
| 0044746                   | 2 x AWG19/19                          | 6.3                 | 27.9                 | 66             |
| 0044850                   | 7 x AWG18/19                          | 8.9                 | 93.2                 | 160.8          |
| 0044851                   | 10 x AWG18/19                         | 11.5                | 130.9                | 200            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil 152 m; Drum 305 m

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® LiYCY (TP) A refer to page 305

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- KS 15 cable shears
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® LiYCY (TP) A

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs - UL/CSA recognized



### Info

- A for Advanced here: UL and CSA certifications
- Further dimensions/colours on request



### Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- For the North American market
- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.

### Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

### Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

### Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of special PVC compound
- Outer sheath colour: Dark grey

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable



#### Core identification code

DIN 47100 without colour repetition, refer to Appendix T9



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter



#### Nominal voltage

UL/CSA: 300 V



#### Test voltage

1500 V



#### Temperature range

Occasional flexing: -5°C up to +70°C  
(UL: +80 °C)  
Fixed installation (IEC): -40°C to +80°C  
UL: max. +80°C

| Article number                 | Number of cores and AWG per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|--------------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® LiYCY (TP) A</b> |                                       |                     |                      |                |
| 0066202                        | 2 x 2 x AWG26/7                       | 5.5                 | 18                   | 38             |
| 0066204                        | 4 x 2 x AWG26/7                       | 6.4                 | 24                   | 58             |
| 0066205                        | 5 x 2 x AWG26/7                       | 6.6                 | 30                   | 58             |
| 0066208                        | 8 x 2 x AWG26/7                       | 7.9                 | 53                   | 85             |
| 0066210                        | 10 x 2 x AWG26/7                      | 8.7                 | 55                   | 106            |
| 0066212                        | 12 x 2 x AWG26/7                      | 8.9                 | 64                   | 113            |
| 0066216                        | 16 x 2 x AWG26/7                      | 10.2                | 87                   | 149            |
| 0066232                        | 2 x 2 x AWG24/7                       | 6.1                 | 24.5                 | 50             |
| 0066233                        | 3 x 2 x AWG24/7                       | 6.7                 | 28.9                 | 62             |
| 0066234                        | 4 x 2 x AWG24/7                       | 7.2                 | 33.5                 | 70             |
| 0066235                        | 5 x 2 x AWG24/7                       | 7.5                 | 46.3                 | 91             |
| 0066238                        | 2 x 2 x AWG22/7                       | 7.4                 | 38                   | 71             |
| 0066239                        | 3 x 2 x AWG22/7                       | 8.1                 | 45.1                 | 95             |
| 0066240                        | 4 x 2 x AWG22/7                       | 8.8                 | 54.6                 | 102            |
| 0066242                        | 2 x 2 x AWG20/7                       | 8.2                 | 49.7                 | 93             |
| 0066243                        | 3 x 2 x AWG20/7                       | 9.1                 | 60.1                 | 102            |
| 0066244                        | 4 x 2 x AWG20/7                       | 10.2                | 78.7                 | 120            |
| 0066219                        | 5 x 2 x AWG20/7                       | 10.7                | 88.9                 | 156            |
| 0066220                        | 6 x 2 x AWG20/7                       | 11.6                | 100.6                | 184            |
| 0066262                        | 2 x 2 x AWG19/19                      | 8.7                 | 65.2                 | 140            |
| 0066221                        | 3 x 2 x AWG19/19                      | 10                  | 69.2                 | 145            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil 152 m; Drum 305 m

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 310
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 311
- UNITRONIC® FD CP (TP) plus refer to page 315

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® 300 / UNITRONIC® 300 S

Control and signal cables with small cross sections - UL/CSA listed



### Info

- Designation of shielded version: Formerly "UNITRONIC® 300 CY", now "UNITRONIC® 300 S"
- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 60 conductors producible / With non-standard color code, e.g., green-yellow grounding conductor, up to 100 cores

### Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

### Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross sections 18 AWG and 16 AWG is normatively permitted in the USA
- Torsion resistant up to  $\pm 150^\circ/\text{m}$  for the drip loop of wind turbine generators

### Product features

- Oil-resistant according to UL OIL RES I
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

### Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG + 16 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG + 16 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG + 16 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

### Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC compound
- UNITRONIC® 300 S: with overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC
- Color of the outer jacket: Dark gray (similar to RAL 7005)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable



#### Core identification code

refer to Appendix T9



#### Conductor stranding

Fine wire



#### Torsion movement in WTG

TW-0 & TW-2, refer to Appendix T0



#### Minimum bending radius

During installation: 4 x cable diameter  
Screened: 6 x outer diameter



#### Nominal voltage

according to UL: 300 V  
IEC: not for power transmission



#### Test voltage

1500 V



#### Temperature range

Occasional flexing/ North America:  
-25°C to +105°C (AWM for USA: +80°C)  
Fixed installation/ North America: -40°C  
to +105°C (AWM for USA: +80°C)

| Article number          | Article designation | Number of cores and AWG size | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------|---------------------|------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® 300</b>   |                     |                              |                     |                      |                |
| 301602                  | UNITRONIC® 300      | 2 x AWG16                    | 6.7                 | 25                   | 83             |
| 301802                  | UNITRONIC® 300      | 2 x AWG18                    | 6.1                 | 18.3                 | 61             |
| 302006                  | UNITRONIC® 300      | 6 x AWG20                    | 7.5                 | 29.5                 | 97             |
| 302015                  | UNITRONIC® 300      | 15 x AWG20                   | 11.5                | 73.7                 | 178            |
| 302020                  | UNITRONIC® 300      | 20 x AWG20                   | 12.6                | 98.1                 | 259            |
| 302025                  | UNITRONIC® 300      | 25 x AWG20                   | 14.1                | 122.6                | 354            |
| 302204                  | UNITRONIC® 300      | 4 x AWG22                    | 5                   | 13.7                 | 33             |
| 302210                  | UNITRONIC® 300      | 10 x AWG22                   | 7                   | 34.9                 | 67             |
| 302215                  | UNITRONIC® 300      | 15 x AWG22                   | 7.9                 | 51.3                 | 91             |
| 302220                  | UNITRONIC® 300      | 20 x AWG22                   | 9                   | 68.5                 | 116            |
| 302225                  | UNITRONIC® 300      | 25 x AWG22                   | 10.5                | 85.6                 | 180            |
| 302410                  | UNITRONIC® 300      | 10 x AWG24                   | 6.4                 | 21.4                 | 51             |
| <b>UNITRONIC® 300 S</b> |                     |                              |                     |                      |                |
| 301602S                 | UNITRONIC® 300 S    | 2 x AWG16                    | 7.6                 | 50.6                 | 101            |
| 301606S                 | UNITRONIC® 300 S    | 6 x AWG16                    | 9.9                 | 105.7                | 210            |
| 301802S                 | UNITRONIC® 300 S    | 2 x AWG18                    | 6.8                 | 37.2                 | 75             |
| 301803S                 | UNITRONIC® 300 S    | 3 x AWG18                    | 7.3                 | 49.1                 | 85             |
| 301804S                 | UNITRONIC® 300 S    | 4 x AWG18                    | 7.9                 | 59.6                 | 104            |
| 301825S                 | UNITRONIC® 300 S    | 25 x AWG18                   | 16.8                | 278.4                | 448            |
| 302002S                 | UNITRONIC® 300 S    | 2 x AWG20                    | 6.3                 | 28.3                 | 60             |
| 302004S                 | UNITRONIC® 300 S    | 4 x AWG20                    | 7.3                 | 40.2                 | 88             |
| 302006S                 | UNITRONIC® 300 S    | 6 x AWG20                    | 8.4                 | 55.1                 | 119            |
| 302206S                 | UNITRONIC® 300 S    | 6 x AWG22                    | 6.4                 | 35.7                 | 68             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: Coil 152 m; Drum 305 m

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® TRAY II refer to page 60
- ÖLFLEX® TRAY II CY refer to page 61
- ÖLFLEX® POWER MULTI refer to page 62
- UNITRONIC® 300 STP refer to page 307

### Accessories

- SKINTOP® ST-M refer to page 680
- SKINTOP® ST-M Small PU
- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® 300 STP

Screened control and signal cables with small cross sections and twisted pairs - UL/CSA listed



### Info

- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 37 pairs producible/ With non-standard color code, e.g., with green-yellow grounding conductor, up to 50 pairs



### Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross-section 18 AWG in the USA
- Torsion resistant up to  $\pm 150^\circ/\text{m}$  for the drip loop of wind turbine generators

### Product features

- Oil-resistant according to UL OIL RES I

### Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

### Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC
- TP structure
- Overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC, dark gray (similar to RAL 7005)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable



#### Core identification code

Pair 1: black, red  
Pair 2: black, white  
Pair 3: black, green  
Pair 4: black, blue  
Pair 5: black, yellow  
Pair 6: black, brown  
Exception single-paired, 24-22 AWG: black, white



#### Torsion movement in WTG

TW-0 & TW-2, refer to Appendix T0



#### Minimum bending radius

Occasional flexing: 15 x outer diameter  
Fixed installation: 6 x outer diameter



#### Nominal voltage

according to UL: 300 V  
IEC: not for power transmission



#### Test voltage

1500 V



#### Temperature range

Occasional flexing/ North America:  
-25°C to +105°C (AWM for USA: +80°C)  
Fixed installation/ North America: -40°C to +105°C (AWM for USA: +80°C)

| Article number            | Number of pairs and AWG size | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------|------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® 300 STP</b> |                              |                     |                      |                |
| 302402STP                 | 2 x 2 x 24 AWG               | 6.5                 | 25.5                 | 59             |
| 302403STP                 | 3 x 2 x 24 AWG               | 6.8                 | 31.1                 | 65             |
| 302406STP                 | 6 x 2 x 24 AWG               | 8.7                 | 49.7                 | 106            |
| 302201STP                 | 1 x 2 x 22 AWG               | 5.1                 | 19.1                 | 39             |
| 302203STP                 | 3 x 2 x 22 AWG               | 7.7                 | 38.2                 | 71             |
| 302206STP                 | 6 x 2 x 22 AWG               | 9.6                 | 70                   | 125            |
| 302002STP                 | 2 x 2 x 20 AWG               | 9.4                 | 47.7                 | 128            |
| 302003STP                 | 3 x 2 x 20 AWG               | 10.5                | 68.2                 | 161            |
| 302006STP                 | 6 x 2 x 20 AWG               | 13.3                | 106.5                | 321            |
| 301801STP                 | 1 x 2 x 18 AWG               | 6.8                 | 37.8                 | 106            |
| 301802STP                 | 2 x 2 x 18 AWG               | 10.7                | 66.2                 | 122            |
| 301806STP                 | 6 x 2 x 18 AWG               | 14.6                | 153.1                | 324            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: Coil 152 m; Drum 305 m

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 310
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 311
- UNITRONIC® FD CP (TP) plus refer to page 315

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- DATA STRIP stripping tool refer to page 959

**UNITRONIC® FD**

Highly flexible cable for power chain use

**Benefits**

- Well-proven and reliable
- Optimized cable construction for power chain use
- Cost-effective solution

**Application range**

- Automated production processes require data transmission cables that offer high flexibility and durability
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

**Product features**

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications

**Norm references / Approvals**

- Based on VDE 0812
- For travel distances up to 10 m
- For use in power chains: Please comply with assembly guideline Appendix T3

**Product Make-up**

- Extra-fine wire strand made of bare copper wires
  - Core insulation made of PVC
  - Non-woven wrapping
  - Outer sheath made of PVC
- Outer sheath colour: grey (RAL 7001)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable

**Core identification code**

DIN 47100, refer to Appendix T9

**Mutual capacitance**

C/C: approx. 100 nF/km

**Inductivity**

approx. 0.65 mH/km

**Conductor stranding**

Stranded, extra-fine wire

**Minimum bending radius**

Flexing: 5 x outer diameter  
Fixed installation: 3 x outer diameter

**Test voltage**

1500 V

**Temperature range**

Flexing: -5 °C to +70 °C  
Fixed installation: -40 °C to +80 °C

| Article number       | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD</b> |                                                   |                     |                      |                |
| 0027841              | 3 x 0.14                                          | 3.9                 | 4.2                  | 26             |
| 0027842              | 4 x 0.14                                          | 4.2                 | 5.6                  | 31             |
| 0027843              | 5 x 0.14                                          | 4.5                 | 7                    | 35             |
| 0027844              | 7 x 0.14                                          | 5.1                 | 9.8                  | 50             |
| 0027845              | 10 x 0.14                                         | 6.1                 | 14                   | 63             |
| 0027846              | 14 x 0.14                                         | 6.2                 | 19.6                 | 77             |
| 0027847              | 18 x 0.14                                         | 6.8                 | 25.2                 | 91             |
| 0027848              | 25 x 0.14                                         | 8.3                 | 35                   | 125            |
| 0027855              | 2 x 0.25                                          | 4.3                 | 5                    | 27             |
| 0027856              | 3 x 0.25                                          | 4.5                 | 7.5                  | 33             |
| 0027857              | 4 x 0.25                                          | 4.9                 | 10                   | 40             |
| 0027858              | 5 x 0.25                                          | 5.3                 | 12.5                 | 45             |
| 0027859              | 7 x 0.25                                          | 6.1                 | 17.5                 | 59             |
| 0027860              | 10 x 0.25                                         | 7.4                 | 25                   | 75             |
| 0027861              | 14 x 0.25                                         | 7.5                 | 35                   | 108            |
| 0027863              | 18 x 0.25                                         | 8.5                 | 45                   | 130            |
| 0027865              | 25 x 0.25                                         | 10.4                | 62.5                 | 178            |
| 0027870              | 2 x 0.34                                          | 4.7                 | 6.8                  | 30             |
| 0027871              | 3 x 0.34                                          | 5                   | 10.2                 | 43             |
| 0027872              | 4 x 0.34                                          | 5.4                 | 13.6                 | 57             |
| 0027873              | 5 x 0.34                                          | 5.9                 | 17                   | 65             |
| 0027874              | 7 x 0.34                                          | 6.8                 | 23.8                 | 85             |
| 0027875              | 10 x 0.34                                         | 8.5                 | 34                   | 117            |
| 0027876              | 14 x 0.34                                         | 8.6                 | 47.6                 | 151            |
| 0027877              | 18 x 0.34                                         | 9.7                 | 61.2                 | 182            |
| 0027878              | 25 x 0.34                                         | 11.9                | 85                   | 250            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® FD CY refer to page 309
- UNITRONIC® FD P plus refer to page 313

**Accessories**

- DATA STRIP stripping tool refer to page 959



## UNITRONIC® FD CY

Screened highly flexible data transmission cable with PVC outer sheath for power chain use



### Benefits

- Well-proven and reliable
- Optimized cable construction for power chain use
- Cost-effective solution
- Overall braid minimises electrical interference

### Application range

- Automated production processes require data transmission cables that offer high flexibility and durability, as well as excellent screening
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

### Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for 2 up to 8 million bending/unbending cycles in power chain applications

### Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m
- For use in power chains: Please comply with assembly guideline Appendix T3

### Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC  
Outer sheath colour: grey (RAL 7001)

### Technical data

|  |                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description:<br>Control cable |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                    |
|  | <b>Mutual capacitance</b><br>C/C approx. 110 nF/km<br>C/S: approx. 110 nF/km                                          |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                              |
|  | <b>Conductor stranding</b><br>Stranded, extra-fine wire                                                               |
|  | <b>Minimum bending radius</b><br>Flexing: 7.5 x outer diameter<br>Fixed installation: 4 x Outer diameter              |
|  | <b>Test voltage</b><br>1500 V                                                                                         |
|  | <b>Temperature range</b><br>Flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                              |

| Article number          | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD CY</b> |                                                   |                     |                      |                |
| 0027411                 | 3 x 0.14                                          | 4.5                 | 14.1                 | 37             |
| 0027412                 | 4 x 0.14                                          | 4.8                 | 15.5                 | 42             |
| 0027413                 | 5 x 0.14                                          | 5.1                 | 18.3                 | 47             |
| 0027414                 | 7 x 0.14                                          | 5.7                 | 27.6                 | 55             |
| 0027416                 | 10 x 0.14                                         | 6.7                 | 39.3                 | 63             |
| 0027418                 | 14 x 0.14                                         | 6.8                 | 45.3                 | 96             |
| 0027420                 | 18 x 0.14                                         | 7.4                 | 54.1                 | 105            |
| 0027422                 | 25 x 0.14                                         | 8.9                 | 68.4                 | 163            |
| 0027425                 | 2 x 0.25                                          | 4.9                 | 14.9                 | 39             |
| 0027426                 | 3 x 0.25                                          | 5.1                 | 18.8                 | 46             |
| 0027427                 | 4 x 0.25                                          | 5.5                 | 21.3                 | 53             |
| 0027428                 | 5 x 0.25                                          | 5.9                 | 31                   | 71             |
| 0027429                 | 7 x 0.25                                          | 6.7                 | 39.6                 | 75             |
| 0027431                 | 10 x 0.25                                         | 8.2                 | 53.9                 | 100            |
| 0027434                 | 14 x 0.25                                         | 8.3                 | 64.2                 | 120            |
| 0027436                 | 18 x 0.25                                         | 9.1                 | 78.4                 | 167            |
| 0027438                 | 25 x 0.25                                         | 11                  | 101                  | 221            |
| 0027440                 | 2 x 0.34                                          | 5.3                 | 16.1                 | 47             |
| 0027441                 | 3 x 0.34                                          | 5.6                 | 28.7                 | 55             |
| 0027442                 | 4 x 0.34                                          | 6                   | 35.7                 | 76             |
| 0027443                 | 5 x 0.34                                          | 6.5                 | 39.1                 | 80             |
| 0027444                 | 7 x 0.34                                          | 7.4                 | 52.7                 | 104            |
| 0027446                 | 10 x 0.34                                         | 9.1                 | 67.4                 | 115            |
| 0027448                 | 14 x 0.34                                         | 9.2                 | 85.3                 | 132            |
| 0027450                 | 18 x 0.34                                         | 10.3                | 99.7                 | 225            |
| 0027452                 | 25 x 0.34                                         | 12.5                | 155                  | 327            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC FD 810 CY refer to page 129
- UNITRONIC® FD CP plus refer to page 314

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® FD Li2YCY (TP) A BE

Shielded, low-capacitance, twisted-pair PE/PVC data cable for power chain/cable carrier, UL AWM for USA+CAN



### Info

- Better priced than UNITRONIC® FD CP (TP) plus
- Low capacitance, AWM by UL for USA+CAN
- UNITRONIC® FD Li2YCY (TP) A BE: DIN 47100, refer to Appendix T9

### Technical data



**Core identification code**  
UNITRONIC® FD Li2YCY (TP) A BE:  
DIN 47100, refer to Appendix T9



**Mutual capacitance**  
Up to 0.5 mm<sup>2</sup>: 60 nF/km  
Up to 1.0 mm<sup>2</sup>: 70 nF/km



**Inductivity**  
approx. 0.65 mH/km



**Conductor stranding**  
Fine wire  
From 0.5 mm<sup>2</sup>: Finest wire/Conductor class 6 acc. to IEC 60228



**Minimum bending radius**  
Flexing: 7.5 x outer diameter  
Fixed installation: 4 x outer diameter



**Loop resistance**  
Ohmic (DC) and loop/bidirectional @ 20 °C  
0.14 mm<sup>2</sup> (26 AWG): 276.0 Ω/km;  
0.25 mm<sup>2</sup> (24 AWG): 158.0 Ω/km;  
0.34 mm<sup>2</sup> (22 AWG): 110.8 Ω/km;  
0.5 mm<sup>2</sup> (21 AWG): 78.0 Ω/km;  
0.75 mm<sup>2</sup> (19 AWG): 52.0 Ω/km;  
1 mm<sup>2</sup> (18 AWG): 39.0 Ω/km



**Temperature range**  
Flexing:  
VDE: -5 °C to 70 °C  
UL AWM: -5 °C to 80 °C  
Stationary use:  
VDE: -40 °C to 70 °C  
UL AWM: -5 °C to 80 °C

### Benefits

- Improved transmission characteristics thanks to low-capacitance core insulation and twisted pairs
- Cable specification optimized for use in power chain/cable carrier in the USA, on the basis of NFPA 79, Section 12.9.2

### Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- Use in drag chain/cable carrier/power track - in case of horizontal installation travel distances up to 50 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

### Product features

- Low capacitance
- EMC optimized thanks to overall copper braid shielding
- Flexibility for use inside power chain/cable carrier
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1

### Norm references / Approvals

- Based on VDE 0812
- UL AWM Style 2570 80°C 1000V (external interconnection) for USA (UL File No.: E63634) and in line with NFPA 79, Section 12.9.2
- AWM I/II A/B 80°C 1000V acc. to CSA C22.2 No. 210-15 and certified by UL (cRU) for Canada
- EU conformity and mark with regard to the European RoHS Directive

### Product Make-up

- Flexible conductor made of bare copper strands
- Low-capacitance PE core insulation
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC  
Outer sheath colour: black (similar to RAL 9005)

| Article number                        | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------------------|------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD Li2YCY (TP) A BE</b> |                                                |                     |                      |                |
| 0031377                               | 1 x 2 x 0.14                                   | 4.3                 | 11.2                 | 23             |
| 0031378                               | 2 x 2 x 0.14                                   | 5.9                 | 19.4                 | 42             |
| 0031379                               | 3 x 2 x 0.14                                   | 6.2                 | 23.4                 | 47             |
| 0031380                               | 4 x 2 x 0.14                                   | 6.7                 | 27.1                 | 57             |
| 0031381                               | 5 x 2 x 0.14                                   | 7.3                 | 37.4                 | 68             |
| 0031382                               | 6 x 2 x 0.14                                   | 7.5                 | 49.4                 | 86             |
| 0031383                               | 8 x 2 x 0.14                                   | 8.8                 | 54.8                 | 109            |
| 0031384                               | 10 x 2 x 0.14                                  | 10.1                | 60.1                 | 120            |
| 0031385                               | 12 x 2 x 0.14                                  | 9.8                 | 61.6                 | 150            |
| 0031386                               | 1 x 2 x 0.25                                   | 4.7                 | 14.9                 | 27             |
| 0031387                               | 2 x 2 x 0.25                                   | 6.6                 | 32                   | 57             |
| 0031388                               | 3 x 2 x 0.25                                   | 7                   | 38.4                 | 72             |
| 0031389                               | 4 x 2 x 0.25                                   | 7.6                 | 43.2                 | 85             |
| 0031390                               | 5 x 2 x 0.25                                   | 8.5                 | 51.5                 | 92             |
| 0031391                               | 6 x 2 x 0.25                                   | 8.8                 | 71.8                 | 114            |
| 0031392                               | 8 x 2 x 0.25                                   | 10.3                | 74.4                 | 145            |
| 0031393                               | 10 x 2 x 0.25                                  | 11.8                | 90                   | 182            |
| 0031394                               | 14 x 2 x 0.25                                  | 12                  | 111.2                | 213            |
| 0031395                               | 25 x 2 x 0.25                                  | 16.3                | 310                  | 310            |
| 0031396                               | 1 x 2 x 0.34                                   | 5.1                 | 18.1                 | 36             |
| 0031397                               | 2 x 2 x 0.34                                   | 7.3                 | 41                   | 69             |
| 0031398                               | 3 x 2 x 0.34                                   | 8                   | 52                   | 93             |
| 0031399                               | 4 x 2 x 0.34                                   | 8.7                 | 59                   | 106            |
| 0031400                               | 5 x 2 x 0.34                                   | 9.7                 | 67                   | 136            |
| 0031401                               | 6 x 2 x 0.34                                   | 10                  | 86.2                 | 165            |

| Article number | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|------------------------------------------------|---------------------|----------------------|----------------|
| 0031402        | 8 x 2 x 0.34                                   | 11.8                | 107.5                | 221            |
| 0031403        | 10 x 2 x 0.34                                  | 13.7                | 131.1                | 274            |
| 0031404        | 1 x 2 x 0.50                                   | 5.5                 | 23                   | 47             |
| 0031405        | 2 x 2 x 0.50                                   | 8.3                 | 50                   | 99             |
| 0031406        | 3 x 2 x 0.50                                   | 8.8                 | 71.8                 | 120            |
| 0031407        | 4 x 2 x 0.50                                   | 9.8                 | 74.4                 | 130            |
| 0031408        | 5 x 2 x 0.50                                   | 10.7                | 84.5                 | 164            |
| 0031409        | 6 x 2 x 0.50                                   | 11.3                | 99.6                 | 182            |
| 0031410        | 8 x 2 x 0.50                                   | 13.2                | 144.3                | 278            |
| 0031411        | 10 x 2 x 0.50                                  | 15.2                | 176                  | 325            |
| 0031412        | 14 x 2 x 0.50                                  | 15.5                | 215.4                | 401            |
| 0031413        | 1 x 2 x 0.75                                   | 5.9                 | 35                   | 61             |
| 0031414        | 2 x 2 x 0.75                                   | 9                   | 60                   | 104            |
| 0031415        | 3 x 2 x 0.75                                   | 9.8                 | 85.7                 | 148            |
| 0031416        | 4 x 2 x 0.75                                   | 10.7                | 93.6                 | 167            |
| 0031417        | 5 x 2 x 0.75                                   | 11.9                | 115                  | 202            |
| 0031418        | 6 x 2 x 0.75                                   | 12.3                | 130.4                | 233            |
| 0031419        | 8 x 2 x 0.75                                   | 14.7                | 192.2                | 330            |
| 0031420        | 10 x 2 x 0.75                                  | 16.7                | 258                  | 390            |
| 0031421        | 14 x 2 x 0.75                                  | 17                  | 316.6                | 515            |
| 0031422        | 1 x 2 x 1.00                                   | 6.3                 | 42                   | 71             |
| 0031423        | 2 x 2 x 1.00                                   | 9.9                 | 73                   | 126            |
| 0031424        | 3 x 2 x 1.00                                   | 10.5                | 93.6                 | 167            |
| 0031425        | 4 x 2 x 1.00                                   | 11.8                | 117.8                | 213            |
| 0031426        | 5 x 2 x 1.00                                   | 13.1                | 139                  | 247            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® FD Li2YCY (TP) A BA

Shielded, low-capacitance, twisted-pair PE/PVC data cable for power chain/cable carrier, UL AWM for USA+CAN



### Info

- Better priced than UNITRONIC® FD CP (TP) plus
- Low capacitance, AWM by UL for USA+CAN
- UNITRONIC® FD Li2YCY (TP) A BA: North-American Core Identification Colors

### Benefits

- Improved transmission characteristics thanks to low-capacitance core insulation and twisted pairs
- Cable specification optimized for use in power chain/cable carrier in the USA, on the basis of NFPA 79, Section 12.9.2

### Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- Use in drag chain/cable carrier/power track - in case of horizontal installation travel distances up to 50 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

### Product features

- Low capacitance
- EMC optimized thanks to overall copper braid shielding
- Flexibility for use inside power chain/cable carrier
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1

### Norm references / Approvals

- Based on VDE 0812
- UL AWM Style 2570 80°C 1000V (external interconnection) for USA (UL File No.: E63634) and in line with NFPA 79, Section 12.9.2
- AWM I/II A/B 80°C 1000V acc. to CSA C22.2 No. 210-15 and certified by UL (cRU) for Canada
- EU conformity and mark with regard to the European RoHS Directive

### Product Make-up

- Flexible conductor made of bare copper strands
- Low-capacitance PE core insulation
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC  
Outer sheath colour: black (similar to RAL 9005)

### Technical data



#### Core identification code

#### UNITRONIC® FD Li2YCY (TP) A BA:

- Pair 01: Black, Red;
- Pair 02: Black, White;
- Pair 03: Black, Green;
- Pair 04: Black, Blue;
- Pair 05: Black, Yellow;
- Pair 06: Black, Brown;
- Pair 07: Black, Orange;
- Pair 08: Red, White;
- Pair 09: Red, Green;
- Pair 10: Red, Blue;
- Pair 11: Red, Yellow;
- Pair 12: Red, Brown;
- Pair 13: Red, Orange;
- Pair 14: Green, White;
- Pair 15: Green, Blue;
- Pair 16: Green, Yellow;
- Pair 17: Green, Brown;
- Pair 18: Green, Orange;
- Pair 19: White, Blue;
- Pair 20: White, Yellow;
- Pair 21: White, Brown;
- Pair 22: White, Orange;
- Pair 23: Blue, Yellow;
- Pair 24: Blue, Brown;
- Pair 25: Blue, Orange;
- Exception Single-paired/24 - 22 AWG: Black, White



#### Mutual capacitance

- Up to 0.5 mm<sup>2</sup>: 60 nF/km
- Up to 1.0 mm<sup>2</sup>: 70 nF/km



#### Inductivity

- approx. 0.65 mH/km



#### Conductor stranding

- Fine wire
- From 0.5 mm<sup>2</sup>: Finest wire/Conductor class 6 acc. to IEC 60228



#### Minimum bending radius

- Flexing: 7.5 x outer diameter
- Fixed installation: 4 x outer diameter



#### Loop resistance

- Ohmic (DC) and loop/bidirectional @ 20 °C
- 0.14 mm<sup>2</sup> (26 AWG): 276.0 Ω/km;
- 0.25 mm<sup>2</sup> (24 AWG): 158.0 Ω/km;
- 0.34 mm<sup>2</sup> (22 AWG): 110.8 Ω/km;
- 0.5 mm<sup>2</sup> (21 AWG): 78.0 Ω/km;
- 0.75 mm<sup>2</sup> (19 AWG): 52.0 Ω/km;
- 1 mm<sup>2</sup> (18 AWG): 39.0 Ω/km



#### Temperature range

- Flexing:
- VDE: -5 °C to 70 °C
- UL AWM: -5 °C to 80 °C
- Stationary use:
- VDE: -40 °C to 70 °C
- UL AWM: -5 °C to 80 °C

| Article number                        | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------------------|------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD Li2YCY (TP) A BA</b> |                                                |                     |                      |                |
| 0031427                               | 1 x 2 x 0.14                                   | 4.3                 | 11.2                 | 23             |
| 0031428                               | 2 x 2 x 0.14                                   | 5.9                 | 19.4                 | 42             |
| 0031429                               | 3 x 2 x 0.14                                   | 6.2                 | 23.4                 | 47             |
| 0031430                               | 4 x 2 x 0.14                                   | 6.7                 | 27.1                 | 57             |
| 0031431                               | 5 x 2 x 0.14                                   | 7.3                 | 37.4                 | 68             |
| 0031432                               | 6 x 2 x 0.14                                   | 7.5                 | 49.4                 | 86             |
| 0031433                               | 8 x 2 x 0.14                                   | 8.8                 | 54.8                 | 109            |
| 0031434                               | 10 x 2 x 0.14                                  | 10.1                | 60.1                 | 120            |
| 0031435                               | 12 x 2 x 0.14                                  | 9.8                 | 61.6                 | 150            |
| 0031436                               | 1 x 2 x 0.25                                   | 4.7                 | 14.9                 | 27             |
| 0031437                               | 2 x 2 x 0.25                                   | 6.6                 | 32                   | 57             |
| 0031438                               | 3 x 2 x 0.25                                   | 7                   | 38.4                 | 72             |
| 0031439                               | 4 x 2 x 0.25                                   | 7.6                 | 43.2                 | 85             |
| 0031440                               | 5 x 2 x 0.25                                   | 8.5                 | 51.5                 | 92             |
| 0031441                               | 6 x 2 x 0.25                                   | 8.8                 | 71.8                 | 114            |
| 0031442                               | 8 x 2 x 0.25                                   | 10.3                | 74.4                 | 145            |
| 0031443                               | 10 x 2 x 0.25                                  | 11.8                | 90                   | 182            |
| 0031444                               | 14 x 2 x 0.25                                  | 12                  | 111.2                | 213            |
| 0031445                               | 25 x 2 x 0.25                                  | 16.3                | 310                  | 310            |
| 0031446                               | 1 x 2 x 0.34                                   | 5.1                 | 18.1                 | 36             |
| 0031447                               | 2 x 2 x 0.34                                   | 7.3                 | 41                   | 69             |
| 0031448                               | 3 x 2 x 0.34                                   | 8                   | 52                   | 93             |
| 0031449                               | 4 x 2 x 0.34                                   | 8.7                 | 59                   | 106            |
| 0031450                               | 5 x 2 x 0.34                                   | 9.7                 | 67                   | 136            |
| 0031451                               | 6 x 2 x 0.34                                   | 10                  | 86.2                 | 165            |
| 0031452                               | 8 x 2 x 0.34                                   | 11.8                | 107.5                | 221            |
| 0031453                               | 10 x 2 x 0.34                                  | 13.7                | 131.1                | 274            |
| 0031454                               | 1 x 2 x 0.50                                   | 5.5                 | 23                   | 47             |
| 0031455                               | 2 x 2 x 0.50                                   | 8.3                 | 50                   | 99             |
| 0031456                               | 3 x 2 x 0.50                                   | 8.8                 | 71.8                 | 120            |
| 0031457                               | 4 x 2 x 0.50                                   | 9.8                 | 74.4                 | 130            |
| 0031458                               | 5 x 2 x 0.50                                   | 10.7                | 84.5                 | 164            |
| 0031459                               | 6 x 2 x 0.50                                   | 11.3                | 99.6                 | 182            |
| 0031460                               | 8 x 2 x 0.50                                   | 13.2                | 144.3                | 278            |
| 0031461                               | 10 x 2 x 0.50                                  | 15.2                | 176                  | 325            |
| 0031462                               | 14 x 2 x 0.50                                  | 15.5                | 215.4                | 401            |
| 0031463                               | 1 x 2 x 0.75                                   | 5.9                 | 35                   | 61             |
| 0031464                               | 2 x 2 x 0.75                                   | 9                   | 60                   | 104            |
| 0031465                               | 3 x 2 x 0.75                                   | 9.8                 | 85.7                 | 148            |
| 0031466                               | 4 x 2 x 0.75                                   | 10.7                | 93.6                 | 167            |
| 0031467                               | 5 x 2 x 0.75                                   | 11.9                | 115                  | 202            |
| 0031468                               | 6 x 2 x 0.75                                   | 12.3                | 130.4                | 233            |
| 0031469                               | 8 x 2 x 0.75                                   | 14.7                | 192.2                | 330            |
| 0031470                               | 10 x 2 x 0.75                                  | 16.7                | 258                  | 390            |
| 0031471                               | 14 x 2 x 0.75                                  | 17                  | 316.6                | 515            |
| 0031472                               | 1 x 2 x 1.00                                   | 6.3                 | 42                   | 71             |
| 0031473                               | 2 x 2 x 1.00                                   | 9.9                 | 73                   | 126            |
| 0031474                               | 3 x 2 x 1.00                                   | 10.5                | 93.6                 | 167            |
| 0031475                               | 4 x 2 x 1.00                                   | 11.8                | 117.8                | 213            |
| 0031476                               | 5 x 2 x 1.00                                   | 13.1                | 139                  | 247            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

#### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® FD P plus

Highly flexible data cable with PUR jacket and AWM certification for US & Canadian use



### Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

### Benefits

- Well-proven and reliable
- Wide temperature range for applications in harsh climatic environments
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

### Application range

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Suitable for use in measuring, control and regulating circuits
- Drag chain use - in case of horizontal installation travel distances up to 100 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

### Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Flame retardance ratings: IEC 60332-1-2, FT2 (Horizontal flame test)
- Halogen-free, has low capacitance and is flexible down to -40°C
- Oil-resistant
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant

### Norm references / Approvals

- Based on VDE 0812
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

### Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Outer sheath made of special PUR compound
- Outer sheath colour: grey (RAL 7001)

### Technical data

|  |                                                                                                                    |
|--|--------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable    |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                 |
|  | <b>Mutual capacitance</b><br>C/C approx. 60 nF/km                                                                  |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                           |
|  | <b>Conductor stranding</b><br>Stranded, extra-fine wire                                                            |
|  | <b>Minimum bending radius</b><br>Flexing: 5 x outer diameter<br>Fixed installation: 3 x outer diameter             |
|  | <b>Test voltage</b><br>1500 V                                                                                      |
|  | <b>Temperature range</b><br>Flexing: -40°C to +80°C<br>Fixed installation: -40°C to +80°C<br>cRUus AWM: max. +80°C |

| Article number              | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD P plus</b> |                                       |                     |                      |                |
| 0028647                     | 2 x 0.14                              | 3.7                 | 2.8                  | 20             |
| 0028650                     | 3 x 0.14                              | 3.9                 | 4.1                  | 25             |
| 0028651                     | 4 x 0.14                              | 4.2                 | 5.6                  | 30             |
| 0028652                     | 5 x 0.14                              | 4.5                 | 7                    | 34             |
| 0028677                     | 6 x 0.14                              | 4.8                 | 8.4                  | 42             |
| 0028653                     | 7 x 0.14                              | 5.1                 | 9.8                  | 48             |
| 0028654                     | 10 x 0.14                             | 6.1                 | 14                   | 60             |
| 0028678                     | 12 x 0.14                             | 5.9                 | 16.8                 | 67             |
| 0028656                     | 18 x 0.14                             | 6.8                 | 25.2                 | 87             |
| 0028657                     | 25 x 0.14                             | 8.3                 | 35                   | 120            |
| 0028658                     | 2 x 0.25                              | 4.1                 | 5                    | 27             |
| 0028659                     | 3 x 0.25                              | 4.3                 | 7.5                  | 32             |
| 0028660                     | 4 x 0.25                              | 4.7                 | 10                   | 35             |
| 0028661                     | 5 x 0.25                              | 5                   | 12.5                 | 49             |
| 0028679                     | 6 x 0.25                              | 5.4                 | 15                   | 55             |
| 0028662                     | 7 x 0.25                              | 5.8                 | 17.5                 | 43             |
| 0028663                     | 10 x 0.25                             | 7                   | 25                   | 72             |
| 0028680                     | 12 x 0.25                             | 6.7                 | 30                   | 87             |
| 0028664                     | 14 x 0.25                             | 7.1                 | 35                   | 73             |
| 0028665                     | 18 x 0.25                             | 8                   | 45                   | 104            |
| 0028666                     | 25 x 0.25                             | 9.8                 | 62.5                 | 133            |
| 0028667                     | 2 x 0.34                              | 4.5                 | 6.8                  | 33             |
| 0028668                     | 3 x 0.34                              | 4.8                 | 10.2                 | 39             |
| 0028669                     | 4 x 0.34                              | 5.2                 | 13.6                 | 41             |
| 0028670                     | 5 x 0.34                              | 5.6                 | 17                   | 44             |
| 0028671                     | 7 x 0.34                              | 6.5                 | 23.8                 | 55             |
| 0028672                     | 10 x 0.34                             | 8                   | 34                   | 85             |
| 0028673                     | 14 x 0.34                             | 8.2                 | 47.6                 | 94             |
| 0028674                     | 18 x 0.34                             | 9                   | 61.2                 | 131            |
| 0028675                     | 25 x 0.34                             | 11                  | 85                   | 200            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- ÖLFLEX® CLASSIC FD 810 P refer to page 140
- UNITRONIC® FD CP plus refer to page 314

### Accessories

- SMART STRIP stripping tool



## UNITRONIC® FD CP plus

Screened highly flexible data transmission cable with PUR outer sheath - UL/CSA-listed



### Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

### Benefits

- Wide temperature range for applications in harsh climatic environments
- Overall braid minimises electrical interference
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm<sup>2</sup> and <16 AWG)

### Application range

- Suitable for use in measuring, control and regulating circuits
- Drag chain use - in case of horizontal installation travel distances up to 100 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

### Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 5 up to 10 million bending/unbending cycles (constant flex) in drag chains

### Norm references / Approvals

- CULus CMX certified by UL (UL: E236660)
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

### Product Make-up

- Extra-fine wire strand made of bare copper wires
  - Core insulation: Based on Polyolefin
  - Non-woven wrapping
  - Tinned-copper braiding
  - Outer sheath made of special PUR compound
- Outer sheath colour: grey (RAL 7001)

### Technical data

|  |                                                                                                                                             |
|--|---------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description: Control cable                          |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                                          |
|  | <b>Mutual capacitance</b><br>C/C approx. 60 nF/km                                                                                           |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                                                    |
|  | <b>Conductor stranding</b><br>Stranded, extra-fine wire                                                                                     |
|  | <b>Torsion movement in WTG</b><br>TW-0 & TW-2, refer to Appendix T0                                                                         |
|  | <b>Minimum bending radius</b><br>Flexing: 7.5 x outer diameter<br>Fixed installation: 4 x outer diameter                                    |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 500 V                                                                          |
|  | <b>Temperature range</b><br>Flexing: -40°C to +80°C<br>Fixed installation: -40°C to +80°C<br>cULus CMX: max. +75°C<br>cRUus AWM: max. +80°C |

| Article number               | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD CP plus</b> |                                                   |                     |                      |                |
| 0028880                      | 2 x 0.14                                          | 4.3                 | 11.2                 | 33             |
| 0028881                      | 3 x 0.14                                          | 4.5                 | 14.1                 | 36             |
| 0028882                      | 4 x 0.14                                          | 4.8                 | 15.5                 | 40             |
| 0028883                      | 5 x 0.14                                          | 5.1                 | 18.3                 | 45             |
| 0028884                      | 7 x 0.14                                          | 5.7                 | 27.8                 | 51             |
| 0028885                      | 10 x 0.14                                         | 6.7                 | 39.3                 | 59             |
| 0028886                      | 14 x 0.14                                         | 6.8                 | 45.3                 | 62             |
| 0028887                      | 18 x 0.14                                         | 7.4                 | 54.1                 | 118            |
| 0028888                      | 25 x 0.14                                         | 8.9                 | 68.4                 | 157            |
| 0028889                      | 2 x 0.25                                          | 4.7                 | 14.9                 | 38             |
| 0028890                      | 3 x 0.25                                          | 4.9                 | 18.8                 | 45             |
| 0028891                      | 4 x 0.25                                          | 5.3                 | 21.3                 | 52             |
| 0028892                      | 5 x 0.25                                          | 5.6                 | 31                   | 69             |
| 0028893                      | 7 x 0.25                                          | 6.4                 | 39.6                 | 76             |
| 0028894                      | 10 x 0.25                                         | 7.6                 | 53.9                 | 98             |
| 0028895                      | 14 x 0.25                                         | 7.9                 | 64.2                 | 120            |
| 0028896                      | 18 x 0.25                                         | 8.6                 | 78.4                 | 142            |
| 0028897                      | 25 x 0.25                                         | 10.4                | 101                  | 213            |
| 0028898                      | 2 x 0.34                                          | 5.1                 | 18.1                 | 40             |
| 0028899                      | 3 x 0.34                                          | 5.4                 | 28.7                 | 50             |
| 0028900                      | 4 x 0.34                                          | 5.8                 | 35.7                 | 60             |
| 0028901                      | 5 x 0.34                                          | 6.2                 | 39.1                 | 70             |
| 0028902                      | 7 x 0.34                                          | 7.1                 | 52.7                 | 109            |
| 0028903                      | 10 x 0.34                                         | 8.6                 | 67.4                 | 147            |
| 0028904                      | 14 x 0.34                                         | 8.8                 | 85.8                 | 166            |
| 0028905                      | 18 x 0.34                                         | 9.8                 | 99.7                 | 190            |
| 0028906                      | 25 x 0.34                                         | 11.8                | 155                  | 260            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- UNITRONIC® FD Li2YCY (TP) A BE refer to page 310
- UNITRONIC® FD Li2YCY (TP) A BA refer to page 311
- UNITRONIC® FD CP (TP) plus refer to page 315

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® FD CP (TP) plus

Screened highly flexible data transmission cable with PUR outer sheath and twisted pairs - UL/CSA-listed

### Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free



### Benefits

- Wide temperature range for applications in harsh climatic environments
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

### Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- Drag chain use - in case of horizontal installation travel distances up to 100 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

### Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

### Norm references / Approvals

- CULus CMX certified by UL (UL: E236660)
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

### Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin TP structure
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
- Outer sheath colour: grey (RAL 7001)

### Technical data

|  |                                                                                                                                             |
|--|---------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description: Control cable                          |
|  | <b>Core identification code</b><br>DIN 47100, refer to Appendix T9                                                                          |
|  | <b>Mutual capacitance</b><br>Up to 0.5 mm²: 60 nF/km<br>Up to 1.0 mm²: 70 nF/km                                                             |
|  | <b>Inductivity</b><br>approx. 0.65 mH/km                                                                                                    |
|  | <b>Conductor stranding</b><br>Stranded, extra-fine wire<br>From 0.5 mm²: extra-fine wire according to IEC 60228 class 6                     |
|  | <b>Torsion movement in WTG</b><br>TW-0 & TW-2, refer to Appendix T0                                                                         |
|  | <b>Minimum bending radius</b><br>Flexing: 7.5 x outer diameter<br>Fixed installation: 4 x outer diameter                                    |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 500 V                                                                          |
|  | <b>Temperature range</b><br>Flexing: -40°C to +80°C<br>Fixed installation: -40°C to +80°C<br>cULus CMX: max. +75°C<br>cRUus AWM: max. +80°C |

| Article number                    | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® FD CP (TP) plus</b> |                                       |                     |                      |                |
| 0030910                           | 2 x 2 x 0.14                          | 5.9                 | 19.4                 | 42             |
| 0030911                           | 3 x 2 x 0.14                          | 6.2                 | 23.4                 | 47             |
| 0030912                           | 4 x 2 x 0.14                          | 6.7                 | 27.1                 | 59             |
| 0030913                           | 5 x 2 x 0.14                          | 7.3                 | 37.4                 | 68             |
| 0030914                           | 6 x 2 x 0.14                          | 7.5                 | 49.4                 | 91             |
| 0030915                           | 8 x 2 x 0.14                          | 8.8                 | 54.8                 | 109            |
| 0030916                           | 10 x 2 x 0.14                         | 10.1                | 60.1                 | 120            |
| 0030962                           | 1 x 2 x 0.25                          | 4.7                 | 14                   | 27             |
| 0030919                           | 2 x 2 x 0.25                          | 6.6                 | 32                   | 60             |
| 0030920                           | 3 x 2 x 0.25                          | 7                   | 38.4                 | 72             |
| 0030921                           | 4 x 2 x 0.25                          | 7.6                 | 43.2                 | 85             |
| 0030922                           | 5 x 2 x 0.25                          | 8.5                 | 51.5                 | 92             |
| 0030923                           | 6 x 2 x 0.25                          | 8.8                 | 71.8                 | 114            |
| 0030924                           | 8 x 2 x 0.25                          | 10.3                | 74.4                 | 155            |
| 0030925                           | 10 x 2 x 0.25                         | 11.8                | 90                   | 186            |
| 0030926                           | 14 x 2 x 0.25                         | 12                  | 111.2                | 219            |
| 0030963                           | 1 x 2 x 0.34                          | 5.1                 | 20                   | 36             |
| 0030928                           | 2 x 2 x 0.34                          | 7.3                 | 41                   | 69             |
| 0030929                           | 3 x 2 x 0.34                          | 8                   | 52                   | 101            |
| 0030930                           | 4 x 2 x 0.34                          | 8.7                 | 59                   | 106            |
| 0030932                           | 6 x 2 x 0.34                          | 10                  | 86.2                 | 165            |
| 0030934                           | 10 x 2 x 0.34                         | 13.7                | 131.1                | 274            |

| Article number | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------------------|---------------------|----------------------|----------------|
| 0030964        | 1 x 2 x 0.5                           | 5.5                 | 22                   | 47             |
| 0030937        | 2 x 2 x 0.5                           | 8.3                 | 50                   | 99             |
| 0030938        | 3 x 2 x 0.5                           | 8.8                 | 71.8                 | 130            |
| 0030939        | 4 x 2 x 0.5                           | 9.8                 | 74.4                 | 148            |
| 0030940        | 5 x 2 x 0.5                           | 10.7                | 84.5                 | 168            |
| 0030941        | 6 x 2 x 0.5                           | 11.3                | 99.6                 | 194            |
| 0030942        | 8 x 2 x 0.5                           | 13.2                | 144.3                | 284            |
| 0030943        | 10 x 2 x 0.5                          | 15.2                | 176                  | 343            |
| 0030944        | 14 x 2 x 0.5                          | 15.5                | 215.4                | 401            |
| 0030965        | 1 x 2 x 0.75                          | 5.9                 | 34                   | 61             |
| 0030946        | 2 x 2 x 0.75                          | 9                   | 60                   | 112            |
| 0030947        | 3 x 2 x 0.75                          | 9.8                 | 85.7                 | 157            |
| 0030948        | 4 x 2 x 0.75                          | 10.7                | 93.6                 | 172            |
| 0030950        | 6 x 2 x 0.75                          | 12.3                | 130.4                | 231            |
| 0030951        | 8 x 2 x 0.75                          | 14.7                | 192.2                | 342            |
| 0030952        | 10 x 2 x 0.75                         | 16.7                | 258                  | 390            |
| 0030953        | 14 x 2 x 0.75                         | 17                  | 316.6                | 545            |
| 0030955        | 1 x 2 x 1.0                           | 6.3                 | 42                   | 71             |
| 0030956        | 2 x 2 x 1.0                           | 9.9                 | 73                   | 129            |
| 0030957        | 3 x 2 x 1.0                           | 10.5                | 93.6                 | 169            |
| 0030958        | 4 x 2 x 1.0                           | 11.8                | 117.8                | 204            |
| 0030959        | 5 x 2 x 1.0                           | 13.1                | 139                  | 237            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® MS-HF-M SC refer to page 695
- SKINTOP® MS-SC-M refer to page 695
- STAR STRIP stripping tool refer to page 957

**UNITRONIC® RE-2Y(ST)Yv**

Instrumentation cable with reinforced outer sheath

**Info**

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

**Benefits**

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

**Application range**

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous.

**Product features**

- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

**Norm references / Approvals**

- In the style of EN 50288-7

**Product Make-up**

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Foil wrapping, static screening made of aluminium-laminated plastic film with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000104  
ETIM 5.0/6.0 Class-Description:  
Control cable

**Core identification code**

a-core: black; b-core: white  
with consecutive numbers:  
1-1, 2-2, 3-3, 4-4 etc.  
Three-way version: black, white, red

**Mutual capacitance**

(guideline values at 800 Hz):  
C/C: 0.5 mm²: max. 75 nF/km  
(guideline values at 800 Hz):  
C/C: 1.3 mm²: max. 100 nF/km

**Conductor resistance**

0.5 mm²: max. 39.2 ohm/km  
1.3 mm²: max. 14.3 ohm/km

**Minimum bending radius**

Occasional flexing: 15 x outer diameter  
Fixed installation: 7.5 x outer diameter

**Short-range crosstalk attenuation**

At 60 kHz: min. 0.88 dB/km

**Test voltage**

Core/core: 2000 V  
Core/screen: 1000 V

**Characteristic impedance**

approx. 100 ohms

**Temperature range**

Occasional flexing: -5 °C to +50 °C  
Fixed installation: -40 °C to +80 °C

| Article number       | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------------|------------------------------------|---------------------|----------------------|----------------|
| <b>RE-2Y(ST)Yv</b>   |                                    |                     |                      |                |
| <b>0.5 mm² blue</b>  |                                    |                     |                      |                |
| 0032400              | 1 x 2 x 0,50                       | 7.2                 | 15                   | 74             |
| 0032401              | 2 x 2 x 0,50                       | 9.5                 | 30                   | 117            |
| <b>0.5 mm² black</b> |                                    |                     |                      |                |
| 0032411              | 1 x 2 x 0,50                       | 7.2                 | 15                   | 74             |
| 0032412              | 2 x 2 x 0,50                       | 9.5                 | 30                   | 117            |
| 0032413              | 4 x 2 x 0,50                       | 11.1                | 50                   | 140            |
| 0032415              | 10 x 2 x 0,50                      | 14.5                | 110                  | 240            |
| 0032418              | 20 x 2 x 0,50                      | 17.9                | 210                  | 385            |
| 0032420              | 36 x 2 x 0,50                      | 22.6                | 370                  | 656            |
| 0032421              | 48 x 2 x 0,50                      | 27.1                | 490                  | 854            |
| <b>1.3 mm² blue</b>  |                                    |                     |                      |                |
| 0032422              | 1 x 2 x 1,30                       | 8.6                 | 31                   | 102            |
| 0032423              | 2 x 2 x 1,30                       | 11.5                | 62                   | 161            |
| 0032424              | 4 x 2 x 1,30                       | 13.8                | 114                  | 230            |
| 0032428              | 24 x 2 x 1,30                      | 27.5                | 684                  | 952            |
| <b>1.3 mm² black</b> |                                    |                     |                      |                |
| 0032430              | 1 x 2 x 1,30                       | 8.6                 | 31                   | 102            |
| 0032431              | 2 x 2 x 1,30                       | 11.5                | 62                   | 161            |
| 0032432              | 4 x 2 x 1,30                       | 13.8                | 114                  | 230            |
| 0032433              | 8 x 2 x 1,30                       | 16.9                | 218                  | 377            |
| 0032434              | 12 x 2 x 1,30                      | 19.3                | 322                  | 520            |
| 0032436              | 24 x 2 x 1,30                      | 27.5                | 684                  | 952            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Similar products**

- UNITRONIC® RE-2Y(ST)Yv PiMF refer to page 317

**Accessories**

- KNIPEX Cable shear refer to page 952
- KNIPEX Ratchet cutter refer to page 952
- KS 20 cable shears
- KT cable shears



## UNITRONIC® RE-2Y(ST)Yv PiMF

Instrumentation cable with reinforced outer sheath and pairs in metalfoil



### Info

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)



### Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

### Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous.

### Product features

- Computer cable with screened pairs and reinforced outer sheath
- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- In the style of EN 50288-7

### Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pair screening made of aluminium-laminated plastic foil with bare copper drain wire, PiMF marking using numbered foil, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Aluminium-laminated plastic foil static screen with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

### Technical data

|  |                                                                                                                                                  |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000104<br>ETIM 5.0/6.0 Class-Description: Control cable                               |
|  | <b>Core identification code</b><br>a-core: black; b-core: white with consecutive numbers: 1-1, 2-2, 3-3, 4-4 etc.                                |
|  | <b>Mutual capacitance</b><br>(at 800 Hz max):<br>C/C: 0.5 mm <sup>2</sup> : 75 nF/km<br>(at 800 Hz max):<br>C/C: 1.3 mm <sup>2</sup> : 100 nF/km |
|  | <b>Inductivity</b><br>max. 0.75 mH/km                                                                                                            |
|  | <b>Conductor resistance</b><br>0.5 mm <sup>2</sup> : max. 39.2 ohm/km<br>1.3 mm <sup>2</sup> : max. 14.2 ohm/km                                  |
|  | <b>Minimum bending radius</b><br>Occasional flexing: 15 x outer diameter<br>Fixed installation: 7.5 x outer diameter                             |
|  | <b>Short-range crosstalk attenuation</b><br>At 60 kHz: min. 1.02 dB/km                                                                           |
|  | <b>Test voltage</b><br>Core/core: 2000 V<br>Core/screen: 600 V                                                                                   |
|  | <b>Characteristic impedance</b><br>approx. 100 ohms                                                                                              |
|  | <b>Temperature range</b><br>Occasional flexing: -5°C to +50°C<br>Fixed installation: -40°C to +80°C                                              |

| Article number                  | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------------|------------------------------------------------|---------------------|----------------------|----------------|
| <b>RE-2Y(ST)Yv PiMF</b>         |                                                |                     |                      |                |
| <b>0.5 mm<sup>2</sup> blue</b>  |                                                |                     |                      |                |
| 0032438                         | 2 x 2 x 0,50                                   | 10                  | 35                   | 128            |
| 0032442                         | 12 x 2 x 0,50                                  | 16.7                | 161                  | 325            |
| <b>0.5 mm<sup>2</sup> black</b> |                                                |                     |                      |                |
| 0032448                         | 2 x 2 x 0,50                                   | 10                  | 35                   | 128            |
| 0032449                         | 4 x 2 x 0,50                                   | 11.6                | 60                   | 170            |
| 0032450                         | 8 x 2 x 0,50                                   | 14.4                | 121                  | 261            |
| 0032451                         | 10 x 2 x 0,50                                  | 15.9                | 136                  | 285            |
| 0032453                         | 16 x 2 x 0,50                                  | 19.1                | 212                  | 430            |
| <b>1.3 mm<sup>2</sup> blue</b>  |                                                |                     |                      |                |
| 0032458                         | 2 x 2 x 1,30                                   | 12.4                | 68                   | 184            |
| <b>1.3 mm<sup>2</sup> black</b> |                                                |                     |                      |                |
| 0032464                         | 2 x 2 x 1,30                                   | 12.4                | 68                   | 184            |
| 0032465                         | 4 x 2 x 1,30                                   | 14.2                | 124                  | 269            |
| 0032466                         | 8 x 2 x 1,30                                   | 18.5                | 239                  | 442            |
| 0032467                         | 12 x 2 x 1,30                                  | 22.2                | 353                  | 593            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- KNIPEX Ratchet cutter refer to page 952
- KT cable shears



## JE-Y(ST)Y...BD

Static screened installation cable for industrial electronics



### Info

- In accordance with DIN VDE 0815

## JE-Y(ST)Y...BD EB

Static screened installation cable for industrial electronics



### Info

- Blue version:  
Hazard protection type -i- is required where there is a risk of explosion

### Benefits

- Perfect for cost-effective installation, e.g. connections with insulation displacement technology (IDC).
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Connection cable for fixed installation in industrial control systems, as required in measurement, control, signalling and data applications
- Industrial electronics
- For fixed installation on and under plaster, in dry and damp rooms

### Product features

- The 2-pair version (2x2x0.8) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-Y(ST)Y...BD EB:  
For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

### Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-Y(ST)Y...BD

### Product Make-up

#### JE-Y(ST)Y...BD

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

#### JE-Y(ST)Y...BD EB

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC  
Outer sheath colour: sky blue (RAL 5015)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000829  
ETIM 5.0/6.0 Class-Description:  
Signal-/telecommunications cable

**Core identification code**  
according to VDE 0815,  
refer to Appendix T 10

**Mutual capacitance**  
max. 100 nF/km

**Coupling**  
approx. 200 pF/100 m

**Inductivity**  
approx. 0.65 mH/km

**Conductor stranding**  
Single-wire (solid conductor)  
0.8 mm: 0.50 mm<sup>2</sup>

**Minimum bending radius**  
Fixed installation: 6 x outer diameter

**Test voltage**  
**JE-Y(ST)Y...BD**  
Core/core: 500 V  
Core/screen: 2000 V  
**JE-Y(ST)Y...BD EB**  
Core/Core: 1000 V  
Core/screen: 2000 V

**Loop resistance**  
max. 73.2 Ohm/km

**Temperature range**  
Occasional flexing: -5°C to +50°C  
Fixed installation: -30°C to +70°C

| Article number                              | Number of cores and cable diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---------------------------------------------|-----------------------------------------|---------------------|----------------------|----------------|
| <b>JE-Y(ST)Y...BD</b>                       |                                         |                     |                      |                |
| 0034190                                     | 2 x 2 x 0.8                             | 6                   | 25                   | 60             |
| 0034191                                     | 4 x 2 x 0.8                             | 8.5                 | 45                   | 96             |
| 0034192                                     | 8 x 2 x 0.8                             | 11                  | 85                   | 158            |
| 0034193                                     | 12 x 2 x 0.8                            | 13                  | 126                  | 225            |
| 0034194                                     | 16 x 2 x 0.8                            | 14.5                | 166                  | 290            |
| 0034195                                     | 20 x 2 x 0.8                            | 16                  | 206                  | 350            |
| 0034197                                     | 40 x 2 x 0.8                            | 22                  | 407                  | 660            |
| <b>JE-Y(ST)Y...BD EB, blue outer sheath</b> |                                         |                     |                      |                |
| 0034120                                     | 2 x 2 x 0.8                             | 6                   | 25                   | 60             |
| 0034121                                     | 4 x 2 x 0.8                             | 8.5                 | 45                   | 100            |
| 0034122                                     | 8 x 2 x 0.8                             | 11                  | 85                   | 165            |
| 0034123                                     | 12 x 2 x 0.8                            | 13                  | 126                  | 240            |
| 0034125                                     | 20 x 2 x 0.8                            | 16                  | 206                  | 360            |
| 0034126                                     | 32 x 2 x 0.8                            | 20                  | 327                  | 555            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- STAR STRIP stripping tool refer to page 957

**JE-LiYCY...BD**

Screened data transmission cable for industrial electronics

**Info**

- In accordance with DIN VDE 0815

**JE-LiYCY...BD EB**

Screened data transmission cable for industrial electronics

**Info**

- Blue version:  
Hazard protection type -i- is required where there is a risk of explosion

**Benefits**

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

**Application range**

- Connection cable for use in electronics and in measurement, control and signal applications
- This cable is also used as a pulse and data transmission cable
- JE-LiYCY...BD has also proved to be an efficient connection cable for telephone systems, e.g. paging and intercom systems.
- For fixed installation on and under plaster, in dry and damp rooms

**Product features**

- The 2-pair version (2 x 2 x 0.5) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-LiYCY...BD EB:  
For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

**Norm references / Approvals**

- In accordance with DIN VDE 0815 type JE-LiYCY...BD

**Product Make-up****JE-LiYCY...BD**

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers, foil wrapping, screening braid made of tinned copper wires
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

**JE-LiYCY...BD EB**

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers, foil wrapping, screening braid made of tinned copper wires
- Outer sheath made of PVC  
Outer sheath colour: sky blue (RAL 5015)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000829  
ETIM 5.0/6.0 Class-Description:  
Signal-/telecommunications cable

**Core identification code**

according to VDE 0815,  
refer to Appendix T10

**Mutual capacitance**

max. 100 nF/km

**Coupling**

approx. 200 pF/100 m

**Inductivity**

approx. 0.65 mH/km

**Conductor stranding**

Multi-wire, 7 x 0.3mm

**Minimum bending radius**

Occasional flexing: 15 x outer diameter  
Fixed installation: 5 x outer diameter

**Test voltage**

**JE-LiYCY...BD**  
Core/core: 500 V  
Core/screen: 2000 V  
**JE-LiYCY...BD EB**  
Core/Core: 1000 V  
Core/screen: 2000 V

**Loop resistance**

max. 78.4 ohm/km

**Temperature range**

Occasional flexing: -5°C to +50°C  
Fixed installation: -30°C to +70°C

| Article number                             | Number of pairs and conductor cross section (mm²) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>JE-LiYCY...BD</b>                       |                                                   |                     |                      |                |
| 0034200                                    | 2 x 2 x 0.5                                       | 6.6                 | 51                   | 70             |
| 0034201                                    | 4 x 2 x 0.5                                       | 8.5                 | 87                   | 155            |
| 0034202                                    | 8 x 2 x 0.5                                       | 11.7                | 144                  | 260            |
| 0034208                                    | 12 x 2 x 0.5                                      | 12.8                | 195                  | 340            |
| 0034203                                    | 16 x 2 x 0.5                                      | 13.9                | 249                  | 430            |
| 0034210                                    | 20 x 2 x 0.5                                      | 15.1                | 298                  | 495            |
| 0034204                                    | 24 x 2 x 0.5                                      | 16.4                | 348                  | 605            |
| 0034212                                    | 32 x 2 x 0.5                                      | 21                  | 441                  | 738            |
| <b>JE-LiYCY...BD EB, blue outer sheath</b> |                                                   |                     |                      |                |
| 0034220                                    | 2 x 2 x 0.5                                       | 6.6                 | 51                   | 95             |
| 0034221                                    | 4 x 2 x 0.5                                       | 8.5                 | 87                   | 155            |
| 0034222                                    | 8 x 2 x 0.5                                       | 11.7                | 144                  | 260            |
| 0034223                                    | 12 x 2 x 0.5                                      | 12.8                | 193                  | 340            |
| 0034224                                    | 16 x 2 x 0.5                                      | 13.9                | 249                  | 430            |
| 0034225                                    | 20 x 2 x 0.5                                      | 15.1                | 298                  | 495            |
| 0034226                                    | 24 x 2 x 0.5                                      | 16.6                | 348                  | 605            |
| 0034227                                    | 32 x 2 x 0.5                                      | 21                  | 441                  | 738            |
| 0034228                                    | 40 x 2 x 0.5                                      | 21.7                | 531                  | 845            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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Photographs and graphics are not to scale and do not represent detailed images of the respective products

**Accessories**

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957



## J-Y(ST)Y...LG Indoor Cable

Installation cable in accordance with DIN VDE 0815



### Benefits

- Indoor telephone cables transmit analogue or digital signals
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

### Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- In news and communication applications, the following connections can be installed: telephone, telefax, telex, standard modems for postal services; burglar and fire alarm systems (cf. fire alarm cables); communication and paging systems; access control, time and data control systems
- Can be used in dry and wet interiors for fixed installation on and under plaster

### Product features

- The 2-paired versions = star quad cable design
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- In accordance with DIN VDE 0815 type J-Y(ST)Y...LG

### Product Make-up

- Solid bare copper conductor
- Core insulation made of PVC
- Cores twisted in pairs, pairs twisted together, foil wrapping over cable core, static screen made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC  
Outer sheath colour: pebble grey (RAL 7032)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000829  
ETIM 5.0/6.0 Class-Description:  
Signal-/telecommunications cable



#### Core identification code

according to VDE 0815,  
refer to Appendix T10



#### Coupling

(800 Hz): K1:  $80\% \leq 300 \text{ pF} / 100\text{m}$



#### Conductor cross-section in

0.6 mm:  $0.28 \text{ mm}^2$   
0.8 mm:  $0.50 \text{ mm}^2$

#### Cable attenuation/attenuation

0.6 mm:  $1.7 \text{ dB/km}$   
0.8 mm:  $1.1 \text{ dB/km}$



#### Minimum bending radius

Fixed installation:  $10 \times \text{outer diameter}$



#### Test voltage

Core/core: 800 V  
Core/screen: 800 V



#### Loop resistance

0.6 mm: max.  $130 \text{ ohm/km}$   
0.8 mm: max.  $73.2 \text{ ohm/km}$



#### Temperature range

Occasional flexing:  $-5^\circ\text{C}$  to  $+50^\circ\text{C}$   
Fixed installation:  $-30^\circ\text{C}$  to  $+70^\circ\text{C}$

| Article number                               | Number of double cores | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------------------------------------|------------------------|---------------------|----------------------|----------------|
| <b>J-Y(ST)Y...LG copper conductor 0.6 mm</b> |                        |                     |                      |                |
| 1591301                                      | 2                      | 5.5                 | 13                   | 40             |
| 1591302                                      | 3                      | 6.3                 | 18                   | 50             |
| 1591303                                      | 4                      | 6.7                 | 24                   | 60             |
| 1591304                                      | 5                      | 7.2                 | 30                   | 70             |
| 1591305                                      | 6                      | 7.5                 | 35                   | 80             |
| 1591306                                      | 8                      | 8                   | 46                   | 90             |
| 1591307                                      | 10                     | 9                   | 58                   | 110            |
| 1591308                                      | 12                     | 9.5                 | 71                   | 130            |
| 1591310                                      | 16                     | 10.5                | 93                   | 160            |
| 1591311                                      | 20                     | 11                  | 116                  | 190            |
| 1591312                                      | 24                     | 11.5                | 139                  | 220            |
| 1591313                                      | 30                     | 13                  | 172                  | 280            |
| 1591315                                      | 50                     | 17                  | 286                  | 430            |
| 1591318                                      | 100                    | 23                  | 568                  | 850            |

| Article number                               | Number of double cores | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------------------------------------|------------------------|---------------------|----------------------|----------------|
| <b>J-Y(ST)Y...LG copper conductor 0.8 mm</b> |                        |                     |                      |                |
| 1591500                                      | 1                      | 6                   | 11                   | 40             |
| 1591501                                      | 2                      | 7                   | 21                   | 60             |
| 1591502                                      | 3                      | 8.5                 | 31                   | 80             |
| 1591503                                      | 4                      | 9                   | 41                   | 100            |
| 1591505                                      | 6                      | 10.5                | 62                   | 140            |
| 1591506                                      | 8                      | 11.5                | 82                   | 170            |
| 1591507                                      | 10                     | 13                  | 102                  | 220            |
| 1591508                                      | 12                     | 14                  | 123                  | 250            |
| 1591511                                      | 20                     | 16.5                | 204                  | 380            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil  $\leq 30 \text{ kg}$  or  $\leq 250 \text{ m}$ , otherwise drum

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- J-2Y(ST)Y...ST III BD

### Accessories

- UNIVERSAL STRIP stripping tool refer to page 963
- STAR STRIP stripping tool refer to page 957



## A-2Y(L)2Y...ST III BD Telephone Outdoor Cable



## A-2YF(L)2Y...ST III BD Outdoor Cable



### Application range

- External cables for telecommunication and data processing systems
- Do not install cables that are meant to be placed in ducts or for direct burial in areas exposed to fire hazards

### Product features

- Outer sheath colour: black (RAL 9005)
- UV-resistant and laterally watertight
- Filled version (A-2YF(L)2Y...ST III BD) is additionally longitudinal watertight

### Norm references / Approvals

- In accordance with DIN VDE 0816

### Product Make-up

#### A-2Y(L)2Y...ST III BD Telephone Outdoor Cable

- Solid bare copper conductor
- Core insulation made of polyethylene (PE)
- 5 star-quads are twisted into each basic unit, which is then twisted together with the main unit to form the cable core
- Paper tape wrapping
- Laminated sheath with aluminium-coated plastic tape, PE outer sheath

#### A-2YF(L)2Y...ST III BD Outdoor Cable

- Similar to A-2Y(L)2Y, but with petroleum-jelly filling, laminated sheath made of aluminium-coated plastic tape, and black PE outer sheath

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000829  
ETIM 5.0/6.0 Class-Description:  
Signal-/telecommunications cable



#### Core identification code

According to VDE 0816,  
refer to Appendix T10



#### Mutual capacitance

At 800 Hz: max. 52 nF/km



#### Coupling

K1: 98 % < 400 pF/300 m  
K9-12: 98 % < 100 pF/300 m



#### Conductor cross-section in

0.6 mm: 0.28 mm<sup>2</sup>  
0.8 mm: 0.50 mm<sup>2</sup>

#### Cable attenuation/attenuation A-2Y(L)2Y...ST III BD Telephone Outdoor Cable

At 800 Hz 0.6 mm: approx. 1.04 dB/km  
At 800 Hz 0.8 mm: approx. 0.78 dB/km  
**A-2YF(L)2Y...ST III BD Outdoor Cable**  
At 800 Hz 0.6 mm: approx. 1.0 dB/km  
At 800 Hz 0.8 mm: approx. 0.8 dB/km



#### Minimum bending radius

10 x outer diameter



#### Test voltage

Core/core: 500 V  
Core/screen: 2000 V



#### Loop resistance

0.6 mm: 130 ohm/km  
0.8 mm: 73.2 ohm/km



#### Temperature range

During installation: -20 °C to +50 °C  
After installation: ≤ +70 °C

| Article number                                        | Number of double cores | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|-------------------------------------------------------|------------------------|---------------------|----------------------|----------------|
| <b>A-2Y(L)2Y...STIII BD copper conductor 0.6 mm</b>   |                        |                     |                      |                |
| 1591050                                               | 2                      | 8.1                 | 11                   | 80             |
| 1591052                                               | 6                      | 10.3                | 34                   | 130            |
| 1591053                                               | 10                     | 11.5                | 57                   | 165            |
| <b>A-2Y(L)2Y...ST III BD copper conductor 0.8 mm</b>  |                        |                     |                      |                |
| 1591150                                               | 2                      | 8.6                 | 20                   | 100            |
| 1591151                                               | 4                      | 10.9                | 40                   | 160            |
| 1591152                                               | 6                      | 11.5                | 60                   | 175            |
| 1591153                                               | 10                     | 13.5                | 101                  | 235            |
| 1591154                                               | 20                     | 17.3                | 201                  | 390            |
| <b>A-2YF(L)2Y...ST III BD copper conductor 0.6 mm</b> |                        |                     |                      |                |
| 1591028                                               | 2                      | 8.3                 | 11                   | 67             |
| 1591029                                               | 4                      | 10.4                | 23                   | 104            |
| 1591030                                               | 6                      | 11                  | 34                   | 130            |
| 1591031                                               | 10                     | 12.5                | 57                   | 180            |
| 1591032                                               | 20                     | 16                  | 113                  | 300            |
| 1591033                                               | 30                     | 19                  | 170                  | 420            |
| 1591035                                               | 50                     | 22.3                | 283                  | 620            |
| 1591037                                               | 100                    | 30.5                | 565                  | 1225           |
| <b>A-2YF(L)2Y...ST III BD copper conductor 0.8 mm</b> |                        |                     |                      |                |
| 1591217                                               | 2                      | 8.8                 | 20                   | 83             |
| 1591218                                               | 4                      | 11.2                | 40                   | 134            |
| 1591221                                               | 6                      | 12                  | 60                   | 180            |
| 1591222                                               | 10                     | 14                  | 101                  | 250            |
| 1591223                                               | 20                     | 19.1                | 201                  | 460            |
| 1591224                                               | 30                     | 22                  | 302                  | 630            |
| 1591225                                               | 40                     | 24                  | 402                  | 800            |
| 1591226                                               | 50                     | 26                  | 503                  | 975            |
| 1591228                                               | 100                    | 36                  | 1005                 | 1900           |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® MS-HF-M SC refer to page 701
- SKINTOP® MS-SC-M refer to page 695
- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 957



## Coaxial - RG



## Benefits

- Coaxial cables allow distortion-free and low-attenuation transmission of signals with a high bandwidth.
- High frequencies

## Application range

- For applications with limited movements and for fixed installation in dry or damp interiors and outdoors
- For radio and computer systems, as well as all applications related to commercial radio-frequency technology and electronics

## Product features

- Flame-retardant

## Product Make-up

- Coaxial cables are significantly less sensitive to external interference due to their structure.

## Technical data



## Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000019

ETIM 5.0/6.0 Class-Description:

Coaxial cable

## Dielectric constant

- Polyethylene (PE) 2.3-

Polyethylene, hollow (PE-ho) 1.5-

Polytetrafluoroethylene (PTFE) 2.1



## Minimum bending radius

Fixed installation: 6 x outer diameter



## Specifications and approvals

Similar to MIL-DTL17 H



## Temperature range

Fixed installation: PE outer sheath:

-40°C to +80°C

Fixed installation: PVC outer sheath:

-40°C to +80°C

Fixed installation: fluoroplastic

-55°C to +250°C

| Article number                           | Article designation | Characteristic impedance in ohm | Capacity pF/m | Attenuation approx. dB/100 m at 200 MHz/400 MHz | Propagation rate (%) | Operating voltage 50 Hz eff. kV | Test voltage (kV) | Inner conductor material | Internal Ø | Dielectric material | Dielectric Ø | Outer conductor material | Outer cable sheath | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------------------|---------------------|---------------------------------|---------------|-------------------------------------------------|----------------------|---------------------------------|-------------------|--------------------------|------------|---------------------|--------------|--------------------------|--------------------|---------------------|----------------------|----------------|
| <b>Characteristic impedance: 50 ohm</b>  |                     |                                 |               |                                                 |                      |                                 |                   |                          |            |                     |              |                          |                    |                     |                      |                |
| 2170000                                  | RG-58 C/U           | 50 +/- 2 Ω                      | 101           | 24 / 33                                         | 66                   | 2                               | 5                 | CuLivz                   | 0.9        | PE                  | 2.95         | Cvz                      | PVC                | 4.95                | 19.1                 | 38             |
| 2170001                                  | RG-174 A/U          | 50 +/- 2 Ω                      | 101           | 40 / 59                                         | 66                   | 1.5                             | 2                 | StCuLibl                 | 0.48       | PE                  | 1.52         | Cvz                      | PVC                | 2.80                | 5.4                  | 12             |
| 2170002                                  | RG-178 B/U          | 50 +/- 2 Ω                      | 95            | 63 / 93                                         | 70                   | 0.7                             | 2                 | StCuLivs                 | 0.3        | PTFE                | 0.86         | Cvs                      | FEP                | 1.91                | 4.4                  | 9              |
| 2170003                                  | RG-188 A/U          | 50 +/- 2 Ω                      | 95            | 47 / 56                                         | 70                   | 1.5                             | 2                 | StCuLivs                 | 0.51       | PTFE                | 1.52         | Cvs                      | PTFE               | 2.76                | 8.3                  | 17.5           |
| 2170005                                  | RG-213 /U           | 50 +/- 2 Ω                      | 101           | 10 / 15                                         | 66                   | 5                               | 10                | CuLibl                   | 2.25       | PE                  | 7.25         | Cbl                      | PVC                | 10.30               | 75.8                 | 157            |
| 2170006                                  | RG-214 /U           | 50 +/- 2 Ω                      | 101           | 9 / 14                                          | 66                   | 5                               | 10                | CuLivs                   | 2.25       | PE                  | 7.25         | CvsCvs                   | PVC                | 10.80               | 117.8                | 207            |
| 2170007                                  | RG-223 /U           | 50 +/- 2 Ω                      | 101           | 23 / 34                                         | 66                   | 2                               | 3                 | CuMvs                    | 0.89       | PE                  | 2.95         | CvsCvs                   | PVC                | 5.50                | 38.5                 | 60             |
| <b>Characteristic impedance: 75 ohm</b>  |                     |                                 |               |                                                 |                      |                                 |                   |                          |            |                     |              |                          |                    |                     |                      |                |
| 2170016                                  | RG-6 A/U            | 75 +/- 3 Ω                      | 67            | 14 / 20                                         | 66                   | 2                               | 5                 | StCuMbl                  | 0.72       | PE                  | 4.7          | Cbl                      | PVC                | 8.40                | 72                   | 120            |
| 2170009                                  | RG-11 A/U           | 75 +/- 3 Ω                      | 67            | 11 / 16                                         | 66                   | 5                               | 10                | CuLivz                   | 1.2        | PE                  | 7.3          | Cbl                      | PVC                | 10.30               | 55.5                 | 140            |
| 2170011                                  | RG-11 A/U outdoor   | 75 +/- 3 Ω                      | 67            | 11 / 16                                         | 66                   | 5                               | 10                | CuLivz                   | 1.2        | PE                  | 7.3          | Cbl                      | PVC                | 12.10               | 55.5                 | 170            |
| 2170012                                  | RG-59 B/U           | 75 +/- 3 Ω                      | 67            | 16.5/23                                         | 66                   | 1.7                             | 7                 | StCuMbl                  | 0.6        | PE                  | 3.7          | Cbl                      | PVC                | 6.15                | 25                   | 57             |
| 2170010                                  | RG-187 A/U          | 75 +/- 3 Ω                      | 65            | 47 / 56                                         | 70                   | 1.5                             | 2                 | StCuLivs                 | 0.31       | PTFE                | 1.52         | Cvs                      | PTFE               | 2.80                | 7.3                  | 17             |
| <b>Characteristic impedance: 100 Ohm</b> |                     |                                 |               |                                                 |                      |                                 |                   |                          |            |                     |              |                          |                    |                     |                      |                |
| 2170008                                  | RG-62 A/U           | 93 +/- 5 Ω                      | 43            | 15 / 19                                         | 75                   | 0.8                             | 2                 | StCuMbl                  | 0.65       | PE hollow           | 3.7          | Cbl                      | PVC                | 6.15                | 26                   | 52             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## Multi coaxial cables RG 59 B/U



### Benefits

- In extended systems, the use of the RG 59 B/U multi-coaxial cable as a screened supply cable prevents an accumulation of individual cables running in parallel over long distances.
- This saves installation costs and provides greater mechanical protection for the each sensitive cable.

### Product features

- Multi-coaxial cables provide an easier installation than individual installation

### Product Make-up

- 2 x single coaxial cables type RG 59 B/U
- Twin cable
- PVC sheath
- Colour: black

### Technical data

|  |                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000019<br>ETIM 5.0/6.0 Class-Description:<br>Coaxial cable |
|  | <b>Based on</b><br>Similar to MIL specification MIL-DTL 17 H                                                          |
|  | <b>Minimum bending radius</b><br>Fixed installation: 15 x outer diameter                                              |
|  | <b>Temperature range</b><br>Fixed installation: -40°C to +80°C                                                        |

| Article number                          | Number of single cables x RG type | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------------------|-----------------------------------|-------------------|----------------------|----------------|
| <b>Characteristic impedance: 75 ohm</b> |                                   |                   |                      |                |
| 2170056                                 | 2 x RG 59 B/U                     | 6.5 x 13.0        | 50                   | 116            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## Coaxial cables RGB



### Info

- Connecting Cable for Colour Monitors



### Benefits

- Low attenuation ensures a longer transmission distance
- Transmission of the red (R), green (G) and blue (B) colour signals

### Application range

- Colour monitor cable for PCs and CAD workstations, process visualisation
- For fixed installation in rooms (RGB CY..x Kx 0.4/1.8)
- For highly flexible applications in power chains (energy supply chains) and continuously moving machine components (RGB-FD..x Kx 0.6L/2.4)

### Product Make-up

- Conductor: tinned-copper wire
- Dielectric: cellular polyolefin
- Outer conductor: copper braiding or tinned-copper wire wrapping
- Red (R), green (G), blue (B) elements - for RGB 5 x Kx 0.4/1.8 red, green, blue, white, black
- PVC outer sheath  
FD Version with PUR outer sheath

### Technical data

|  |                                                                                                                       |
|--|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000019<br>ETIM 5.0/6.0 Class-Description:<br>Coaxial cable |
|  | <b>Mutual capacitance</b><br>60 nF/km                                                                                 |
|  | <b>Minimum bending radius</b><br>15 x outer diameter                                                                  |
|  | <b>Characteristic impedance</b><br>75 Ohm                                                                             |
|  | <b>Temperature range</b><br>-10 °C to +80 °C<br>Occasional flexing: -5°C to +70°C                                     |

| Article number                                   | Article designation              | Outer diameter mm | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------------------------|----------------------------------|-------------------|----------------------|----------------|
| <b>Fixed Installation</b>                        |                                  |                   |                      |                |
| 0034245                                          | RGB CY 3 x Kx 0,4/1,8 + 3 x 0,25 | 8.0               | 51                   | 97             |
| 0034246                                          | RGB DY 5 x Kx 0,4/1,8            | 9.7               | 60                   | 132            |
| <b>Flexible and highly flexible applications</b> |                                  |                   |                      |                |
| 0034247                                          | RGB-FD 3 x Kx 0,6L/2,4           | 10.8              | 29                   | 100            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

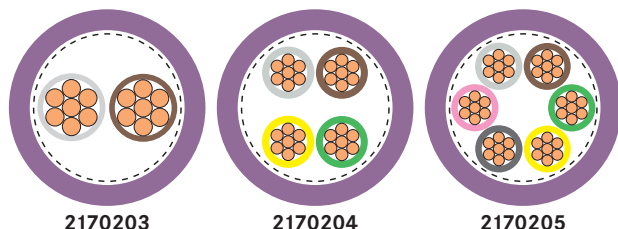
### Accessories

- STAR STRIP stripping tool refer to page 957
- DATA STRIP stripping tool refer to page 959



## UNITRONIC® BUS LD

Flexible buscable with PVC outer sheath, for use in different bussystems



### Info

- LD is a LAPP abbreviation for long distance

### Benefits

- Suitable for multiple Bus systems based on RS485 / RS422

### Application range

- For fixed installation  
Maximum electromagnetic screening
- Bus cables for bus systems such as  
e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)
- Dry or damp rooms

### Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m

### Norm references / Approvals

- UNITRONIC® BUS LD A:  
UL versions with certification:  
UL/CSA type CMX acc. to UL 444  
and CSA C22.2 no. 214-02
- Flame retardant acc. to IEC 60332-1-2

### Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation: PE
- Colour code DIN 47100
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, violet (RAL 4001)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable



#### Mutual capacitance

Flexible use: 10 x outer diameter



#### Peak operating voltage

(not for power applications) 250 V



#### Conductor resistance

(loop): max. 186 ohm/km



#### Minimum bending radius

Fixed installation: 8 x outer diameter



#### Test voltage

Core/core: 1500 V rms



#### Characteristic impedance

100 - 120 Ohm



#### Temperature range

Fixed installation: -40°C to +80°C  
Flexing: -5°C to +70°C

| Article number                                           | Article designation | Number of pairs and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------------------------------------------------|---------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>for fixed installation</b>                            |                     |                                                   |                     |                      |                |
| 2170203                                                  | UNITRONIC® BUS LD   | 1 x 2 x 0,22                                      | 5.7                 | 18                   | 37             |
| 2170204                                                  | UNITRONIC® BUS LD   | 2 x 2 x 0,22                                      | 7.1                 | 28                   | 45             |
| 2170205                                                  | UNITRONIC® BUS LD   | 3 x 2 x 0,22                                      | 7.2                 | 37                   | 72             |
| <b>For fixed installation - UL/CSA CMX certification</b> |                     |                                                   |                     |                      |                |
| 2170803                                                  | UNITRONIC® BUS LD A | 1 x 2 x 0,22                                      | 5.7                 | 18                   | 39             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Modbus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

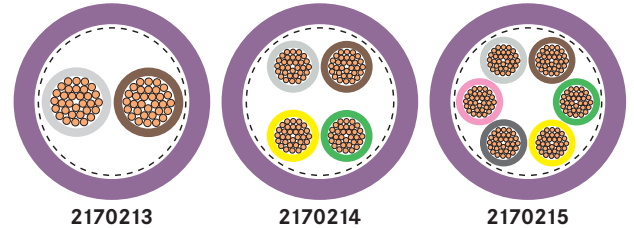
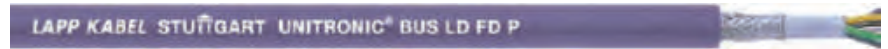


## UNITRONIC® BUS LD FD P

Highly flexible buscable with PUR outer sheath, for use in different bussystems

**Info**

- LD is a LAPP abbreviation for long distance



### Benefits

- Suitable for multiple Bus systems based on RS485 / RS422
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in power chains
- Under consideration of the temperature range also suitable for outdoor use

### Application range

- For highly flexible applications (power chains, moving machine parts)
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)

### Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m
- UV-resistant (but colour may change after some time)

### Norm references / Approvals

- UNITRONIC® BUS LD FD P A:  
UL versions with certification:  
UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according IEC 60332-1-2

### Product Make-up

- Extra-fine wire strand made of bare copper
- Colour code DIN 47100
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, violet (RAL 4001)

### Technical data

|  |                                                                                                                                                          |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                                          |
|  | <b>Mutual capacitance</b><br>(800 Hz) max. 60 nF/km                                                                                                      |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                                                                      |
|  | <b>Conductor resistance</b><br>(loop): max. 159.8 ohm/km                                                                                                 |
|  | <b>Minimum bending radius</b><br>Fixed installation: 6 x core diameter<br>One bend at end of core:<br>3 x cable diameter<br>Flexing: 15 x outer diameter |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                                                             |
|  | <b>Characteristic impedance</b><br>100 - 120 Ohm                                                                                                         |
|  | <b>Temperature range</b><br>Fixed installation: -40°C to +80°C<br>Flexing: -30°C to +70°C                                                                |

| Article number                                                          | Article designation      | Number of pairs and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------------------------------------------------|--------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>For highly flexible applications</b>                                 |                          |                                                   |                     |                      |                |
| 2170213                                                                 | UNITRONIC® BUS LD FD P   | 1 x 2 x 0,25                                      | 6                   | 18                   | 39             |
| 2170214                                                                 | UNITRONIC® BUS LD FD P   | 2 x 2 x 0,25                                      | 7.9                 | 33                   | 65             |
| 2170215                                                                 | UNITRONIC® BUS LD FD P   | 3 x 2 x 0,25                                      | 8                   | 39                   | 77             |
| <b>For highly flexible applications - with UL/CSA CMX certification</b> |                          |                                                   |                     |                      |                |
| 2170813                                                                 | UNITRONIC® BUS LD FD P A | 1 x 2 x 0,25                                      | 6.2                 | 18                   | 39             |
| 2170814                                                                 | UNITRONIC® BUS LD FD P A | 2 x 2 x 0,25                                      | 8.3                 | 33                   | 65             |
| 2170815                                                                 | UNITRONIC® BUS LD FD P A | 3 x 2 x 0,25                                      | 8.4                 | 39                   | 77             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Modbus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SMART STRIP stripping tool



## UNITRONIC® BUS ASI

AS-INTERFACE cables for networking systems in the field

LAPP KABEL STUFGART UNITRONIC® BUS ASI

LAPP KABEL STUFGART UNITRONIC® BUS ASI

LAPP KABEL STUFGART UNITRONIC® BUS ASI



### Info

- "LD" = Long Distance

### Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- The rubber versions are halogen-free

### Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- The TPE version has an oil-resistant outer sheath. It is suitable for wet areas, in particular in conjunction with water-soluble cooling lubricants.

### Product features

- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

### Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC A version with UL/CSA (CMX) certification
- UL/CSA version: CMG c(UL)us or (UL)CL2 or AWM 300V FT4 certified

### Product Make-up

- Conductor: fine-wire tinned-copper strands
- Core insulation: blue and brown
- Outer sheath: rubber (G), halogenfree thermoplastic elastomers (TPE) PVC
- Outer sheath: yellow (RAL 1023), black (RAL 9005), red (RAL 3000)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable



#### Peak operating voltage

Yellow: 300 V (not for power applications)  
Black: 300 V (not for power applications)  
Red: 300 V



#### Conductor resistance

1.5 mm<sup>2</sup>: max. 13.7 Ohm/km  
2.5 mm<sup>2</sup>: max. 8.21 Ohm/km



#### Minimum bending radius

Fixed installation: 12 mm  
Flexible use 24 mm



#### Test voltage

Core/core: 2000 V



#### Temperature range

Dependent on outer sheath material:  
PVC: -30 °C to +90 °C  
Other materials: -40 °C to +85 °C  
During installation:  
PVC -20 °C to +90 °C  
Other materials:  
-30 °C to +85 °C

| Article number    | Article designation        | Outer sheath colour | Application                              | Number of cores and mm <sup>2</sup> per conductor | Copper index (kg/km) | Weight (kg/km) |
|-------------------|----------------------------|---------------------|------------------------------------------|---------------------------------------------------|----------------------|----------------|
| <b>Gummi/EPDM</b> |                            |                     |                                          |                                                   |                      |                |
| 2170228           | UNITRONIC® BUS ASI (G)     | yellow              | Data and power transmission              | 2 x 1,5                                           | 29                   | 85             |
| 2170229           | UNITRONIC® BUS ASI (G)     | black               | Transmission of 30 V DC auxiliary power  | 2 x 1,5                                           | 29                   | 85             |
| 2170371           | UNITRONIC® BUS ASI LD (G)  | yellow              | Data and power transmission              | 2 x 2,5                                           | 48                   | 85             |
| 2170372           | UNITRONIC® BUS ASI LD (G)  | black               | Transmission of 30 V DC auxiliary power  | 2 x 2,5                                           | 48                   | 85             |
| <b>TPE</b>        |                            |                     |                                          |                                                   |                      |                |
| 2170230           | UNITRONIC® BUS ASI (TPE)   | yellow              | Data and power transmission              | 2 x 1,5                                           | 29                   | 64             |
| 2170231           | UNITRONIC® BUS ASI (TPE)   | black               | Transmission of 30 V DC auxiliary power  | 2 x 1,5                                           | 29                   | 64             |
| 2170232           | UNITRONIC® BUS ASI (TPE)   | red                 | Transmission of 230 V AC auxiliary power | 2 x 1,5                                           | 29                   | 64             |
| <b>PVC UL/CSA</b> |                            |                     |                                          |                                                   |                      |                |
| 2170842           | UNITRONIC® BUS ASI (PVC) A | yellow              | Data and power transmission              | 2 x 1,5                                           | 29                   | 70             |
| 2170843           | UNITRONIC® BUS ASI (PVC) A | black               | Transmission of 30 V DC auxiliary power  | 2 x 1,5                                           | 29                   | 70             |
| 2170844           | UNITRONIC® BUS ASI (PVC) A | red                 | Transmission of 230 V AC auxiliary power | 2 x 1,5                                           | 29                   | 70             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Lapp Kabel is a member of the AS-International Association

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 714
- AS-I clip clamp / AS-I end sealing
- UNIVERSAL STRIP stripping tool refer to page 963
- AS-I STRIP special stripping tool refer to page 961
- AS-I STRIP special
- SKINTOP® DIX ASI



## UNITRONIC® BUS ASI FD

High flexible AS-INTERFACE cables for networking systems in the field

### Info

- "FD" = suitable for power chains
- "LD" = Long Distance

### Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- For highly flexible applications (power chains, moving machine parts)
- High oil-resistance

### Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring

### Product features

- PUR versions are halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2, UL FT-2 flame test
- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal).
- The conductor is contacted by "piercing technology" within the ASI modules.
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables).

### Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- TPE variant: UL AWM Style 2103 CSA AWM II A/B
- PUR versions: UL AWM Style 20549

### Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: halogen-free compound
- Outer sheath: TPE PUR
- Outer sheath: yellow (RAL 1023), black (RAL 9005)

### Technical data

|  |                                                                                                                                             |
|--|---------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                             |
|  | <b>Peak operating voltage</b><br>300 V (not for power applications)                                                                         |
|  | <b>Conductor resistance</b><br>1.5 mm <sup>2</sup> : max. 13.7 Ohm/km<br>2.5 mm <sup>2</sup> : max. 8.21 Ohm/km                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 12 mm<br>Flexing without fixing: 24 mm<br>Flexing with fixing: 60 mm (15 x D)          |
|  | <b>Test voltage</b><br>Core/core: 2000 V                                                                                                    |
|  | <b>Temperature range</b><br>Fixed installation:<br>-40°C to +80°C (TPE +105°C)<br>Flexing without fixing:<br>-30 °C to +70 °C (TPE +105 °C) |

| Article number                                                               | Article designation           | Outer sheath colour | Application                             | Number of cores and mm <sup>2</sup> per conductor | Copper index (kg/km) | Weight (kg/km) |
|------------------------------------------------------------------------------|-------------------------------|---------------------|-----------------------------------------|---------------------------------------------------|----------------------|----------------|
| <b>For highly flexible applications (power chains, moving machine parts)</b> |                               |                     |                                         |                                                   |                      |                |
| 2170357                                                                      | UNITRONIC® BUS ASI FD P FRNC  | yellow              | Data and power transmission             | 2 x 1,5                                           | 29                   | 64             |
| 2170358                                                                      | UNITRONIC® BUS ASI FD P FRNC  | black               | Transmission of 30 V DC auxiliary power | 2 x 1,5                                           | 29                   | 64             |
| 2170317                                                                      | UNITRONIC® BUS ASI LD FD P    | yellow              | Data and power transmission             | 2 x 2,5                                           | 48                   | 74             |
| 2170318                                                                      | UNITRONIC® BUS ASI LD FD P    | black               | Transmission of 30 V DC auxiliary power | 2 x 2,5                                           | 48                   | 74             |
| <b>For high flexible application - TPE UL/CSA (AWM)</b>                      |                               |                     |                                         |                                                   |                      |                |
| 2170830                                                                      | UNITRONIC® BUS ASI FD (TPE) A | yellow              | Data and power transmission             | 2 x 1,5                                           | 29                   | 64             |
| 2170831                                                                      | UNITRONIC® BUS ASI FD (TPE) A | black               | Transmission of 30 V DC auxiliary power | 2 x 1,5                                           | 29                   | 64             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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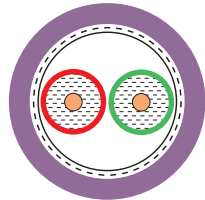
### Accessories

- SKINTOP® DIX-M AUTOMATION refer to page 714
- AS-I clip clamp / AS-I end sealing
- UNIVERSAL STRIP stripping tool refer to page 963
- AS-I STRIP special stripping tool refer to page 961
- AS-I STRIP special
- SKINTOP® DIX ASI



## UNITRONIC® BUS PB TRAY

PROFIBUS cable with PLTC-ER approval for unprotected use on cable trays



2170856

### Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

### Application range

- For fixed installation or applications with occasional movements
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m
- UV-resistant UL SUN RES
- Flame retardant acc. UL 1685 - FT4 (vertical tray)

### Norm references / Approvals

- C(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

### Product Make-up

- Bare copper wire, 0,64 mm diameter
- Core colours: red, green
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC inner sheath and outer sheath
- Colour: violet (RAL 4001)

### Info

- PLTC-ER (power limited tray cable - exposed run)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(1 kHz): max. 30 nF/km                                                             |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Impedance</b><br>150 +/- 15 Ohm                                                                              |
|  | <b>Conductor resistance</b><br>(loop): max. 110 ohm/km                                                          |
|  | <b>Minimum bending radius</b><br>Fixed installation: 8 x outer diameter                                         |
|  | <b>Test voltage</b><br>Core/core: 2000 V                                                                        |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -10°C to +70°C<br>Fixed installation: -40°C to +80°C                       |

| Article number | Article designation    | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| 2170856        | UNITRONIC® BUS PB TRAY | 1x2x0,64                                    | 8,4                 | 26                   | 82             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP  
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Sub-D Bus-Connectors



## UNITRONIC® BUS PB

PROFIBUS cables for fixed applications

### Info

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced here: UL and CSA certifications
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)



### Application range

- For fixed installation  
Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

### Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m

### Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)
- See below for UL certification type

### Product Make-up

- FC: Fast Connect cable design
- P: Polyurethane
- H: Halogen-free
- PE: polyethylene outer sheath, black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Conductor resistance</b><br>(loop): max. 186 Ohm/km.<br>see also datasheet                                   |
|  | <b>Minimum bending radius</b><br>Fixed installation: see data sheet                                             |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |

| Article number                                              | Article designation         | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------------------------------------|-----------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>Conventional cable makeup</b>                            |                             |                                             |                     |                      |                |
| 2170220                                                     | UNITRONIC® BUS PB           | 1 x 2 x 0.64                                | 8                   | 30.1                 | 74             |
| 2170233                                                     | UNITRONIC® BUS PB PE        | 1 x 2 x 0.64                                | 8                   | 30.1                 | 57             |
| 2170226                                                     | UNITRONIC® BUS PB H 7-W     | 1 x 2 x 0.64                                | 8                   | 30.1                 | 55             |
| 2170225                                                     | UNITRONIC® BUS PB COMBI 7-W | 1 x 2 x 0,64 Ø + 3 x 1,0 mm <sup>2</sup>    | 9.8                 | 59                   | 92             |
| <b>Conventional cable makeup - UL/CSA CMX certification</b> |                             |                                             |                     |                      |                |
| 2170219                                                     | UNITRONIC® BUS PB A         | 1 x 2 x 0.64                                | 8                   | 30.1                 | 57             |
| <b>Conventional cable makeup - UL/CSA CMG certification</b> |                             |                                             |                     |                      |                |
| 2170824                                                     | UNITRONIC® BUS PB 7-W A     | 1 x 2 x 0.64                                | 8                   | 30.1                 | 55             |
| <b>Fast Connect</b>                                         |                             |                                             |                     |                      |                |
| 2170333                                                     | UNITRONIC® BUS PB PE FC     | 1 x 2 x 0.64                                | 8                   | 26                   | 67             |
| <b>Fast Connect - UL/CSA CMX certification</b>              |                             |                                             |                     |                      |                |
| 2170330                                                     | UNITRONIC® BUS PB P FC      | 1 x 2 x 0.64                                | 8                   | 26                   | 71             |
| <b>Fast Connect cable makeup - UL/CSA CMG certification</b> |                             |                                             |                     |                      |                |
| 2170820                                                     | UNITRONIC® BUS PB FC        | 1 x 2 x 0.64                                | 8                   | 26                   | 84             |
| 2170826                                                     | UNITRONIC® BUS PB 7-W FC    | 1 x 2 x 0.64                                | 8                   | 26                   | 67             |
| 2170326                                                     | UNITRONIC® BUS PB-H FC      | 1 x 2 x 0.64                                | 8                   | 26                   | 72             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

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### Similar products

- UNITRONIC® BUS PB ROBUST refer to page 330
- UNITRONIC® BUS PB 105 refer to page 331

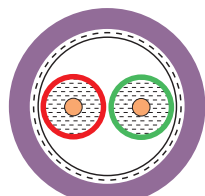
### Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 960
- SENSOR STRIP stripping tool refer to page 961



## UNITRONIC® BUS PB ROBUST

PROFIBUS cable - resistant to a wide range of chemical media



2170620

### Benefits

- Robust PROFIBUS cable for use under harsh environmental conditions

### Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- Fixed Installation

### Product features

- Significantly extended use and application areas, water and chemical resistance for use in industrial conditions.
- High resistance to tensides, soaps etc.
- UV-resistant
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m

### Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: Specially formulated TPE, violet (RAL 4001)
- With conventional cable design



### Info

- Excellent weather resistance
- Good chemical resistance

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(1 kHz): approx. 28.5 nF/km                                                        |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 75 mm                                                      |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 1500 V                                             |
|  | <b>Characteristic impedance</b><br>(3 - 20 MHz): 150 ± 15 Ohm                                                   |
|  | <b>Temperature range</b><br>-40 °C to +80 °C                                                                    |

| Article number                | Article designation      | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------|--------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>for fixed installation</b> |                          |                                             |                     |                      |                |
| 2170620                       | UNITRONIC® BUS PB ROBUST | 1 x 2 x 0.64                                | 8                   | 26                   | 55             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP

Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

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### Accessories

- Sub-D Bus-Connectors

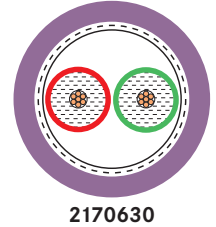


## UNITRONIC® BUS PB 105

PROFIBUS cable with an extended temperature range up to +105 °C

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>Approx. 28.5 nF/km                                                                 |
|  | <b>Peak operating voltage</b><br>max. 100 V (not for power applications)                                        |
|  | <b>Minimum bending radius</b><br>Fixed installation: 45 mm once<br>Flexing: 65 mm                               |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 1500 V                                             |
|  | <b>Characteristic impedance</b><br>(3 - 20 MHz): 150 ± 15 Ohm                                                   |
|  | <b>Temperature range</b><br>-30 °C to +105 °C                                                                   |



### Application range

- Cable has been designed for use in factory halls where temperatures up to max. 105 °C may occur.

### Product features

- High temperature resistance
- Flame-retardant according IEC 60332-1-2
- Oil-resistant

### Product Make-up

- Stranded conductor, 7-wire, bare
- Conductor diameter: 0,64 mm (AWG24)
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, violet (RAL 4001)

| Article number               | Article designation   | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------|-----------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS PB 105</b> |                       |                                             |                     |                      |                |
| 2170630                      | UNITRONIC® BUS PB 105 | 1 x 2 x 0.64                                | 8                   | 30.1                 | 72             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Multipurpose shears A and B



## UNITRONIC® BUS PB 105 plus

PROFIBUS cable with an extended temperature range up to +105 °C; short term +120 °C



### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 45 mm once<br>Flexing: 65 mm                               |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 1500 V eff.                                        |
|  | <b>Characteristic impedance</b><br>(3 - 20 MHz): 150 ± 15 Ohm                                                   |
|  | <b>Temperature range</b><br>Fixed installation: -40 °C to +105 °C<br>Short-term: up to +120 °C                  |

### Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

### Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas

### Product features

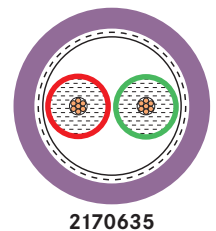
- Permanent load up to +105 °C, temporary load +120 °C

### Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)

### Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: polypropylene (PP)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE, violet (RAL 4001)



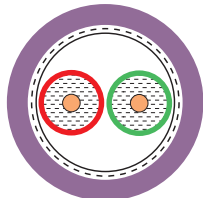
| Article number                    | Article designation        | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) |
|-----------------------------------|----------------------------|---------------------------------------------|---------------------|----------------------|
| <b>UNITRONIC® BUS PB 105 plus</b> |                            |                                             |                     |                      |
| 2170635                           | UNITRONIC® BUS PB 105 plus | 1x2x0,64                                    | 8                   | 30.1                 |

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## UNITRONIC® BUS PB HEAT 180

PROFIBUS cable with an extended temperature range up to +180 °C



3031981

### Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

### Application range

- Fixed Installation
- For use in high temperature areas with up to 180 °C

### Product features

- High oil-resistance

### Product Make-up

- Solid and bare copper conductor
- Wire insulation Fluorethylen
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: FEP, violet (RAL 4001)

### Suitable connectors

- Sub-D Bus-Connectors

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>approx. 28 nF / km                                                                 |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Repeated: 7 x Outer Diameter<br>Single: 5 x Outer Diameter                     |
|  | <b>Test voltage</b><br>3600 V DC (3 sec.)                                                                       |
|  | <b>Characteristic impedance</b><br>(3 - 20 MHz): 150 ± 15 Ohm                                                   |
|  | <b>Temperature range</b><br>-50 to +180 °C                                                                      |

| Article number                    | Article designation        | Number of pairs and conductor diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------------|----------------------------|---------------------------------------------|----------------------|----------------|
| <b>UNITRONIC® BUS PB HEAT 180</b> |                            |                                             |                      |                |
| 3031981                           | UNITRONIC® BUS PB HEAT 180 | 1 x 2 x 0,64                                | 21.7                 | 64.1           |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

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## UNITRONIC® BUS PB FRNC FC

FRNC PROFIBUS cable UL/CSA certified

**Info**

- FRNC = Flame Retardant Non Corrosive
  - Reduction of flame-propagation and density and toxicity of smoke gases in the event of fire
  - Minimisation of damage to buildings and production facilities
  - Safety for staff and in areas with high density of people



- Benefits**
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
  - For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
  - Fast Connect (FC) cable design

- Application range**
- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

- Product features**
- Halogen-free
  - Vertical Tray Flame Test according to UL 1685
  - Oil-resistant
  - Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
    - 93.75 kbit/s = 1200 m
    - 187.5 kbit/s = 1000 m
    - 500 kbit/s = 400 m
    - 1.5 Mbit/s = 200 m
    - 12.0 Mbit/s = 100 m

- Norm references / Approvals**
- UL/CSA-certified

- Product Make-up**
- Solid and bare copper conductor
  - Core insulation: PE
  - Inner sheath, screening foil and braiding
  - Outer sheath: PUR, violet (RAL 4001)

**Technical data**

- Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable
- Certifications**  
UL/CSA (CM)
- Mutual capacitance**  
Approx. 28.5 nF/km
- Peak operating voltage**  
(not for power applications) 250 V
- Minimum bending radius**  
80 mm
- Test voltage**  
Core/core: 1500 V rms  
Core/screen: 1500 V
- Characteristic impedance**  
(3 - 20 MHz): 150 ± 15 Ohm
- Temperature range**  
-30°C to +80°C

| Article number | Article designation       | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| 2170996        | UNITRONIC® BUS PB FRNC FC | 1 x 2 x 0.64                                | 8                   | 30.1                 | 74             |

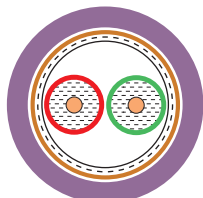
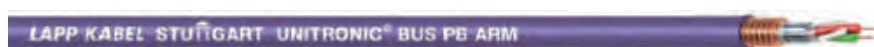
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
 Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
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- Accessories**
- Sub-D Bus-Connectors
  - FC STRIP stripping tool refer to page 960



## UNITRONIC® BUS PB ARM

Armored PROFIBUS cable for use in harsh industrial environments



2170247

### Benefits

- EMC-optimised design

### Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- Flame-retardant according IEC 60332-1-2
- UV-resistant

### Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally
- Outer sheath: PVC, violet (RAL 4001)

### Technical data

|  |                                                                                                                            |
|--|----------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable            |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                                       |
|  | <b>Peak operating voltage</b><br>(not for power applications) 100 V                                                        |
|  | <b>Minimum bending radius</b><br>Fixed installation: 7.5 x outer diameter<br>Fixed installation: 3.5 x cable diameter once |
|  | <b>Test voltage</b><br>3600 V DC (3 sec.)                                                                                  |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                            |
|  | <b>Temperature range</b><br>-40 °C to +70 °C                                                                               |

| Article number               | Article designation   | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------|-----------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS PB ARM</b> |                       |                                             |                     |                      |                |
| 2170247                      | UNITRONIC® BUS PB ARM | 1 x 2 x 0.65                                | 11.1                | 86.9                 | 131            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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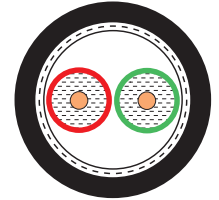
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## UNITRONIC® BUS PB Yv

PROFIBUS cable with reinforced PVC outer sheath for outdoor/direct burial use



2170223

### Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- Reinforced outer sheath made of PVC

### Product Make-up

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: reinforced PVC, black

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 75 mm once<br>Fixed installation: 150 mm                   |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 1500 V                                             |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -5°C to +50°C<br>Fixed installation: -40°C to +80°C                        |

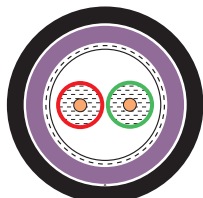
| Article number                             | Article designation  | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------------------|----------------------|---------------------------------------------|---------------------|----------------------|----------------|
| Suitable for outdoor use and direct burial |                      |                                             |                     |                      |                |
| 2170223                                    | UNITRONIC® BUS PB Yv | 1 x 2 x 0.64                                | 9.4                 | 30.1                 | 106            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
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## UNITRONIC® BUS PB YY

PROFIBUS cable with double PVC outer sheath for outdoor/direct burial use – Fast Connect cable make up



2170236

### Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- Double PVC outer sheath

### Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.4 mm
- Outer sheath, PVC, black RAL (9005), outer diameter: 9.5 mm

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 75 mm once<br>Flexing installation: 10 x outer diameter    |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 1500 V                                             |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -5°C to +50°C<br>Fixed installation: -40°C to +80°C                        |

| Article number | Article designation  | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|----------------------|---------------------------------------------|---------------------|----------------------|----------------|
| 2170236        | UNITRONIC® BUS PB YY | 1 x 2 x 0.64                                | 9.5                 | 30.1                 | 87             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
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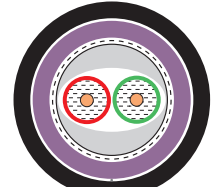
### Accessories

- Sub-D Bus-Connectors
- Multipurpose shears A and B



## UNITRONIC® BUS PB BURIAL FC

PROFIBUS cable with double outer sheath for outdoor/direct burial use



2170323

### Benefits

- Fast Connect (FC) cable design
- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- Second PE outer sheath

### Product Make-up

- Solid and bare copper conductor
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 8.0 mm
- Outer sheath, PE, black RAL (9005), outer diameter: 10.8 mm

### Technical data

|  |                                                                                                                            |
|--|----------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable            |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                                       |
|  | <b>Peak operating voltage</b><br>(not for power applications) 100 V                                                        |
|  | <b>Minimum bending radius</b><br>Fixed installation: 3.5 x cable diameter once<br>Fixed installation: 7.5 x outer diameter |
|  | <b>Test voltage</b><br>3600 V DC (3 sec.)                                                                                  |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                            |
|  | <b>Temperature range</b><br>-40 °C to +60 °C                                                                               |

| Article number                                    | Article designation         | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|---------------------------------------------------|-----------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>Suitable for outdoor use and direct burial</b> |                             |                                             |                     |                      |                |
| 2170323                                           | UNITRONIC® BUS PB BURIAL FC | 1 x 2 x 0.64                                | 10.8                | 26                   | 115            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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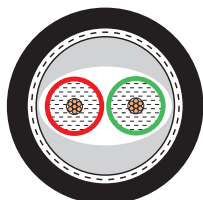
### Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 960



## UNITRONIC® BUS PB Y 7-W FC BK

UV-resistant PROFIBUS cable for outdoor applications



2170310

### Benefits

- Fast Connect (FC) cable design
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- UV-resistant and weather-resistant
- Resistant to acids, alkalis and certain oils at room temperature

### Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, black RAL (9005)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 8 x outer diameter<br>Flexing: 15 x outer diameter         |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms<br>Core/screen: 1500 V                                             |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -10°C to +70°C<br>Fixed installation: -40°C to +80°C                       |

| Article number                       | Article designation           | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------------|-------------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS PB Y 7-W FC BK</b> |                               |                                             |                     |                      |                |
| 2170310                              | UNITRONIC® BUS PB Y 7-W FC BK | 1 x 2 x 0.64                                | 7.8                 | 30.1                 | 80             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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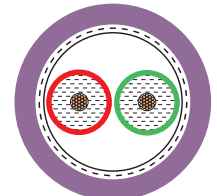
### Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 960



## UNITRONIC® BUS PB FD P

Halogenfree, highly flexible PROFIBUS cable



2170222

### Benefits

- Due double screening it is suitable for installation in electromagnetically demanding areas
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (power chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

### Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m

### Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Torsion movement in WTG (wind turbine generator)</b><br>TW-0 & TW-2, refer to Appendix T0                    |
|  | <b>Minimum bending radius</b><br>65 mm                                                                          |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -30°C to +70°C<br>Fixed installation: -40°C to +80°C                       |

| Article number                                                                            | Article designation    | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------------------------------------------------------------------|------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>For highly flexible applications (e.g. power chains) - conventional cable assembly</b> |                        |                                             |                     |                      |                |
| 2170222                                                                                   | UNITRONIC® BUS PB FD P | 1 x 2 x 0.64                                | 8                   | 30.1                 | 64             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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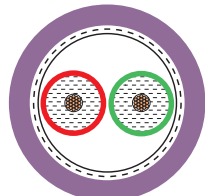
### Accessories

- Sub-D Bus-Connectors



## UNITRONIC® BUS PB FD P A

Halogenfree, highly flexible PROFIBUS cable - UL/CSA certified



2170822

### Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (power chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

### Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m

### Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

### Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

### Info

- A for Advanced here: UL and CSA certifications

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Torsion movement in WTG (wind turbine generator)</b><br>TW-0 & TW-2, refer to Appendix T0                    |
|  | <b>Minimum bending radius</b><br>65 mm                                                                          |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -30°C to +70°C<br>Fixed installation: -40°C to +80°C                       |

| Article number | Article designation      | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|--------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| 2170822        | UNITRONIC® BUS PB FD P A | 1 x 2 x 0.64                                | 8                   | 30.1                 | 58             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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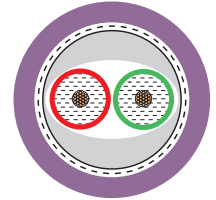
### Accessories

- Sub-D Bus-Connectors



## UNITRONIC® BUS PB FD P FC

Halogenfree, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified



2170322

### Benefits

- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (power chains, moving machine parts)

### Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m

### Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

### Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Flexing: 15 x outer diameter                                                   |
|  | <b>Test voltage</b><br>3600 V DC (3 sec.)                                                                       |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -30°C to +70°C<br>Fixed installation: -40°C to +80°C                       |

| Article number | Article designation       | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|---------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| 2170322        | UNITRONIC® BUS PB FD P FC | 1 x 2 x 0.64                                | 8                   | 26                   | 79             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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### Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 960



## UNITRONIC® BUS PB FD FRNC FC

Flame retardant, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified

LAPP KABEL STUTTGART UNITRONIC® BUS PB FD FRNC FC

### Benefits

- Fast Connect (FC) system
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

### Product features

- Halogen-free
- Oil-resistant
- Vertical Tray Flame Test according to UL 1685
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
93.75 kbit/s = 1200 m  
187.5 kbit/s = 1000 m  
500 kbit/s = 400 m  
1.5 Mbit/s = 200 m  
12.0 Mbit/s = 100 m

### Norm references / Approvals

- The cable is UL/CSA-certified (CM)

### Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

### Technical data

|                                                                                     |                                                                                                                 |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>nom. 28 nF/km                                                                      |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation: 10 x outer diameter<br>Flexing: 15 x outer diameter        |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>(3 - 20 MHz): 150 ± 15 Ohm                                                   |
|  | <b>Temperature range</b><br>Flexing: -30°C to +70°C<br>Fixed installation: -40°C to +80°C                       |

| Article number | Article designation          | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) |
|----------------|------------------------------|---------------------------------------------|---------------------|----------------------|
| 2170997        | UNITRONIC® BUS PB FD FRNC FC | 1x2x0,64                                    | 8                   | 26                   |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150 / 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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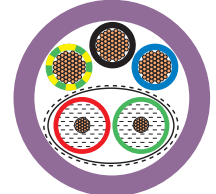
### Accessories

- Sub-D Bus-Connectors
- FC STRIP stripping tool refer to page 960



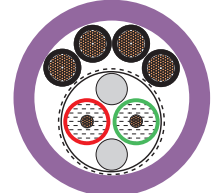
## UNITRONIC® BUS PB FD P COMBI

Highly flexible, halogenfree PROFIBUS HYBRID cables



2170227

## UNITRONIC® BUS PB FD P HYBRID



2170495

### Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- HYBRID: cable for data transmission + power supply
- Flame-retardant according IEC 60332-1-2

### Product Make-up

#### UNITRONIC® BUS PB FD P COMBI

- Fine-wire, bare copper strand
- 1x2x0.64: red, green
- 3x1.0 (AWG18): green/yellow, black, blue
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

#### UNITRONIC® BUS PB FD P HYBRID

- Fine-wire, bare copper strand
- 1x2x0.64 : red, green
- 4 x 1.5 (AWG16): black with white numbers
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

### Technical data

|  |                                                                                                                                                                                                                                          |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                                                                                                                          |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                                                                                                                                                     |
|  | <b>Peak operating voltage</b><br>(not for power applications) 100 V                                                                                                                                                                      |
|  | <b>UNITRONIC® BUS PB FD P HYBRID</b><br>Flexing: 15 x outer diameter                                                                                                                                                                     |
|  | <b>Test voltage</b><br><b>UNITRONIC® BUS PB FD P COMBI</b><br>Core/core: 600 V<br><b>UNITRONIC® BUS PB FD P HYBRID</b><br>Core/core: 600 V<br>Core/screen: 600 V                                                                         |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                                                                                                                                          |
|  | <b>Temperature range</b><br><b>UNITRONIC® BUS PB FD P COMBI</b><br>Flexing: -5°C to +50°C<br>Fixed installation: -40°C to +80°C<br><b>UNITRONIC® BUS PB FD P HYBRID</b><br>Flexing: -30°C to +60°C<br>Fixed installation: -40°C to +70°C |

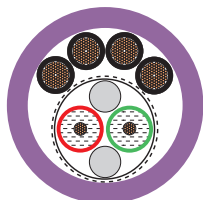
| Article number                       | Article designation           | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------------------|-------------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS PB FD P COMBI</b>  |                               |                                             |                     |                      |                |
| 2170227                              | UNITRONIC® BUS PB FD P COMBI  | 1 x 2 x 0.64 Ø + 3 x 1.0 mm <sup>2</sup>    | 10.1                | 59                   | 125            |
| <b>UNITRONIC® BUS PB FD P HYBRID</b> |                               |                                             |                     |                      |                |
| 2170495                              | UNITRONIC® BUS PB FD P HYBRID | 1 x 2 x 0.64 Ø + 4 x 1.5 mm <sup>2</sup>    | 11.3                | 89                   | 148            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
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## UNITRONIC® BUS PB FD Y HYBRID

Highly flexible PROFIBUS HYBRID cable, UL-verified



2170882

### Benefits

- For highly flexible applications (power chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- HYBRID: cable for data transmission + power supply

### Norm references / Approvals

- With UL/CSA certification (CM, CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

### Product Make-up

- Fine-wire, bare copper strand
- 1x2x0.64: red, green  
Core insulation: Foam Skin PE  
4x1.5: black with white numbers 1-4  
Core insulation: PVC
- Tin-plated copper wire braiding
- Outer sheath: PVC, violet (RAL 4001)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Peak operating voltage</b><br>600 V (not for power applications)                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation:<br>5 x outer diameter<br>Flexing: 15 x outer diameter      |
|  | <b>Test voltage</b><br>Core/core: 2000 V<br>Core/screen: 2000 V                                                 |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>-5°C to +80°C                                                                       |

| Article number | Article designation           | Number of pairs and conductor diameter (mm) | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|----------------|-------------------------------|---------------------------------------------|---------------------|----------------------|----------------|
| 2170882        | UNITRONIC® BUS PB FD Y HYBRID | 1 x 2 x 0.64 Ø + 4 x 1.5 mm²                | 11.3                | 89                   | 155            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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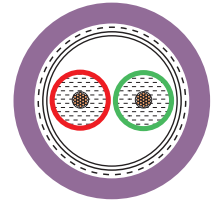
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## UNITRONIC® BUS PB TORSION

Flame retardant, highly flexible PROFIBUS cable for torsion load



2170332

### Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- TORSION: for torsional stress, e.g. robot application;  $\pm 180^\circ$  per 1 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
 $93.75 \text{ kbit/s} = 1200 \text{ m}$   
 $187.5 \text{ kbit/s} = 1000 \text{ m}$   
 $500 \text{ kbit/s} = 400 \text{ m}$   
 $1.5 \text{ Mbit/s} = 200 \text{ m}$   
 $12.0 \text{ Mbit/s} = 100 \text{ m}$

### Norm references / Approvals

- Certification: UL type CMX in accordance with UL 444

### Product Make-up

- Stranded bare copper wire
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

### Technical data

|  |                                                                                                                                                          |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                                          |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                                                                     |
|  | <b>Peak operating voltage</b><br>(not for power applications)<br>300 V                                                                                   |
|  | <b>Torsion movement in WTG (wind turbine generator)</b><br>Max. torsion load<br>$\pm 180^\circ/\text{m}$                                                 |
|  | <b>Minimum bending radius</b><br>Fixed installation: 4 x outer diameter<br>Flexing: 7.5 x outer diameter                                                 |
|  | <b>Test voltage</b><br>3600 V DC (3 sec.)                                                                                                                |
|  | <b>Characteristic impedance</b><br>$150 \pm 15 \text{ Ohm}$                                                                                              |
|  | <b>Temperature range</b><br>Operating temperature: $-25^\circ\text{C}$ to $75^\circ\text{C}$<br>Storage temp.: $-40^\circ\text{C}$ to $80^\circ\text{C}$ |

| Article number | Article designation       | Number of cores and mm <sup>2</sup> per conductor | Dimension and cross section in mm <sup>2</sup> | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|---------------------------|---------------------------------------------------|------------------------------------------------|---------------------|----------------------|----------------|
| 2170332        | UNITRONIC® BUS PB TORSION | 1 x 2 x 0.38                                      | 1 x 2 x 0.38                                   | 8                   | 31                   | 66             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil  $\leq 30 \text{ kg}$  or  $\leq 250 \text{ m}$ , otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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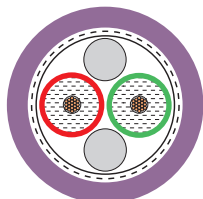
### Accessories

- Sub-D Bus-Connectors



## UNITRONIC® BUS PB FESTOON

PROFIBUS cable for cable trolley applications



2170331

### Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

### Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

### Product features

- FESTOON: for cable trolley (festoon)
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):  
 93.75 kbit/s = 1200 m  
 187.5 kbit/s = 1000 m  
 500 kbit/s = 400 m  
 1.5 Mbit/s = 200 m  
 12.0 Mbit/s = 100 m

### Norm references / Approvals

- With UL/CSA certification (CMG, CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

### Product Make-up

- Outer sheath: special PVC compound

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 30 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>600 V (not for power applications)                                             |
|  | <b>Minimum bending radius</b><br>Flexing: 70 mm<br>Fixed installation: 30 mm once                               |
|  | <b>Test voltage</b><br>Core/core: 2000 V                                                                        |
|  | <b>Characteristic impedance</b><br>150 ± 15 Ohm                                                                 |
|  | <b>Temperature range</b><br>Flexing: -5°C to +70°C<br>Fixed installation: -40°C to +80°C                        |

| Article number | Article designation       | Number of cores and mm² per conductor | Dimension and cross section in mm² | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|---------------------------|---------------------------------------|------------------------------------|---------------------|----------------------|----------------|
| 2170331        | UNITRONIC® BUS PB Festoon | 1 x 2 x 0.64                          | 1 x 2 x 0.64                       | 8                   | 26                   | 64             |

#### Highly flexible application

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

SIMATIC® is a registered trademark of SIEMENS AG. FIP is a registered trademark of World FIP

Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Sub-D Bus-Connectors

## EPIC® DATA PB Sub-D

PROFIBUS connectors with screw terminals | REPEATER function | ATEX

**Info**

- Optional with LED diagnostic
- M12, REPEATER and ATEX version
- Versions with 2nd Sub-D interface



### Benefits

- Easy connection with tried-and-tested M12 / screw terminal technology
- Sensor/ ac
- Terminating resistor (integrated) can be switched
- REPEATER version: Regeneration of data signal (slope, power and mark-to-space ratio)
- ATEX version: For use within intrinsically-safe circuits in zone 2 areas with an explosion hazard (explosive gas atmosphere occurs only rarely and briefly)

### Product features

- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA / REPEATER 100 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected
- REPEATER version: Easy extension of the PROFIBUS network:
  - up to 3 repeaters
  - 1 additional PROFIBUS segment
  - galvanic isolation

### Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560
- ATEX version: DIN EN 60079-0:2006, DIN 60079-15:2005 (category 3G zone 2)

### Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- For cable outer diameter: 5 8 mm / M12 B-coded cordsets
- LED Version indicate:
  - bus operation - (green)
  - station transmission - (blue)
  - terminating resistor "on" - (orange)

### Suitable cables

- UNITRONIC® BUS PB Page 329
- UNITRONIC® BUS PB M12 Page 351
- UNITRONIC® BUS PB M12-M12

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC001132  
ETIM 5.0/6.0 Class-Description: D-Sub connector

**Dimensions**  
54 mm x 40 mm x 17 mm - 35°  
64 mm x 40 mm x 17 mm - 90°  
68 mm x 40 mm x 17 mm - 180°  
70 mm x 40 mm x 17 mm - M12 (LxWxH)

**Connection type**  
Screwing  
M12

**Protection rating**  
IP 20

**Terminating resistor**  
150 Ω

**Interfaces**  
Sub-D socket, 9-pin  
Terminal blocks up to 1.0 mm² / M12 B-coded

**Permissible ambient conditions**  
Operating temperature: -25°C to +85°C  
\*The max. temperature for UL is 60 °C

| Article number                | Article designation | Version  | PG-Interface | Diagnostic LEDs | PU |
|-------------------------------|---------------------|----------|--------------|-----------------|----|
| <b>35° cable outlet</b>       |                     |          |              |                 |    |
| 21700507                      | ED-PB-35            |          | no           | no              | 1  |
| 21700506                      | ED-PB-35-PG         |          | yes          | no              | 1  |
| <b>90° cable outlet</b>       |                     |          |              |                 |    |
| 21700504                      | ED-PB-90            |          | no           | no              | 1  |
| 21700503                      | ED-PB-90-PG         |          | yes          | no              | 1  |
| 21700530                      | ED-PB-90-LED        |          | no           | yes             | 1  |
| 21700529                      | ED-PB-90-PG-LED     |          | yes          | yes             | 1  |
| 21700520                      | ED-PB-PG-90-M12     | M12      | yes          | no              | 1  |
| 21700541                      | ED-PB-90-RP-PG      | REPEATER | yes          | yes             | 1  |
| 21700543                      | ED-PB-90-ATEX       | ATEX     | no           | no              | 1  |
| 21700542                      | ED-PB-90-PG-ATEX    | ATEX     | yes          | no              | 1  |
| <b>180° (AX) cable outlet</b> |                     |          |              |                 |    |
| 21700505                      | ED-PB-AX            |          | no           | no              | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® DATA PB Sub-D FC

PROFIBUS Connectors Fast Connect



### Info

- New innovative insulation displacement terminals suitable for solid and flexible conductors (90° and 180° versions)
- Versions with 2nd Sub-D interface
- Optional with LED diagnostic

### Benefits

- Quick installation with Fast Connect ('FC') technology
- Sensor/ ac
- No loose parts
- Visual bus connection control
- Terminating resistor (integrated) can be switched

### Product features

- Fully compatible with market standard
- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected

### Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560

### Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Max. cable outer diameter: 8 mm
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- LED Version indicate: bus operation - (green) station transmission - (blue) terminating resistor "on" - (orange)

### Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP

### Suitable tools

- FC STRIP stripping tool refer to page 960
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001132  
ETIM 5.0/6.0 Class-Description: D-Sub connector



#### Dimensions

95 mm x 70 mm x 17 mm - 35°  
72 mm x 40 mm x 17 mm - 90°  
70 mm x 35 mm x 17 mm - 180°  
(LxWxH)

#### Connection type

Fast Connect



#### Protection rating

IP 20

#### Terminating resistor

150 Ω

#### Interfaces

Sub-D socket, 9-pin  
PROFIBUS FC standard cable,  
Ø 0.64 mm



#### Permissible ambient conditions

Operating temperature: -25°C to +85°C

\*The max. temperature for UL is 60 °C

| Article number                                                          | Article designation | PG-Interface | Diagnostic LEDs | PU |
|-------------------------------------------------------------------------|---------------------|--------------|-----------------|----|
| <b>35° cable outlet for solid conductor</b>                             |                     |              |                 |    |
| 21700511                                                                | ED-PB-35-FC         | no           | no              | 1  |
| 21700513                                                                | ED-PB-35-PG-FC      | yes          | no              | 1  |
| <b>35° cable outlet for 7-/ 19-wire stranded conductor</b>              |                     |              |                 |    |
| 21700514                                                                | ED-PB-35-FC-FLEX    | no           | no              | 1  |
| 21700515                                                                | ED-PB-35-PG-FC-FLEX | yes          | no              | 1  |
| <b>90° cable outlet for solid/ 7-/ 19-wire stranded conductor</b>       |                     |              |                 |    |
| 21700502                                                                | ED-PB-90-FC         | no           | no              | 1  |
| 21700501                                                                | ED-PB-90-PG-FC      | yes          | no              | 1  |
| 21700547                                                                | ED-PB-90-LED-FC     | no           | yes             | 1  |
| 21700546                                                                | ED-PB-90-PG-LED-FC  | yes          | yes             | 1  |
| <b>180° (AX) cable outlet for solid/ 7-/ 19-wire stranded conductor</b> |                     |              |                 |    |
| 21700544                                                                | ED-PB-AX-FC         | no           | no              | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® DATA PB Sub-D PRO

PROFIBUS Connectors full-metall M12 connection /spring type connection



### Info

- For high mechanical stress
- High EMC protection



21700563



21700562



21700565

### Benefits

- Optimum EMC protection
- Robust housing material for harsh environments
- No loose parts
- Cost-efficient due to quick installation (Plug & Play)
- Terminating resistor (integrated) can be switched

### Product features

- Extended temperature range
- High mechanical strength (200 contact durability)
- Less transmission loss
- Max. transmission rate 12 Mbit/s possible
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)

### Norm references / Approvals

- IEC 61158, IEC 61784

### Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- With additional Sub-D port for programming/diagnostic 'PG' (35° and 90° version)
- With EMC connector protection (PG port)
- M12 version: 5-pin connector, M12 B-coded

### Suitable cables

- UNITRONIC® BUS PB M12 Page 351
- UNITRONIC® BUS PB M12-M12]

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

### Technical data

|  |                                                                                                                                                                             |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001132<br>ETIM 5.0/6.0 Class-Description: D-Sub connector                                                        |
|  | <b>Dimensions</b><br>see technical data sheet                                                                                                                               |
|  | <b>Connection type</b><br>M12 or<br>Internal spring type terminal                                                                                                           |
|  | <b>Protection rating</b><br>IP 30                                                                                                                                           |
|  | <b>Terminating resistor</b><br>150 Ω                                                                                                                                        |
|  | <b>Interfaces</b><br>Sub-D socket, 9-pin<br>Spring terminal for solid conductors /<br>M12 B-coded<br>0,08 - 0,5 mm <sup>2</sup> (AWG28 - AWG14)<br>Cable diameter: 8 - 9 mm |
|  | <b>Permissible ambient conditions</b><br>Operating temperature:<br>-20°C to +70°C                                                                                           |

| Article number                 | Article designation | Connection type      | PG-Interface | PU |
|--------------------------------|---------------------|----------------------|--------------|----|
| <b>EPIC® DATA PB Sub-D PRO</b> |                     |                      |              |    |
| 21700563                       | ED-PB-AX-M12-PRO    | M12                  | no           | 1  |
| 21700561                       | ED-PB-35-PG-M12-PRO | M12                  | yes          | 1  |
| 21700562                       | ED-PB-90-PG-M12-PRO | M12                  | yes          | 1  |
| <b>180° (AX) cable outlet</b>  |                     |                      |              |    |
| 21700566                       | ED-PB-AX-M12-PRO    | Internal spring type | no           | 1  |
| <b>35° cable outlet</b>        |                     |                      |              |    |
| 21700564                       | ED-PB-35-PG-ST-PRO  | Internal spring type | yes          | 1  |
| <b>90° cable outlet</b>        |                     |                      |              |    |
| 21700565                       | ED-PB-90-PG-ST-PRO  | Internal spring type | yes          | 1  |

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## EPIC® DATA PB Sub-D FO

PROFIBUS Connectors Optical Link Modul



21700570



### Info

- PROFIBUS repeater with integrated optical interface

### Benefits

- Easy covering of large distances (PCF 250 m / POF 65 m)
- Cost-efficient due to quick installation (Plug & Play)
- Galvanic isolation in case of potential differences within PROFIBUS network
- For EMC critical environments
- Integrated repeater functionality: Regeneration of data signal (slope, power and mark-to-space ratio)

### Product features

- Max. distance:  
POF fiber: 65 m  
PCF fiber: 250 m
- Diagnostic LEDs (blue, green, red, yellow)
- Bus termination is integrated
- Current consumption typ. 100 mA
- Supply voltage 5.0 V DC (supplied from the terminal)

### Norm references / Approvals

- IEC 61158, IEC 61784

### Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- An external 24 V supply is not necessary
- Connection for optical cable (POF or PCF)

### Suitable cables

- HITRONIC® POF DUPLEX BUFFERED FIBRES Page 468
- HITRONIC® POF DUPLEX CABLE Page 469
- HITRONIC® POF cables for PROFINET Applications Page 470

### Suitable connectors

- HBFR, SMA and BFOC(ST)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001132  
ETIM 5.0/6.0 Class-Description: D-Sub connector



#### Dimensions

64 mm x 40 mm x 17 mm (LxWxH)



#### Protection rating

IP 20

#### Interfaces

Sub-D socket, 9-pin  
Fibre optic cable: POF / PCF, 650 nm



#### Permissible ambient conditions

Operating temperature: 0°C to +60°C

| Article number                | Article designation     | PG-Interface | Diagnostic LEDs | PU |
|-------------------------------|-------------------------|--------------|-----------------|----|
| <b>90° cable outlet</b>       |                         |              |                 |    |
| <b>For HFBR connector</b>     |                         |              |                 |    |
| 21700568                      | ED-PB-90-PG-FO-HFBR-650 | yes          | yes             | 1  |
| <b>For SMA connector</b>      |                         |              |                 |    |
| 21700569                      | ED-PB-90-PG-FO-SMA-650  | yes          | yes             | 1  |
| <b>For BFOC(ST) connector</b> |                         |              |                 |    |
| 21700570                      | ED-PB-90-PG-FO-BFOC-650 | yes          | yes             | 1  |

Applicable optical connectors (POF) included

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Note: For one optical link 2 modules are required

### Accessories

- PCF Assembly Sets refer to page 482
- PCF Connector HFBR refer to page 481
- PCF Connector F-SMA and ST(BFOC) refer to page 481
- POF Assembly Sets refer to page 474
- POF Connector F-SMA and ST(BFOC) refer to page 472
- POF Connector SC-RJ refer to page 473



## UNITRONIC® BUS PB M 12 | M 12-M 12

PROFIBUS cable: M 12 plug/socket on free conductor end

PROFIBUS Cable: M 12 connector on M 12 socket



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request



### Benefits

- Cost efficient and rational wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking

### Application range

- Mechanical and plant engineering

### Product features

- 2-core PROFIBUS cable, shielded
- Connector M 12, B-coded with quick locking system
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

### Product Make-up

- Core cross section: 0.25 mm<sup>2</sup>
- Core colours: red, green
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 7.8 mm
- Shielded version
- Shielding is conducted over the knurl

### Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA PB M 12 Page 352
- EPIC® DATA PB M 12/M 12 Page 353

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

Plug/socket -25 °C to +90 °C  
Fixed installation -40 °C to +80 °C  
Flexing -30 °C to +80 °C  
Drag chain application ≤ 70 °C

#### Coding

B - inverse

#### Rated current (A)

4 A

| Article number        | Article designation       | Length (m) | Number of pins | Design            | Rated voltage (V) | PU |
|-----------------------|---------------------------|------------|----------------|-------------------|-------------------|----|
| <b>Plug</b>           |                           |            |                |                   |                   |    |
| 22260767              | AB-PB-M12MS-2,0PUR        | 2          | 2              | straight          | 250               | 1  |
| 22260768              | AB-PB-M12MS-5,0PUR        | 5          | 2              | straight          | 250               | 1  |
| 22260769              | AB-PB-M12MS-10,0PUR       | 10         | 2              | straight          | 250               | 1  |
| 22260956              | AB-PB-M12MA-2,0PUR        | 2          | 2              | angled            | 250               | 1  |
| <b>Socket</b>         |                           |            |                |                   |                   |    |
| 22260770              | AB-PB-2,0PUR-M12FS        | 2          | 2              | straight          | 250               | 1  |
| 22260771              | AB-PB-5,0PUR-M12FS        | 5          | 2              | straight          | 250               | 1  |
| 22260772              | AB-PB-10,0PUR-M12FS       | 10         | 2              | straight          | 250               | 1  |
| <b>Plug on socket</b> |                           |            |                |                   |                   |    |
| 22260955              | AB-PB-M12MS-0,2PUR-M12FS  | 0.2        | 2              | straight-straight | 250               | 1  |
| 22260773              | AB-PB-M12MS-0,3PUR-M12FS  | 0.3        | 2              | straight-straight | 250               | 1  |
| 22260774              | AB-PB-M12MS-1,0PUR-M12FS  | 1          | 2              | straight-straight | 250               | 1  |
| 22260775              | AB-PB-M12MS-2,0PUR-M12FS  | 2          | 2              | straight-straight | 250               | 1  |
| 22260869              | AB-PB-M12MS-3,0PUR-M12FS  | 3          | 2              | straight-straight | 250               | 1  |
| 22260776              | AB-PB-M12MS-5,0PUR-M12FS  | 5          | 2              | straight-straight | 250               | 1  |
| 22260777              | AB-PB-M12MS-10,0PUR-M12FS | 10         | 2              | straight-straight | 250               | 1  |
| 22260907              | AB-PB-M12MS-15,0PUR-M12FS | 15         | 2              | straight-straight | 250               | 1  |
| 22260908              | AB-PB-M12MS-20,0PUR-M12FS | 20         | 2              | straight-straight | 250               | 1  |
| 22260079              | AB-PB-M12MA-5,0PUR-M12FA  | 5          | 2              | angled-angled     | 250               | 1  |
| 22260904              | AB-PB-M12MA-10,0PUR-M12FA | 10         | 2              | angled-angled     | 250               | 1  |
| 22260905              | AB-PB-M12MA-15,0PUR-M12FA | 15         | 2              | angled-angled     | 250               | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- FLEXIMARK® Label LMB refer to page 921



## EPIC® DATA PB M12

Field mountable M12 BUS-connectors, shielded for PROFIBUS



### Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

### Product features

- Screened version
- Connector M12, B-coded
- PG9- / PG11-thread
- Screw connection

### Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP
- UNITRONIC® BUS PB M12 Page 351

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002062  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector

**Material**  
Contact: CuSn  
Contact surface: Au  
Contact carrier: PA66  
Sealing: NBR  
Knurl: Nickel-plated brass  
Gripping body: Zinc die-cast, nickel-plated

**Protection rating**  
IP 67

**Ambient temperature (operation)**  
Plug/socket -40°C to +85°C

**Coding**  
B - inverse (PROFIBUS)

**Rated current (A)**  
4 A

| Article number          | Article designation     | Number of pins | Conductor cross-section (mm <sup>2</sup> ) | Cable diameter in mm | Rated voltage (V) | PU |
|-------------------------|-------------------------|----------------|--------------------------------------------|----------------------|-------------------|----|
| <b>Plug, straight</b>   |                         |                |                                            |                      |                   |    |
| 22260653                | AB-C5-M12MSB-PG9-SH-AU  | 5              | 0.25 - 0.75                                | 6.0 - 8.5            | 60                | 1  |
| 22262078                | AB-C5-M12MSB-PG11-SH-AU | 5              | 0.25 - 0.75                                | 8.0 - 10.0           | 60                | 1  |
| <b>Socket, straight</b> |                         |                |                                            |                      |                   |    |
| 22260646                | AB-C5-M12FSB-PG9-SH-AU  | 5              | 0.25 - 0.75                                | 6.0 - 8.5            | 60                | 1  |
| 22260889                | AB-C5-M12FSB-PG11-SH-AU | 5              | 0.25 - 0.75                                | 8.0 - 10.0           | 60                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® DATA PB M12/M12

PROFIBUS M12 control cabinet feed-through, shielded



22262021

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC002061  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector chassis



#### Material

Contact: CuZn  
Contact surface: Au (gold)  
Contact carrier: PA 66  
Knurl: Nickel-plated brass  
Sealing: FKM



#### Protection rating

IP 67



#### Ambient temperature (operation)

Plug/socket  
-25°C to +85°C

#### Coding

B - inverse (PROFIBUS)

#### Rated current (A)

4 A

### Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

### Application range

- Mechanical and plant engineering

### Product features

- For PROFIBUS applications
- Bipolar/screw mounting

### Product Make-up

- 5-pin control cabinet feed-through, M12 B-coded
- M12 plug on M12 socket
- Screened version

### Suitable cables

- UNITRONIC® BUS PB M12 Page 351
- UNITRONIC® BUS PB M12-M12

### Suitable connectors

- EPIC® DATA PB M12 352

| Article number                      | Article designation            | Number of pins | Rated voltage (V) | PU |
|-------------------------------------|--------------------------------|----------------|-------------------|----|
| <b>Control cabinet feed through</b> |                                |                |                   |    |
| 22262021                            | AB-C5-DSI-M12MSB-M12FSB-M16-SH | 5              | 60                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® DATA PB TR M12

M12 Terminating resistor for PROFIBUS



22260722



22261001



### Info

- Fully suitable for industrial use

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000448  
ETIM 5.0/6.0 Class-Description:  
Terminal resistor



#### Protection rating

IP65/IP67 (plug)  
IP 67 (socket)



#### Ambient temperature (operation)

-25°C to +90°C (plug)  
-40°C to +85°C (socket)

#### Contact material

CuSn

#### Coding

B - inverse (PROFIBUS)

#### Rated current (A)

4 A

### Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

### Application range

- Mechanical and plant engineering

### Product features

- 150 Ω terminating resistor for PROFIBUS

### Product Make-up

- Straight connector M12 with integrated termination resistor
- Straight connector M12, with integrated termination resistor, shielded

| Article number                                 | Article designation  | Number of pins | Rated voltage (V) | PU |
|------------------------------------------------|----------------------|----------------|-------------------|----|
| <b>Plug, unshielded (terminating resistor)</b> |                      |                |                   |    |
| 22260722                                       | AB-C4-M12MS-PB-TR    | 4              | 60                | 5  |
| <b>Socket, shielded (terminating resistor)</b> |                      |                |                   |    |
| 22261001                                       | AB-C5-M12FS-PB-TR-SH | 4              | 32                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

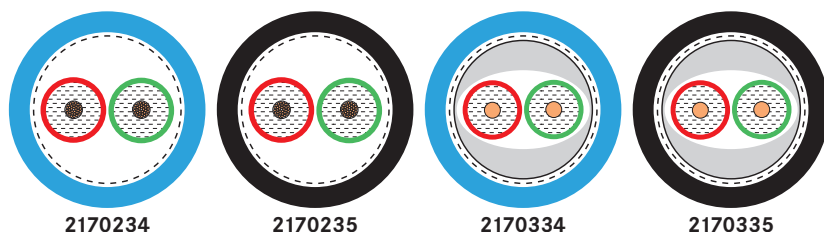
### Accessories

- EPIC® DATA PB M12T



## UNITRONIC® BUS PA

PROFIBUS cables for applications in manufacturing and process automation



### Benefits

- FC (Fast Connect) version is oil and UV-resistant

### Application range

- Process-automation application for connecting sensors and actuators - including areas with risks of explosion.
- Fixed Installation

### Product features

- Bit rate = 31.25 kbit/s. Transmission technology RS485 also possible but bit rate is limited to 1.5 Mbit/s
- Maximum cable length is dependent on several factors (e.g. supply voltage, current demand).
- Technical Data: refer to the overview on "UNITRONIC® Bus Cables"
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- PROFIBUS® PA is standardised in EN 50170 as PROFIBUS® DP and PROFIBUS® FMS
- Transmission technology for PROFIBUS-PA in accordance with international standard IEC 61158-2
- FC variant with UL/CSA certification (CMG / PLTC)

### Product Make-up

- UNITRONIC® BUS PA  
Stranded conductor  
Copper braiding  
Outer sheath: PVC, blue, (RAL 5015) intrinsically safe area, black (RAL 9005)
- UNITRONIC® BUS PA FC  
Bare copper wire  
Fast Connect inner sheath  
Cu-Geflecht  
Outer sheath: PVC, blue (RAL 5015), black (RAL 9005)

### Info

- PA = Process Automation
- Variant with UL/CSA CMG

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Conductor resistance</b><br>(loop): max. 44 ohm/km                                                           |
|  | <b>Minimum bending radius</b><br>Fixed installation: 10 x outer diameter                                        |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>100 ± 20 Ohm                                                                 |
|  | <b>Temperature range</b><br>Fixed installation: -30°C to +80°C<br>During installation: -5°C to +50°C            |

| Article number                                              | Article designation       | Number of pairs and cable diameter per conductor in mm | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-------------------------------------------------------------|---------------------------|--------------------------------------------------------|---------------------|----------------------|----------------|
| <b>Conventional cable makeup</b>                            |                           |                                                        |                     |                      |                |
| 2170234                                                     | UNITRONIC® BUS PA (BU)    | 1 x 2 x 1,3                                            | 8                   | 45                   | 84             |
| 2170235                                                     | UNITRONIC® BUS PA (BK)    | 1 x 2 x 1,3                                            | 8                   | 45                   | 84             |
| <b>Fast Connect cable makeup - UL/CSA CMG certification</b> |                           |                                                        |                     |                      |                |
| 2170334                                                     | UNITRONIC® BUS PA FC (BU) | 1 x 2 x 1.00                                           | 8                   | 45.5                 | 103            |
| 2170335                                                     | UNITRONIC® BUS PA FC (BK) | 1 x 2 x 1.00                                           | 8                   | 45.5                 | 103            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

SIMATIC® is a registered trademark of Siemens AG

Armoured

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

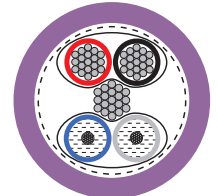
### Accessories

- Multipurpose shears A and B
- STAR STRIP stripping tool refer to page 957
- FC STRIP stripping tool refer to page 960



## UNITRONIC® DeviceNet THICK + THIN

DeviceNet Buscable based on the CAN technology



2170340/2170341/2170342/2170343

### Application range

- Fixed Installation
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

### Product features

- Resistant to oils
- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- FRNC Version: Halogene free and flame retardant
- Refer to data sheet for more details

### Norm references / Approvals

- CMG UL/CSA certification 75 °C or PLTC, Sun Res
- FRNC variant additionally with Germanischer Lloyd certification

### Product Make-up

- Tinned copper wire
- Core insulation: foam skin
- Tinned-copper braiding with drain wire
- Outer sheath: FRNC or PVC

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Core identification code</b><br>Data pair: light blue + white<br>Power supply: red + black                   |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 39.8 nF/km                                                          |
|  | <b>Peak operating voltage</b><br>300 V (not for power applications)                                             |
|  | <b>Conductor resistance</b><br>Thick (loop): max. 45 ohm/km<br>Thin (loop): max. 180 ohm/km                     |
|  | <b>Minimum bending radius</b><br>Fixed installation: 15 x outer diameter                                        |
|  | <b>Test voltage</b><br>Core/core: 2000 V                                                                        |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                      |
|  | <b>Temperature range</b><br>Fixed installation: -25 °C to +80 °C                                                |

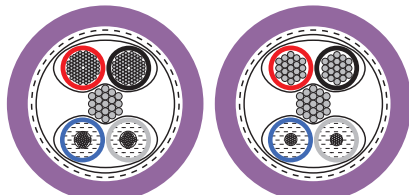
| Article number      | Article designation          | Number of pairs and AWG size | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------|------------------------------|------------------------------|---------------------|----------------------|----------------|
| <b>Halogen-free</b> |                              |                              |                     |                      |                |
| 2170340             | UNITRONIC® BUS DN THICK FRNC | 1x2xAWG18 + 1x2xAWG15        | 12.2                | 82.8                 | 195            |
| 2170341             | UNITRONIC® BUS DN THIN FRNC  | 1x2xAWG24 + 1x2xAWG22        | 6.9                 | 33.4                 | 69.5           |
| <b>PVC</b>          |                              |                              |                     |                      |                |
| 2170342             | UNITRONIC® BUS DN THICK Y    | 1x2xAWG18 + 1x2xAWG15        | 12.2                | 88.4                 | 192            |
| 2170343             | UNITRONIC® BUS DN THIN Y     | 1x2xAWG24 + 1x2xAWG22        | 6.9                 | 33.4                 | 66.9           |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
FRNC means Flame-Retardant, Non-Corrosive; and DeviceNet is a registered trademark of ODVA.  
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)  
ECO is the cost-efficient version of article no. 2170342 and 2170343, with a slight modification to the outer sheath and UL/CSA-approved (CMG).  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## UNITRONIC® DeviceNet FD THICK+THIN

High flexible DeviceNet Buscable based on the CAN technology



2170344/2170346 2170345/2170347

### Application range

- For highly flexible applications
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

### Product features

- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- Refer to data sheet for more details
- PUR (P) Version: Halogene free
- PVC (Y) Version: Flame retardant (UL FT4)
- UV-resistant (but colour may change after some time)

### Norm references / Approvals

- PUR: UL/CSA-certified (CMX)
- PVC: UL/CSA CMG 75°C FT4 Sun Res Oil Res, at 2170346 also PLTC

### Product Make-up

- Core insulation: PE
- Outer sheath of Polyurethan (PUR) or Polyvinylchlorid (PVC)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Core identification code</b><br>Data pair: light blue + white<br>Power supply: red + black                   |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 39.8 nF/km                                                          |
|  | <b>Peak operating voltage</b><br>300 V (not for power applications)                                             |
|  | <b>Conductor resistance</b><br>Thick (loop): max. 45 ohm/km<br>Thin (loop): max. 180 ohm/km                     |
|  | <b>Minimum bending radius</b><br>Fixed installation: 7.5 x outer diameter<br>Flexing: 15 x outer diameter       |
|  | <b>Test voltage</b><br>Core/core: 2000 V                                                                        |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                      |
|  | <b>Temperature range</b><br>PUR: -40°C to +80°C<br>PVC: -10°C to +80°C                                          |

| Article number | Article designation          | Number of pairs and AWG size | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|------------------------------|------------------------------|---------------------|----------------------|----------------|
| <b>PUR</b>     |                              |                              |                     |                      |                |
| 2170344        | UNITRONIC® BUS DN THICK FD P | 1x2xAWG18 + 1x2xAWG15        | 12.2                | 94                   | 184            |
| 2170345        | UNITRONIC® BUS DN THIN FD P  | 1x2xAWG24 + 1x2xAWG22        | 6.9                 | 33.4                 | 67.7           |
| <b>PVC</b>     |                              |                              |                     |                      |                |
| 2170346        | UNITRONIC® BUS DN THICK FD Y | 1x2xAWG18 + 1x2xAWG15        | 12.2                | 94                   | 195            |
| 2170347        | UNITRONIC® BUS DN THIN FD Y  | 1x2xAWG24 + 1x 2xAWG22       | 6.9                 | 33.4                 | 69.8           |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

DeviceNet is a registered trademark of ODVA

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SMART STRIP stripping tool



## Info

- CAN = Controller Area Network

## Technical data

|  |                                                                                                                                                                                                                          |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                                                                                                          |
|  | <b>Mutual capacitance</b><br>(800 Hz) max. 40 nF/km                                                                                                                                                                      |
|  | <b>Peak operating voltage</b><br><b>UNITRONIC® BUS CAN</b><br>(not for power applications) 250 V<br><b>UNITRONIC® BUS CAN FD P</b><br>250 V (not for power transmission)                                                 |
|  | <b>Conductor resistance</b><br><b>UNITRONIC® BUS CAN</b><br>(loop): max. 186 ohm/km<br><b>UNITRONIC® BUS CAN FD P</b><br>(loop): max. 159.8 ohm/km                                                                       |
|  | <b>Minimum bending radius</b><br><b>UNITRONIC® BUS CAN</b><br>Fixed installation: 8 x outer diameter<br><b>UNITRONIC® BUS CAN FD P</b><br>Flexing: 15 x outer diameter                                                   |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                                                                                                                             |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                                                                                                                               |
|  | <b>Temperature range</b><br><b>UNITRONIC® BUS CAN</b><br>Fixed installation: -30°C to +80°C<br>Flexing: -5°C to +70°C<br><b>UNITRONIC® BUS CAN FD P</b><br>Fixed installation: -40°C to +80°C<br>Flexing: -30°C to +70°C |

LAPP KABEL STUTTGART UNITRONIC® BUS CAN

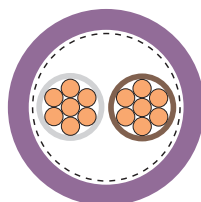
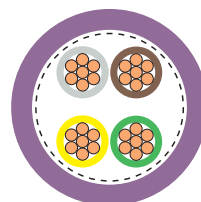
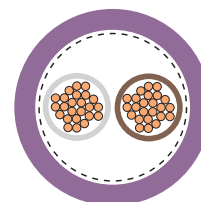
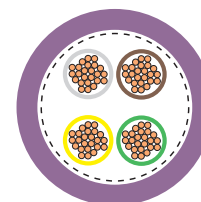
## UNITRONIC® BUS CAN

CAN Buscables for fixed installation - UL/SCA certified

## UNITRONIC® BUS CAN FD P

CAN Buscables for high flexible application - UL/SCA certified

LAPP KABEL STUTTGART UNITRONIC® BUS CAN FD P

2170260/2170263/  
21702662170261/2170264/  
21702672170269/2170272/  
21702752170270/2170273/  
2170276

## Application range

- UNITRONIC® BUS CAN**
  - Fixed Installation
- UNITRONIC® BUS CAN FD P**
  - For highly flexible applications

## Product features

- UNITRONIC® BUS CAN**
  - Maximum bit rate: 1 Mbit/s for 40 m segment length
  - Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
  - ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
  - Flame-retardant according IEC 60332-1-2
- UNITRONIC® BUS CAN FD P**
  - Halogen-free
  - Maximum bit rate: 1 Mbit/s for 40 m segment length
  - Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
  - ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
  - Flame-retardant according IEC 60332-1-2

## Norm references / Approvals

- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

## Product Make-up

- UNITRONIC® BUS CAN**
  - 0.22 + 0.34 + 0.5: bare stranded conductor, 7-wire
  - 0.75: bare stranded conductor, fine-wire
  - Core insulation: foam skin
  - Colour-coded in accordance with DIN 47100
  - Copper braid
  - Outer sheath: PVC, violet (RAL 4001)
- UNITRONIC® BUS CAN FD P**
  - Stranded bare conductor
  - Core insulation: foam skin
  - Copper braid
  - Outer sheath: PUR, violet (RAL 4001)
  - UV-resistant (but colour may change after some time)

| Article number                                                               | Article designation     | Number of pairs/conductor cross section (mm <sup>2</sup> ) | Outer diameter [mm] | Conductor resistance | Copper index (kg/km) | Weight (kg/km) |
|------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------|---------------------|----------------------|----------------------|----------------|
| <b>for fixed installation</b>                                                |                         |                                                            |                     |                      |                      |                |
| 2170260                                                                      | UNITRONIC® BUS CAN      | 1 x 2 x 0,22                                               | 5.7                 | 186                  | 16.7                 | 42             |
| 2170261                                                                      | UNITRONIC® BUS CAN      | 2 x 2 x 0,22                                               | 7.6                 | 186                  | 34.8                 | 68             |
| 2170263                                                                      | UNITRONIC® BUS CAN      | 1 x 2 x 0,34                                               | 6.8                 | 115                  | 25                   | 55             |
| 2170264                                                                      | UNITRONIC® BUS CAN      | 2 x 2 x 0,34                                               | 8.5                 | 115                  | 46.4                 | 88             |
| 2170266                                                                      | UNITRONIC® BUS CAN      | 1 x 2 x 0,5                                                | 7.5                 | 78                   | 41.6                 | 90             |
| 2170267                                                                      | UNITRONIC® BUS CAN      | 2 x 2 x 0,5                                                | 9.6                 | 78                   | 59.4                 | 106            |
| 2170269                                                                      | UNITRONIC® BUS CAN      | 1 x 2 x 0,75                                               | 8.7                 | 52                   | 52.7                 | 108            |
| 2170270                                                                      | UNITRONIC® BUS CAN      | 2 x 2 x 0,75                                               | 11.5                | 52                   | 80.6                 | 142            |
| <b>For highly flexible applications (power chains, moving machine parts)</b> |                         |                                                            |                     |                      |                      |                |
| 2170272                                                                      | UNITRONIC® BUS CAN FD P | 1 x 2 x 0,25                                               | 6.4                 | 159.8                | 24                   | 40             |
| 2170273                                                                      | UNITRONIC® BUS CAN FD P | 2 x 2 x 0,25                                               | 8.4                 | 159.8                | 33                   | 65             |
| 2170275                                                                      | UNITRONIC® BUS CAN FD P | 1 x 2 x 0,34                                               | 6.8                 | 122                  | 32.8                 | 60             |
| 2170276                                                                      | UNITRONIC® BUS CAN FD P | 2 x 2 x 0,34                                               | 9.6                 | 122                  | 52.4                 | 88             |
| 2170278                                                                      | UNITRONIC® BUS CAN FD P | 1 x 2 x 0,5                                                | 8                   | 72.8                 | 41.9                 | 74             |
| 2170279                                                                      | UNITRONIC® BUS CAN FD P | 2 x 2 x 0,5                                                | 10.1                | 72.8                 | 59.4                 | 100            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths) / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
 Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
 Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool refer to page 961



## UNITRONIC® BUS CAN TRAY

CAN Bus cable with PLTC-ER approval - for open wiring between cable trays and industrial machines

LAPP KABEL STUTTGART UNITRONIC® BUS CAN TRAY



### Info

- CAN = Controller Area Network

### Benefits

- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

### Application range

- Fixed Installation

### Product features

- Maximum bit rate: 1 Mbit/s for 40 m segment length
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- UV-resistant UL SUN RES
- Oil-resistant according to UL OIL RES I
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

### Norm references / Approvals

- Standardised internationally in ISO 11898
- C(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

### Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foam skin
- Inner sheath: PVC
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz) max. 40 nF/km                                                             |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V<br>Rated voltage: 600 V (UL)                |
|  | <b>Conductor resistance</b><br>(loop): max. 110,8 ohm/km                                                        |
|  | <b>Minimum bending radius</b><br>Fixed installation: 8 x outer diameter<br>Flexing: 15 x outer diameter         |
|  | <b>Test voltage</b><br>Core/core: 2000 V                                                                        |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                      |
|  | <b>Temperature range</b><br>Fixed installation: -40°C to +80°C<br>Flexing: -10°C to +70°C                       |

| Article number | Article designation     | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------|-------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| 2170857        | UNITRONIC® BUS CAN TRAY | 2 x 2 x 0,34                                      | 7.5                 | 35                   | 81             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool



## UNITRONIC® BUS CAN BURIAL

CAN bus cable with double outer sheath for outdoor/direct burial use



### Info

- Suitable for direct burial

### Benefits

- Suitable for CAN communication according to ISO 11898
- Double-sheathed version, extremely tough, for installation without corrugated tubing
- Rugged, UV-resistant and weatherproof
- Diameter of inner sheath suitable for common connectors

### Application range

- Useable for CAN based communication systems like CANopen
- Suitable for direct burial
- For outdoor applications
- For fixed installation or applications with occasional movements

### Product Make-up

- Copper stranded 7x0,32
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.1 mm
- Outer sheath: PE, black RAL (9005), outer diameter: 9.0 mm

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(1 kHz): max. 40 nF/km                                                             |
|  | <b>Peak operating voltage</b><br>300 V (not for power applications)                                             |
|  | <b>Conductor resistance</b><br>(Loop): max. 74 Ohm /km                                                          |
|  | <b>Minimum bending radius</b><br>Flexible use: 8 x Outer Diameter<br>Fixed Installation: 4 x Outer Diameter     |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                      |
|  | <b>Temperature range</b><br>Fixed installation: -40°C to +80°C                                                  |

| Article number                   | Article designation               | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|----------------------------------|-----------------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS CAN BURIAL</b> |                                   |                                       |                     |                      |                |
| 2170500                          | UNITRONIC® BUS CAN BURIAL 4x1x0,5 | 4 x 1 x 0,5                           | 9                   | 41.8                 | 91             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Sub-D Bus-Connectors



## UNITRONIC® BUS HEAT 6722

CAN bus cable for utility vehicles



### Info

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01

### Benefits

- Star-quad stranding, thus less space requirement and weight
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis

### Application range

- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- For fixed, occasionally flexible and protected use inside of utility vehicles

### Product features

- Halogen-free outer sheath
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Temperature class B on the basis of ISO 6722-1
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- Standardised internationally in ISO 11898

### Product Make-up

- Stranded bare conductor
- PUR outer sheath
- Colour: black
- UV-resistant (but colour may change after some time)
- Screening: wrapped with braided copper wires

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>40 nF/km (800 Hz)                                                                  |
|  | <b>Peak operating voltage</b><br>250 V (not for power transmission)                                             |
|  | <b>Conductor resistance</b><br>(loop): max. 159.8 ohm/km                                                        |
|  | <b>Minimum bending radius</b><br>Flexing: 15 x outer diameter                                                   |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                    |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                      |
|  | <b>Temperature range</b><br>Fixed installation: -40°C to +105°C<br>occasionally flexing: -30°C to +105°C        |

| Article number                  | Article designation      | Number of cores and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index [kg/km] | Weight [kg/km] |
|---------------------------------|--------------------------|---------------------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS HEAT 6722</b> |                          |                                                   |                     |                      |                |
| 2170385                         | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,25                                      | 6.45                | 26                   | 46             |
| 2170386                         | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,34                                      | 7.54                | 33                   | 61             |
| 2170387                         | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,5                                       | 8.36                | 41                   | 70             |
| 2170388                         | UNITRONIC® BUS HEAT 6722 | 1 x 4 x 0,75                                      | 9.79                | 59                   | 95             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Multipurpose shears A and B
- SMART STRIP stripping tool
- SENSOR STRIP stripping tool



# UNITRONIC® TRAIN

Bus cables - MVB and WTB - Electron beam cross-linked for high requirements in railway applications

 Info

- Small outer diameters for maximum saving of space and weight
- Extremely low attenuation  $\leq 5$  MHz



## Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increases the protection against damage to persons and property in the event of a fire
- EMC-optimised design

### Application range

- The communication systems WTB (wire train bus) and MVB (multifunction vehicle bus) make up the so-called TCN (train communication network)
- UNITRONIC® TRAIN bus cables are designed for use in TCN acc. IEC 61375 MVB according IEC 61375-3-1 WTB according IEC 61375-2-1
- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Also applicable within oily environments and areas with increased ambient temperature

## Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No flame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

### Norm references / Approvals

- EN 45545-2 HL1, HL2, HL3
- EN 50264-1

## Product Make-up

- Stranded tinned 19-wire conductor
- Core insulation: Based on Polyolefin
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

## Technical data



**Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC000830  
ETIM 5.0/6.0 Class-Description: Data cable



**Peak operating voltage**

(not for power applications) 125 V



**Minimum bending radius**

Flexing: 10 x outer diameter  
Fixed installation: 6 x outer diameter



**Test voltage**

Core/core: 1000 V  
Core/screen: 1000 V



### Characteristic impedance

120 ohm ( $\pm 10\%$ )



## Temperature range

Fixed installation:  
-45°C to +90°C  
Occasional flexing: -35°C up to +90°C

| Article number        | Article designation                 | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) |
|-----------------------|-------------------------------------|---------------------------------------|---------------------|----------------------|
| <b>Cables for MVB</b> |                                     |                                       |                     |                      |
| 2173000               | UNITRONIC® TRAIN MVB 1x2x0,5        | 1x2x0,5                               | 7.6                 | 29                   |
| 2173001               | UNITRONIC® TRAIN MVB 1x2x0,5+1x0,5  | 1x2x0,5+1x0,5                         | 7.6                 | 34                   |
| 2173002               | UNITRONIC® TRAIN MVB 2x2x0,5        | 2x2x0,5                               | 8.3                 | 40                   |
| 2173003               | UNITRONIC® TRAIN MVB 2x2x0,5+4x0,25 | 2x2x0,5+4x0,25                        | 8.3                 | 50                   |
| <b>Cables for WTB</b> |                                     |                                       |                     |                      |
| 2173004               | UNITRONIC® TRAIN WTB 1x2x0.75       | 1x2x0.75                              | 8.4                 | 41                   |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® DATA CAN Sub-D

CAN Bus-Connectors with screw connection



### Benefits

- Terminating resistor (integrated) can be switched
- Sensor/ ac
- No loose parts
- With additional 24 V DC output to supply external devices (90° version only)

### Product features

- Max. transmission rate 1 Mbit/s possible
- Terminating resistor "ON" - the outbound bus cable is disconnected
- The integrated, connectable terminating resistor enable the CAN-Bus to be terminated or connected through
- Sub-D pin assignment:  
CAN Low = Pin 2  
CAN High = Pin 7  
CAN Gnd = Pin 3  
GND = Pin 6 (90° version only)  
CAN V+ = Pin 9 (90° version only)  
(shield = housing)

### Norm references / Approvals

- UL File No. E331560

### Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Screw connection
- Improved electromagnetic compatibility (EMC) by metallized housing
- For cable outer diameter: 5 - 8 mm

### Suitable cables

- Bus system CAN / DeviceNet Page

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001132  
ETIM 5.0/6.0 Class-Description: D-Sub connector



#### Dimensions

60 mm x 40 mm x 17 mm - 90°  
67,5 mm x 35 mm x 17 mm - 180°  
(LxWxH)

#### Connection type

Screwing



#### Protection rating

IP 20

#### Terminating resistor

120 Ω

#### Interfaces

CAN bus station:  
D-Sub socket, 9-pin  
CAN bus cable:  
6 terminal blocks for wires up to  
0.8 mm²



#### Permissible ambient conditions

Operating temperature:  
-25°C to +85°C

\*The max. temperature for UL is 60 °C

| Article number         | Article designation | Cable outlet | PG-Interface | PU |
|------------------------|---------------------|--------------|--------------|----|
| <b>Sub-D connector</b> |                     |              |              |    |
| 21700537               | ED-CAN-90           | 90°          | no           | 1  |
| 21700536               | ED-CAN-90-PG        | 90°          | yes          | 1  |
| 21700538               | ED-CAN-AX           | 180° axial   | no           | 1  |

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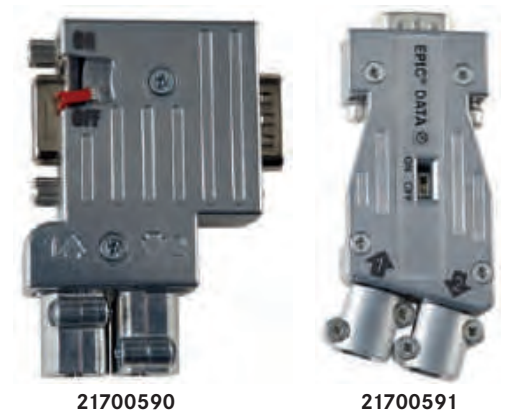
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® DATA CAN Sub-D PRO

CAN Bus-Connectors full-metall

**Info**

- High EMC protection
- For cable diameters up to 10 mm



### Benefits

- High flexibility by extended cable clamping range
- Cost-saving due to quick and easy installation
- Robust housing material for harsh environments
- For EMC critical environments

### Product features

- Extended temperature range
- High mechanical strength (200 contact durability)
- Less transmission loss
- Bus termination is integrated
- Sub-D pin assignment:  
CAN Low = Pin 2  
CAN High = Pin 7  
CAN Gnd = Pin 3  
GND = Pin 6 (90° version only)  
CAN V+ = Pin 9 (90° version only)  
(shield = housing)

### Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- External cable clamp connection (7 - 10 mm)
- 90° version: With additional Sub-D port for programming/diagnostic ('PG')
- 90° version: PG port with undetachable EMC Sub-D protection

### Suitable cables

- UNITRONIC® DeviceNet THICK + THIN Page 355
- UNITRONIC® BUS CAN Page 357
- UNITRONIC® DeviceNet FD THICK+THIN Page 356
- UNITRONIC® BUS CAN FD P Page 357
- UNITRONIC® BUS CAN TRAY Page 358
- UNITRONIC® BUS HEAT 6722 Page 360
- UNITRONIC® BUS CAN BURIAL Page 359

### Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

### Technical data

|  |                                                                                                                                             |
|--|---------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001132<br>ETIM 5.0/6.0 Class-Description: D-Sub connector                        |
|  | <b>Dimensions</b><br>63 x 45 x 18 - 90°<br>81 x 36 x 15 - 180°<br>(LxWxH)                                                                   |
|  | <b>Connection type</b><br>Screwing                                                                                                          |
|  | <b>Protection rating</b><br>IP 30                                                                                                           |
|  | <b>Terminating resistor</b><br>120 Ω                                                                                                        |
|  | <b>Interfaces</b><br>CAN-Bus station:<br>D-SUB socket, 9-pin<br>CAN-Bus cable:<br>- screw terminals for wires<br>0.14 - 0.5 mm <sup>2</sup> |
|  | <b>Permissible ambient conditions</b><br>Operating temperature:<br>-20°C to +70°C                                                           |

| Article number         | Article designation | Cable outlet | PG-Interface | PU |
|------------------------|---------------------|--------------|--------------|----|
| <b>Sub-D connector</b> |                     |              |              |    |
| 21700590               | ED-CAN-90-PG-PRO    | 90°          | yes          | 1  |
| 21700591               | ED-CAN-AX-PRO       | 180° axial   | no           | 1  |

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## UNITRONIC® BUS CAN M12 | M12-M12

DeviceNet/CANopen Cable: M12 plug/socket on free conductor end

DeviceNet/CANopen Cable: M12 connector on M12 socket



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Robust design

### Application range

- Mechanical and plant engineering

### Product features

- 5-core DeviceNet/CANopen cable, shielded
- M12 connector, A-coded with quick-locking system
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

### Product Make-up

- Signal line: 2 x 0.25 mm<sup>2</sup>
- Power supply: 2 x 0.34 mm<sup>2</sup>
- Drain wire: 1 x 0.34 mm<sup>2</sup>
- Core colours: red/black, blue/white
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 6.7 mm
- Shielded version

### Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA CAN M12 Page 365
- EPIC® DATA CAN M12/M12 Page 365
- EPIC® DATA CAN TR M12 Page 366
- EPIC® DATA CAN M12T Page 367
- EPIC® DATA CAN CCR Page 367

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

Plug/socket -25 °C to +90 °C  
Fixed installation -40 °C to +80 °C  
Flexing -20 °C to +70 °C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number        | Article designation       | Length (m) | Number of pins | Design            | Rated voltage (V) | PU |
|-----------------------|---------------------------|------------|----------------|-------------------|-------------------|----|
| <b>Plug</b>           |                           |            |                |                   |                   |    |
| 22260789              | AB-DN-M12MS-2,0PUR        | 2          | 5              | straight          | 60                | 1  |
| 22260790              | AB-DN-M12MS-5,0PUR        | 5          | 5              | straight          | 60                | 1  |
| 22260791              | AB-DN-M12MS-10,0PUR       | 10         | 5              | straight          | 60                | 1  |
| 22262004              | AB-DN-M12MA-2,0PUR        | 2          | 5              | angled            | 60                | 1  |
| <b>Socket</b>         |                           |            |                |                   |                   |    |
| 22260792              | AB-DN-2,0PUR-M12FS        | 2          | 5              | straight          | 60                | 1  |
| 22260793              | AB-DN-5,0PUR-M12FS        | 5          | 5              | straight          | 60                | 1  |
| 22260794              | AB-DN-10,0PUR-M12FS       | 10         | 5              | straight          | 60                | 1  |
| <b>Plug on socket</b> |                           |            |                |                   |                   |    |
| 22260795              | AB-DN-M12MS-0,3PUR-M12FS  | 0.3        | 5              | straight-straight | 60                | 1  |
| 22260796              | AB-DN-M12MS-1,0PUR-M12FS  | 1          | 5              | straight-straight | 60                | 1  |
| 22260797              | AB-DN-M12MS-2,0PUR-M12FS  | 2          | 5              | straight-straight | 60                | 1  |
| 22260798              | AB-DN-M12MS-5,0PUR-M12FS  | 5          | 5              | straight-straight | 60                | 1  |
| 22260799              | AB-DN-M12MS-10,0PUR-M12FS | 10         | 5              | straight-straight | 60                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- FLEXIMARK® Label LMB refer to page 921

## EPIC® DATA CAN M12

Field mountable M12 BUS-connectors shielded for DeviceNet/CANopen

### Technical data

#### Connection type

Screwing



#### Material

Contact: CuSn  
Contact surface: Au  
Contact carrier: PA66  
Sealing: NBR  
Knurl: Nickel-plated brass  
Gripping body: Zinc die-cast, nickel-plated



#### Protection rating

IP 67



#### Ambient temperature (operation)

Plug/socket -40°C to +85°C

#### Coding

A - Standard  
(CANopen/DeviceNet/CC-Link)

#### Rated current (A)

4 A



22260135



22260136

### Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

### Product Make-up

- M12 plug, 5-pins, A-coded
- Screw connection
- PG9 thread
- Screened version

| Article number          | Article designation | Design | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|-------------------------|---------------------|--------|----------------|----------------------|----------------------|-------------------|----|
| <b>Plug, straight</b>   |                     |        |                |                      |                      |                   |    |
| 22260135                | AB-C5-M12MS-PG9-SH  | screw  | 5              | 0.25 - 0.75          | 6.0 - 8.0            | 60                | 1  |
| <b>Socket, straight</b> |                     |        |                |                      |                      |                   |    |
| 22260136                | AB-C5-M12FS-PG9-SH  | screw  | 5              | 0.25 - 0.75          | 6.0 - 8.0            | 60                | 1  |

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## EPIC® DATA CAN M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling

### Technical data



#### Material

Contact: CuZn  
Contact surface: Au (gold)  
Contact carrier: PA 66  
Knurl: Nickel-plated brass  
Sealing: FKM



#### Protection rating

IP 67



#### Ambient temperature (operation)

Plug/socket  
-25°C to +85°C

#### Coding

A - Standard  
(CANopen/DeviceNet/CC-Link)

#### Rated current (A)

4 A



22262020

### Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

### Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

### Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

| Article number                      | Article designation          | Number of pins | Rated voltage (V) | PU |
|-------------------------------------|------------------------------|----------------|-------------------|----|
| <b>Control cabinet feed through</b> |                              |                |                   |    |
| 22262020                            | AB-C5-DSI-M12MS-M12FS-M16-SH | 5              | 24                | 1  |

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Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® DATA CAN TR M12

M12 Terminating resistor for DeviceNet/CANopen



### Info

- Fully suitable for industrial use

22260766

### Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

### Application range

- Mechanical and plant engineering

### Product features

- 120 Ω terminating resistor for DeviceNet/CANopen

### Product Make-up

- Straight connector M12 with integrated termination resistor

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000448  
ETIM 5.0/6.0 Class-Description:  
Terminal resistor

**Protection rating**  
IP65/IP67

**Ambient temperature (operation)**  
-25°C to +90°C

**Contact material**  
CuSn

**Coding**  
A - Standard (CANopen/DeviceNet)

**Rated current (A)**  
4 A

| Article number                                 | Article designation | Number of pins | Rated voltage (V) | PU |
|------------------------------------------------|---------------------|----------------|-------------------|----|
| <b>Plug, unshielded (terminating resistor)</b> |                     |                |                   |    |
| 22260766                                       | AB-C5-M12MS-DN-TR   | 5              | 60                | 5  |

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### Accessories

- EPIC® DATA CAN M12T refer to page 367

## EPIC® DATA CAN M12T

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC002585  
ETIM 5.0/6.0 Class-Description:  
Passive sensor-actuator interface



#### Material

Contact: CuZn  
Contact surface: Ni/Au  
Contact carrier: TPU GF  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing  
Sealing: NBR



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C

#### Coding

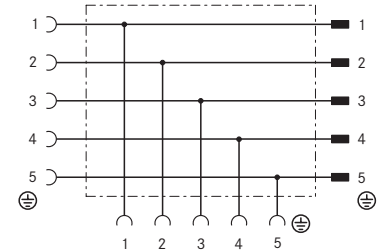
A - Standard  
(CANopen/DeviceNet/CC-Link)

#### Rated current (A)

4 A



222607656



### Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

### Product features

- For CANopen/DeviceNet applications
- PWIS-free

### Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

| Article number       | Article designation   | Number of pins | Rated voltage (V) | PU |
|----------------------|-----------------------|----------------|-------------------|----|
| <b>T distributor</b> |                       |                |                   |    |
| 22260765             | AB-C5-M12T-2XM12FS DN | 5              | 60                | 5  |

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## EPIC® DATA CAN CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC002925  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator adapting connector



#### Material

Contact: CuZn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: Zinc die-cast, nickel-plated



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

-40°C to +85°C

#### Rated current (A)

4 A



21700641

### Benefits

- Time-saving assembly with IDC connection technology
- Optimum EMC protection with 360 ° shielding

### Application range

- To extend existing cable systems
- Repairkit for damaged cables

### Product features

- 5-pin cable coupler round
- Screened version

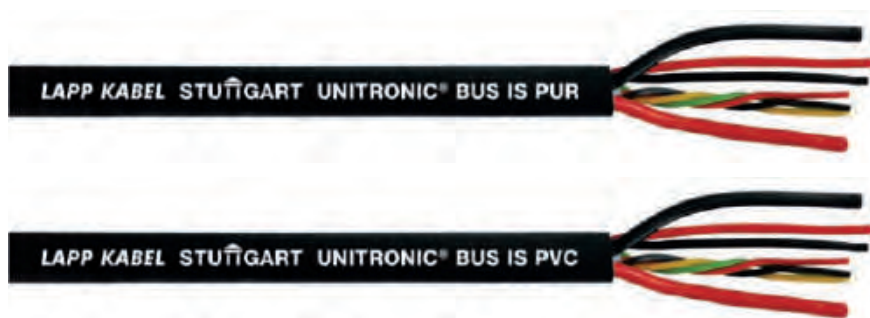
| Article number             | Article designation | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|----------------------------|---------------------|----------------|----------------------|----------------------|-------------------|----|
| <b>Cable coupler round</b> |                     |                |                      |                      |                   |    |
| 21700641                   | AB-C5-CCR-SH        | 5              | 0.14 - 0.50          | 5.0 - 9.7            | 60                | 1  |

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## UNITRONIC® BUS IS

ISOBUS cables for use in agricultural vehicles



### Info

- Lapp cable is member of the AEF - Agricultural Industry Electronics Foundation

### Benefits

- Cable according ISOBUS standard (ISO 11783-2) for use in agricultural vehicles.
- HYBRID: cable for data transmission + power supply

### Application range

- For outdoor applications
- Connection cable between tractor and pulled machinery

### Product features

- Flame-retardant according to IEC standard 60332-1
- UV-resistant
- Resistant against oil, benzine and diesel
- PUR (Polyurethane) Version with increased robustness

### Norm references / Approvals

- ISO 11783-2:2012

### Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- 4x 0,5 mm<sup>2</sup> (red, yellow, black, green)  
2x 2,5 mm<sup>2</sup> (red, black)  
2x 6 mm<sup>2</sup> (red, black)
- Outer sheath: PUR and PVC, black (RAL 9005)

### Technical data

|  |                                                                                                                          |
|--|--------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable          |
|  | <b>Peak operating voltage</b><br>60 V                                                                                    |
|  | <b>Minimum bending radius</b><br>Fixed installation: 10 x outer diameter<br>Flexing: 15 x outer diameter                 |
|  | <b>Test voltage</b><br>0,5 mm - 2,5 mm <sup>2</sup> core / core = 1,5 kV;<br>6 - 10 mm <sup>2</sup> core / core = 2,5 kV |
|  | <b>Characteristic impedance</b><br>Characteristic impedance: 75 ohm                                                      |
|  | <b>Temperature range</b><br>PUR: -40°C to +85°C<br>PVC: -30°C to +85°C                                                   |

| Article number | Article designation                     | Number of cores/pairs and mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) |
|----------------|-----------------------------------------|---------------------------------------------------------|---------------------|----------------------|
| <b>PUR</b>     |                                         |                                                         |                     |                      |
| 2170561        | UNITRONIC® BUS IS PUR 2x6+2x2,5+1x4x0,5 | 2x6+2x2,5+1x4x0,5                                       | 15.6                | 182.4                |
| <b>PVC</b>     |                                         |                                                         |                     |                      |
| 2170560        | UNITRONIC® BUS IS PVC                   | 2x6+2x2,5+1x4x0,5                                       | 15.6                | 182.4                |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

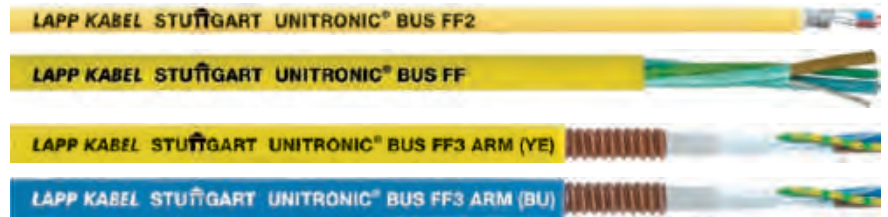
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

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## UNITRONIC® BUS FF

FOUNDATION Fieldbus cable for use in Process Automation - UL-verified



### Benefits

- Cables meet the requirements of ISA/SP50 and the FOUNDATION™ field bus for the cable type A.

### Application range

- FOUNDATION™ Fieldbus is used in intrinsically safe areas, especially in the field of Process Automation
- Fixed Installation

### Product features

- UV-resistant
- Extended temperature range

### Norm references / Approvals

- With UL/CSA certification (CMG/PLTC)

### Product Make-up

- 2-core, not armoured, with device ground
- 3-core, unarmoured, with device ground
- 3-core, armoured (longitudinally welded, spiral corrugated copper sheath) with device ground
- Outer sheath: PVC, yellow  
Armoured Version: PVC, yellow and blue

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Peak operating voltage</b><br>300 V                                                                          |
|  | <b>Conductor resistance</b><br>≤ 24 Ohm/km                                                                      |
|  | <b>Minimum bending radius</b><br>15 x outer diameter                                                            |
|  | <b>Test voltage</b><br>1500 V                                                                                   |
|  | <b>Characteristic impedance</b><br>100 ± 20 Ohm at 31.25 kHz                                                    |
|  | <b>Temperature range</b><br>-40 °C or -25 °C to +105 °C, see data sheet                                         |

| Article number           | Article designation          | Number of pairs and cable diameter | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------|------------------------------|------------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS FF</b> |                              |                                    |                     |                      |                |
| 2170350                  | UNITRONIC® BUS FF 3          | 1x2x1.1 + 1x1.1 Ø                  | 7.9                 | 48.3                 | 93             |
| <b>PVC - Armoured</b>    |                              |                                    |                     |                      |                |
| 2170351                  | UNITRONIC® BUS FF 3 ARM (YE) | 1x2x1.1 + 1x1.1 Ø                  | 12.3                | 125                  | 182            |
| 2170353                  | UNITRONIC® BUS FF 3 ARM (BU) | 1x2x1.1 + 1x1.1 Ø                  | 12.3                | 125                  | 182            |
| <b>PVC</b>               |                              |                                    |                     |                      |                |
| 2170352                  | UNITRONIC® BUS FF 2          | 1 x 2 x 1.1                        | 7.9                 | 39.7                 | 82             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Foundation™ is a trademark of the Fieldbus Foundation  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## UNITRONIC® BUS CC

CC-Link bus cable for fixed installation - UL-verified

LAPP KABEL STUTTGART UNITRONIC® BUS CC



### Info

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

### Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.
- This CC-Link® bus cable has successfully passed the CC-Link® Conformance Test in Japan.

### Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- Fixed installation of the CC-Link® network

### Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m  
625 kbit/s 600 m  
2,5 Mbit/s 200 m  
5,0 Mbit/s 110-150 m  
10 Mbit/s 50-100 m
- Flame-retardant according to CSA FT4  
UL Vertical-Tray Flame Test
- SUN RES acc. to UL 1581

### Norm references / Approvals

- CM UL/CSA certification 75°C or PLTC Sun Res

### Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, red (RAL 3000)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Peak operating voltage</b><br>300 V                                                                          |
|  | <b>Conductor resistance</b><br>11 ohm/1,000 ft. (305 m) at 20°C                                                 |
|  | <b>Minimum bending radius</b><br>Fixed installation: 5 x outer diameter<br>Flexing: 8 x outer diameter          |
|  | <b>Test voltage</b><br>2000 V                                                                                   |
|  | <b>Characteristic impedance</b><br>110 ohm at 1 MHz                                                             |
|  | <b>Temperature range</b><br>-40°C to +70°C                                                                      |

| Article number           | Article designation | Number of cores and AWG size | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|--------------------------|---------------------|------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS CC</b> |                     |                              |                     |                      |                |
| 2170360                  | UNITRONIC® BUS CC   | 3 x 1 x AWG20                | 7.7                 | 38.8                 | 76.6           |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## UNITRONIC® BUS CC FD P FRNC

CC-Link bus cable for high fleible applications - UL-verified



### Info

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

### Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.

### Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- For highly flexible applications (power chains, moving machine parts)

### Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
- 625 kbit/s 600 m
- 2,5 Mbit/s 200 m
- 5,0 Mbit/s 110-150 m
- 10 Mbit/s 50-100 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2

### Norm references / Approvals

- AWM 20233 80 °C 300V

### Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Inner sheath: FRNC
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, red (RAL 3000)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Certifications</b><br>UL AWM Style 20233                                                                     |
|  | <b>Peak operating voltage</b><br>300 V                                                                          |
|  | <b>Conductor resistance</b><br>11 ohm/1,000 ft. (305 m) at 20 °C                                                |
|  | <b>Minimum bending radius</b><br>Fixed installation: 4 x outer diameter<br>Moved: 10 x outer diameter           |
|  | <b>Test voltage</b><br>2000 V                                                                                   |
|  | <b>Characteristic impedance</b><br>110 ohm at 1 MHz                                                             |
|  | <b>Temperature range</b><br>-40 °C to +80 °C                                                                    |

| Article number                     | Article designation         | Number of cores and AWG size | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------------|-----------------------------|------------------------------|---------------------|----------------------|----------------|
| <b>UNITRONIC® BUS CC FD P FRNC</b> |                             |                              |                     |                      |                |
| 2170370                            | UNITRONIC® BUS CC FD P FRNC | 3 x 1 x AWG20                | 8.5                 | 39.9                 | 84             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

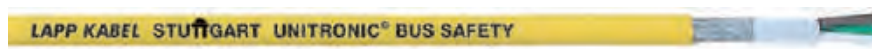
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## UNITRONIC® BUS SAFETY

SafetyBUS cables for transmission of safety-oriented data



### Benefits

- For serial transmission of safety-oriented data

### Application range

- UNITRONIC® BUS SAFETY - fixed Installation
- UNITRONIC® BUS SAFETY FD P - highly flexible applications
- For systems such as SafetyBUS p®, based on the well-known CAN bus system

### Product features

- The stated bit rates result in the following cable lengths (maximum) for a bus segment:
- 500 kbit/s = max. 100 m
- 250 kbit/s = max. 250 m
- 125 kbit/s = max. 500 m
- 50 kbit/s = max. 1,000 m

### Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2

### Product Make-up

- Bare stranded copper wires
- Core insulation: foam skin
- Tin-plated copper wire braiding
- Outer sheath: halogen-free, flame-retardant compound
- Outer sheath: yellow

### Technical data

|  |                                                                                                                                                                                   |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                                                                   |
|  | <b>Certifications</b><br>Version UNITRONIC® BUS SAFETY FC:<br>AWM Style 2464 (80°C 300 V)                                                                                         |
|  | <b>Mutual capacitance</b><br>(800 Hz): max. 45 nF/km                                                                                                                              |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                                                                                               |
|  | <b>Conductor resistance</b><br>(loop): max. 52 ohm/km                                                                                                                             |
|  | <b>Minimum bending radius</b><br>Fixed installation:<br>5 x outer diameter                                                                                                        |
|  | <b>Test voltage</b><br>Core/core: 3000 V<br>Core/core: 1500 V (FD- version)                                                                                                       |
|  | <b>Characteristic impedance</b><br>120 ohm                                                                                                                                        |
|  | <b>Temperature range</b><br>UNITRONIC BUS SAFETY:<br>Fixed installation: -30°C to +80°C<br>UNITRONIC BUS SAFETY FD P:<br>Fixed installation -40°C to +80°C<br>Moved: -30 to +80°C |

| Article number                          | Article designation        | Number of cores and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|-----------------------------------------|----------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>Fixed Installation</b>               |                            |                                       |                     |                      |                |
| 2170295                                 | UNITRONIC® BUS SAFETY      | 3 x 0.75                              | 7.6                 | 49                   | 68             |
| <b>For highly flexible applications</b> |                            |                                       |                     |                      |                |
| 2170885                                 | UNITRONIC® BUS SAFETY FD P | 3 x 0.75                              | 7.8                 | 49                   | 68             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

SafetyBUS p® is a registered trademark of Pilz GmbH & Co.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

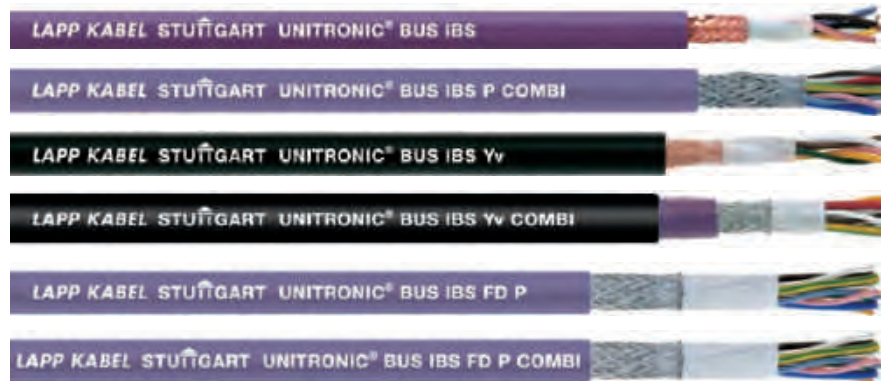
### Accessories

- FC STRIP stripping tool refer to page 960



## UNITRONIC® BUS IBS

INTERBUS cables for different applications



### Benefits

- Applications:  
fixed installation,  
high flexible use,  
outdoor use/direct burial

### Application range

- Remote bus/ installation remote bus cable

### Product features

- **UNITRONIC® BUS IBS**  
fixed installation  
**UNITRONIC® BUS IBS Combi**  
with power supply  
**UNITRONIC® BUS IBS A**  
UL-verified
- **UNITRONIC® BUS Yv**  
outdoor use/ direct burial  
**UNITRONIC® BUS Yv Combi**  
with power supply
- **UNITRONIC® BUS IBS FD P**  
fixed installation  
**UNITRONIC® BUS IBS FD P Combi**  
with power supply  
**UNITRONIC® BUS IBS FD P Combi A**  
UL-verified

### Norm references / Approvals

- Refer to data sheet for more details
- According to DIN EN 61158

### Product Make-up

- See data sheet

### Technical data

|  |                                                                                                                                                                                                                                                                                         |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable                                                                                                                                                                         |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                                                                                                                                                                                                     |
|  | <b>Conductor resistance</b><br>see data sheet                                                                                                                                                                                                                                           |
|  | <b>Minimum bending radius</b><br>Fixed installation: 8 x outer diameter<br>Flexing: 15 x outer diameter                                                                                                                                                                                 |
|  | <b>Test voltage</b><br>Core/core: 1500 V rms                                                                                                                                                                                                                                            |
|  | <b>Characteristic impedance</b><br>100 Ohm                                                                                                                                                                                                                                              |
|  | <b>Temperature range</b><br><b>UNITRONIC® BUS IBS</b><br>fixed installation: -30°C to +80°C<br>flexing: -5°C to +70°C<br><b>UNITRONIC® BUS IBS FD P</b><br>fixed installation: -40°C to +80°C<br>flexing: -5°C to +70°C<br><b>UNITRONIC® BUS IBS Yv</b><br>Fest verlegt: -40°C to +70°C |

| Article number                                                         | Article designation             | Number of pairs and mm² per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/km) |
|------------------------------------------------------------------------|---------------------------------|---------------------------------------|---------------------|----------------------|----------------|
| <b>Fixed Installation</b>                                              |                                 |                                       |                     |                      |                |
| 2170206                                                                | UNITRONIC® BUS IBS              | 3 x 2 x 0.22                          | 7.2                 | 37                   | 72             |
| 2170208                                                                | UNITRONIC® BUS IBS P COMBI      | 3 x 2 x 0,22 + 3 x 1,0                | 7.9                 | 60                   | 85             |
| <b>Fixed installation - suitable for outdoor use and direct burial</b> |                                 |                                       |                     |                      |                |
| 2170207                                                                | UNITRONIC® BUS IBS Yv COMBI     | 3 x 2 x 0.22                          | 9.3                 | 37                   | 94             |
| 2170217                                                                | UNITRONIC® BUS IBS Yv COMBI     | 3 x 2 x 0,22 + 3 x 1,0                | 9.4                 | 60                   | 128            |
| <b>For fixed installation - UL CMX certification</b>                   |                                 |                                       |                     |                      |                |
| 2170209                                                                | UNITRONIC® BUS IBS A            | 3 x 2 x 0.22                          | 7.2                 | 37                   | 72             |
| <b>For highly flexible applications</b>                                |                                 |                                       |                     |                      |                |
| 2170216                                                                | UNITRONIC® BUS IBS FD P         | 3 x 2 x 0.25                          | 7.9                 | 39                   | 64             |
| 2170218                                                                | UNITRONIC® BUS IBS FD P COMBI   | 3 x 2 x 0,25 + 3 x 1,0                | 7.9                 | 62                   | 92             |
| <b>Highly flexible applications - with UL (CMX) certification</b>      |                                 |                                       |                     |                      |                |
| 2170818                                                                | UNITRONIC® BUS IBS FD P COMBI A | 3 x 2 x 0,25 + 3 x 1,0                | 7.9                 | 62                   | 92             |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum  
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).  
INTERBUS is a registered trademark of Phoenix Contact GmbH & Co.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SENSOR STRIP stripping tool refer to page 961



## UNITRONIC® BUS EIB / KNX



### Info

- EIB / European Installation Bus
- KNX/communication in building management
- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)

### Application range

- The product is designed for use in building management, e.g. for decentralised control of lighting, heating, air-conditioning, ventilation, energy management, blinds, time management, locking systems etc.
- The cable can be laid on or under plaster; in pipes, cable ducts; in dry, damp or wet environments.
- EIB installation mainly consists of sensors/command-transmitters (e.g. light barriers, switches, thermostats, infrared, wind meters, timers), and actuators (e.g. engines, heaters, ventilators, lights, blinds).
- KNX technology was formed from the merging of three established European bus standards: EIP, EHS (household appliances and consumer electronics) and Batibus (heating/ventilation/air conditioning)

### Product features

- Serial data transmission
- EIB cable has been tested at 4 kV (1 min.) in a water bath

### Product Make-up

- Screened installation cable based on type J-Y(ST)Y according to DIN VDE 0815
- **UNITRONIC® BUS EIB**  
Bare solid copper wire  
2x2x0,8: red and black, white and yellow  
Core insulation: PVC  
Overall aluminum foil  
Outer sheath: PVC, green (RAL 6017)
- **UNITRONIC® BUS EIBCOMBI**  
Bare solid copper wire  
Core insulation: PVC  
2x2x0,8: red and black, white and yellow  
3x1,5: brown, blue, green/yellow  
Overall aluminum foil  
Outer sheath: PVC, green (RAL 6017)

### Technical data

|  |                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC000830<br>ETIM 5.0/6.0 Class-Description: Data cable |
|  | <b>Mutual capacitance</b><br>(800 Hz) max. 100 nF/km                                                            |
|  | <b>Peak operating voltage</b><br>(not for power applications) 250 V                                             |
|  | <b>Conductor resistance</b><br>(loop): max. 73.2 ohm/km                                                         |
|  | <b>Minimum bending radius</b><br>Fixed installation:<br>5 x outer diameter                                      |
|  | <b>Test voltage</b><br>Core/core: 4000 V                                                                        |
|  | <b>Temperature range</b><br>Fixed installation: -30°C to +70°C                                                  |

| Article number      | Article designation      | Number of pairs and mm or mm <sup>2</sup> per conductor | Outer diameter [mm] | Copper index (kg/km) | Weight (kg/m) |
|---------------------|--------------------------|---------------------------------------------------------|---------------------|----------------------|---------------|
| <b>PVC</b>          |                          |                                                         |                     |                      |               |
| 2170240             | UNITRONIC® BUS EIB       | 2 x 2 x 0.8                                             | 6.6                 | 21                   | 54            |
| 2170242             | UNITRONIC® BUS EIB COMBI | 2 x 2 x 0,8 mm + 3 x 1,5 mm <sup>2</sup>                | 12.7                | 64                   | 128           |
| <b>Halogen-free</b> |                          |                                                         |                     |                      |               |
| 2170241             | UNITRONIC® BUS EIB H     | 2 x 2 x 0.8                                             | 6.6                 | 21                   | 54            |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum

Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- SENSOR STRIP stripping tool refer to page 961

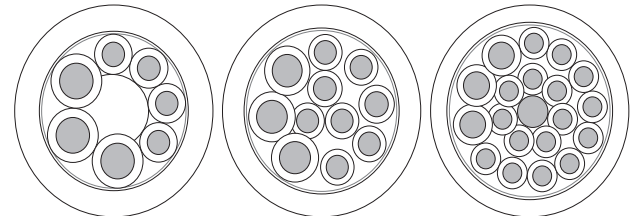


## UNITRONIC® SENSOR master cable



### Info

- Customised construction can be supported



7038880

7038881

7038882

### Benefits

- Cost efficient and rational wiring for S/A boxes with detachable master cable connection
- Can be used universally for S/A installations

### Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

### Product features

- Cores for Power Supply:  
3 x 0.75 mm<sup>2</sup> and 3 x 1.0 mm<sup>2</sup>
- Cores for Signalling cable:  
4 x 0.34 mm<sup>2</sup>, 8 x 0.5 mm<sup>2</sup>, 16 x 0.5 mm<sup>2</sup>
- Suitable for drag chains
- Halogen-free according to VDE 0472-815
- Flame-retardant according to UL 1581 FT-2

### Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

### Product Make-up

- Fine-wire, bare copper strand
- Single wire diameter:  
0.34 mm<sup>2</sup> = (43 x 0.10 mm)  
0.5 mm<sup>2</sup> = (19 x 0.18 mm)  
0.75 mm<sup>2</sup> = (21 x 0.205 mm)  
1.0 mm<sup>2</sup> = (55 x 0.15 mm)
- Core insulation: PP
- Outer sheath: PUR, black

### Technical data

- Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC001578  
ETIM 5.0/6.0 Class-Description:  
Flexible cable
- Conductor stranding**  
Stranded conductor, fine-wire
- Minimum bending radius**  
Flexing: 10 x outer diameter
- Temperature range**  
Fixed installation: -40 °C to +80 °C  
Flexing: -5 °C to +80 °C

| Article number                 | Article designation | Dimensions (mm <sup>2</sup> ) | Outer diameter [mm] | Core/outer sheath material | Copper index [kg/km] |
|--------------------------------|---------------------|-------------------------------|---------------------|----------------------------|----------------------|
| <b>UNITRONIC® SENSOR COMBI</b> |                     |                               |                     |                            |                      |
| 7038880                        | Li9Y11Y             | 3 x 0.75 + 4 x 0.34           | 6.6                 | PP/PUR                     | 34.5                 |
| 7038881                        | Li9Y11Y             | 3 x 1.0 + 8 x 0.5             | 8.4                 | PP/PUR                     | 67.2                 |
| 7038882                        | Li9Y11Y             | 3 x 1.0 + 16 x 0.5            | 9.8                 | PP/PUR                     | 105.6                |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Packaging size: Coil 100m

Cables are printed

Other variations are available upon request.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

For detailed technical information please refer to the data sheet

### Accessories

- Distribution Box M12 refer to page 400



## UNITRONIC® SENSOR

Flexible cable for sensor/actuator cabling



### Info

- Easy cable preparation
- UL recognized (LifYY A)

### Benefits

- Easy installation (through cable trays, tubes, cabinets)
- Easy stripping and processing
- Space-saving due to compact dimensions

### Application range

- Automation technology
- Sensor/ actuator cabling

### Product features

- Core colour code in accordance with DIN EN 50044
- Black version: UV-resistant
- For higher mechanical stress (LifYY 11Y/ Desina)

### Norm references / Approvals

- UL recognized (LifYY A)

### Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PVC
- Colour-code:  
3-pin: bn, bu, bk  
4-pin: bn, wh, bu, bk  
5-pin: bn, wh, bu, bk, gy
- DESINA 4x0,34: bn, wh, bu, bk
- Outer sheath: PVC or PUR
- Sheath colour: black (RAL 9005)
- DESINA yellow (RAL 1021)

### Technical data

|  |                                                                                                                                                                                   |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001578<br>ETIM 5.0/6.0 Class-Description:<br>Flexible cable                                                            |
|  | <b>Peak operating voltage</b><br>300 V (not for power applications)                                                                                                               |
|  | <b>Conductor stranding</b><br>Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6                                                                                        |
|  | <b>Minimum bending radius</b><br>Flexing: 15 x outer diameter<br>Fixed installation: 8 x outer diameter                                                                           |
|  | <b>Temperature range</b><br>PVC/PVC:<br>Fixed installation: -40°C to +80°C<br>Flexing: -5°C to +80°C<br>PVC/PUR:<br>Fixed installation: -30°C to +80°C<br>Flexing: -10°C to +80°C |

| Article number                   | Article designation | Dimensions (mm <sup>2</sup> ) | Outer diameter [mm] | Core/outer sheath material | Colour | UL  | Copper index [kg/km] |
|----------------------------------|---------------------|-------------------------------|---------------------|----------------------------|--------|-----|----------------------|
| <b>UNITRONIC® SENSOR PVC</b>     |                     |                               |                     |                            |        |     |                      |
| 7038859                          | LifYY               | 3 x 0.34                      | 4.8                 | PVC/PVC                    | black  |     | 9.8                  |
| 7038860                          | LifYY               | 4 x 0.34                      | 4.8                 | PVC/PVC                    | black  |     | 13.1                 |
| <b>UNITRONIC® SENSOR PVC</b>     |                     |                               |                     |                            |        |     |                      |
| 7038898                          | LifYY               | 3x0.25                        | 3.8                 | PVC/PVC                    | black  |     | 7.5                  |
| 7038899                          | LifYY               | 4x0.25                        | 4.2                 | PVC/PVC                    | black  |     | 10.2                 |
| 7038900                          | LifYY               | 3 x 0.34                      | 4.1                 | PVC/PVC                    | black  |     | 9.8                  |
| 7038901                          | LifYY               | 4 x 0.34                      | 4.4                 | PVC/PVC                    | black  |     | 13                   |
| 7038902                          | LifYY               | 5 x 0.34                      | 4.8                 | PVC/PVC                    | black  |     | 16                   |
| <b>UNITRONIC® SENSOR PVC UL</b>  |                     |                               |                     |                            |        |     |                      |
| 7038903                          | LifYY A             | 3x0.25                        | 4.3                 | PVC/PVC                    | black  | yes | 7.5                  |
| 7038904                          | LifYY A             | 4x0.25                        | 4.6                 | PVC/PVC                    | black  | yes | 10.2                 |
| 7038905                          | LifYY A             | 3 x 0.34                      | 4.4                 | PVC/PVC                    | black  | yes | 9.8                  |
| 7038906                          | LifYY A             | 4 x 0.34                      | 4.8                 | PVC/PVC                    | black  | yes | 13                   |
| 7038907                          | LifYY A             | 5 x 0.34                      | 5.2                 | PVC/PVC                    | black  | yes | 16                   |
| <b>UNITRONIC® SENSOR PVC/PUR</b> |                     |                               |                     |                            |        |     |                      |
| 7038861                          | LifYY 11Y           | 4 x 0.34                      | 4.8                 | PVC/PUR                    | black  |     | 13.1                 |
| 7038862                          | LifYY 11Y           | 5 x 0.25                      | 4.9                 | PVC/PUR                    | black  |     | 12                   |
| 0040434                          | DESINA              | 4 x 0.34                      | 5.2                 | PVC/PUR                    | yellow |     | 13.5                 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- EPIC® SENSOR M12 refer to page 390
- EPIC® SENSOR M12 V4A refer to page 391
- EPIC® SENSOR M8 refer to page 383
- SENSOR STRIP stripping tool refer to page 961



## UNITRONIC® SENSOR FD

High flexible cable for sensor/actuator cabling for use in drag chains, halogen-free



### Info

- For increased mechanical stress and harsh operating conditions



### Benefits

- Designs for highly flexible use
- Abrasion-resistant
- Wear-resistant
- Space-saving due to compact dimensions

### Application range

- Automation technology
- Sensor/ actuator cabling
- Mechanical and plant engineering
- Assembly and production lines

### Product features

- UV-resistant
- Halogen-free according to VDE 0472-815
- Flame-retardant according to IEC 60332-2-2, UL 1581 FT-2
- Suitable for drag chains
- Designed for 4 million alternating bending cycles and travel distances up to 10 m

### Norm references / Approvals

- UL AWM Style 20549

### Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PP
- Colour-code:  
3-pin: bn, bu, bk  
4-pin: bn, wh, bu, bk  
5-pin: bn, wh, bu, bk, gy  
8-pin: bn, wh, gn, ye, gy, pk, bu, rd
- Outer sheath: PUR, black

### Technical data

|  |                                                                                                                        |
|--|------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001578<br>ETIM 5.0/6.0 Class-Description:<br>Flexible cable |
|  | <b>Peak operating voltage</b><br>300 V (not for power applications)                                                    |
|  | <b>Conductor stranding</b><br>Extra-fine wire acc. to VDE 0295, class 6 / IEC 60228 class 6                            |
|  | <b>Minimum bending radius</b><br>Fixed installation: 5 x outer diameter<br>Flexing: 10 x outer diameter                |
|  | <b>Temperature range</b><br>Occasional flexing: -25°C to +80°C<br>Fixed installation: -40°C to +80°C                   |

| Article number                          | Article designation | Dimensions (mm <sup>2</sup> ) | Outer diameter [mm] | Core/outer sheath material | Colour | Copper index [kg/km] |
|-----------------------------------------|---------------------|-------------------------------|---------------------|----------------------------|--------|----------------------|
| <b>UNITRONIC® SENSOR FD</b>             |                     |                               |                     |                            |        |                      |
| 7038867                                 | Lif9Y11Y            | 5 x 0.25                      | 4.7                 | PP/PUR                     | black  | 12                   |
| 7038868                                 | Lif9Y11Y            | 8 x 0.25                      | 5.9                 | PP/PUR                     | black  | 19                   |
| 7038864                                 | Lif9Y11Y            | 3 x 0.34                      | 4.6                 | PP/PUR                     | black  | 9.8                  |
| 7038865                                 | Lif9Y11Y            | 4 x 0.34                      | 4.7                 | PP/PUR                     | black  | 13                   |
| <b>UNITRONIC® SENSOR FD - optimized</b> |                     |                               |                     |                            |        |                      |
| 7038889                                 | Lif9Y11Y            | 3x0.25                        | 3.6                 | PP/PUR                     | black  | 7.5                  |
| 7038890                                 | Lif9Y11Y            | 4x0.25                        | 3.8                 | PP/PUR                     | black  | 10.2                 |
| 7038893                                 | Lif9Y11Y            | 5 x 0.34                      | 4.5                 | PP/PUR                     | black  | 16                   |
| <b>UNITRONIC® SENSOR FD screened</b>    |                     |                               |                     |                            |        |                      |
| 7038885                                 | Lif9YC11Y           | 3 x 0.34                      | 4.3                 | PP/PUR                     | black  | 19.1                 |
| 7038886                                 | Lif9YC11Y           | 4 x 0.34                      | 4.6                 | PP/PUR                     | black  | 23.5                 |
| 7038887                                 | Lif9YC11Y           | 5 x 0.34                      | 5                   | PP/PUR                     | black  | 27.5                 |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Other types of composition are available upon request.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- EPIC® SENSOR M12 refer to page 390
- EPIC® SENSOR M12 V4A refer to page 391
- EPIC® SENSOR M8 refer to page 383
- STAR STRIP stripping tool refer to page 957
- SMART STRIP stripping tool



## UNITRONIC® ROBUST S/A FD

High flexible, halogen-free sensor/actuator cable - resistant to a wide range of chemical media



### Info

- Good chemical resistance
- Excellent weather resistance
- Flexible at low temperatures

### Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant against organic oils, emulsions, greases and waxes based on organic, animal or synthetic
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Good resistance to ammonia compounds and bio-gases

### Application range

- Automation technology
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products

### Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Suitable for drag chains
- Torsion-resistant
- Halogen-free

### Norm references / Approvals

- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- ECOLAB®  
Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

### Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PE
- Colour-code:  
3-pin: bn, bu, bk  
4-pin: bn, wh, bu, bk  
5-pin: bn, wh, bu, bk, gy
- Outer sheath made of special TPE
- Color of the outer jacket: Black

### Technical data

|  |                                                                                                                        |
|--|------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001578<br>ETIM 5.0/6.0 Class-Description:<br>Flexible cable |
|  | <b>Core identification code</b><br>acc. to EN 60947-5-2                                                                |
|  | <b>Conductor stranding</b><br>Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6                         |
|  | <b>Minimum bending radius</b><br>Flexing: 5 x outer diameter<br>Fixed installation: 3 x outer diameter                 |
|  | <b>Temperature range</b><br>Flexing: -40°C to +90°C<br>Fixed installation: -50°C to +90°C                              |

| Article number                  | Article designation             | Dimensions (mm <sup>2</sup> ) | Outer diameter [mm] | Colour | Copper index [kg/km] |
|---------------------------------|---------------------------------|-------------------------------|---------------------|--------|----------------------|
| <b>UNITRONIC® ROBUST S/A FD</b> |                                 |                               |                     |        |                      |
| 7038897                         | UNITRONIC® ROBUST S/A FD 4x0,25 | 4x0.25                        | 4.9                 | black  | 10.2                 |
| 7038895                         | UNITRONIC® ROBUST S/A FD 3x0,34 | 3 x 0.34                      | 5                   | black  | 9.8                  |
| 7038894                         | UNITRONIC® ROBUST S/A FD 4x0,34 | 4 x 0.34                      | 5.4                 | black  | 13.1                 |
| 7038896                         | UNITRONIC® ROBUST S/A FD 5x0,34 | 5 x 0.34                      | 5.9                 | black  | 16                   |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Other types of composition are available upon request.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- EPIC® SENSOR M12 refer to page 390
- EPIC® SENSOR M12 V4A refer to page 391
- EPIC® SENSOR M8 refer to page 383
- STAR STRIP stripping tool refer to page 957



## UNITRONIC® SENSOR M8

M8 plug/socket on free conductor end

### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

### Application range

- For increased mechanical stress and harsh operating conditions

### Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

### Product Make-up

- Core cross section: 0.25 mm<sup>2</sup>
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Technical data

|  |                                                                                                                                                              |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001855<br>ETIM 5.0/6.0 Class-Description:<br>Sensor-actuator patch cord                           |
|  | <b>Material</b><br>Contact: CuSn<br>Contact surface: Ni/Au<br>Knurl: Zinc die-cast, nickel-plated<br>Gripping body: TPU, flame-retardant, self-extinguishing |
|  | <b>Minimum bending radius</b><br>Fixed installation: 5 x outer diameter<br>Flexing: 10 x outer diameter                                                      |
|  | <b>Protection rating</b><br>IP65/IP67/IP68                                                                                                                   |
|  | <b>Ambient temperature (operation)</b><br>Plug/socket -25°C to +90°C<br>Fixed installation -40°C to +80°C<br>Flexing -25°C to +80°C                          |
|  | <b>Coding</b><br>A-standard                                                                                                                                  |
|  | <b>Rated current (A)</b><br>4 A                                                                                                                              |

| Article number | Article designation   | Number of pins | Length (m) | Design   | LED    | Rated voltage (V) | PU |
|----------------|-----------------------|----------------|------------|----------|--------|-------------------|----|
| <b>3-pin</b>   |                       |                |            |          |        |                   |    |
| <b>Plug</b>    |                       |                |            |          |        |                   |    |
| 22260204       | AB-C3-M8MS-2,0PUR     | 3              | 2          | straight | no     | 60                | 1  |
| 22260205       | AB-C3-M8MS-5,0PUR     | 3              | 5          | straight | no     | 60                | 1  |
| 22260218       | AB-C3-M8MS-10,0PUR    | 3              | 10         | straight | no     | 60                | 1  |
| 22260053       | AB-C3-M8MA-2,0PUR     | 3              | 2          | angled   | no     | 60                | 1  |
| 22260987       | AB-C3-M8MA-5,0PUR     | 3              | 5          | angled   | no     | 60                | 1  |
| 22260055       | AB-C3-M8MA-10,0PUR    | 3              | 10         | angled   | no     | 60                | 1  |
| <b>Socket</b>  |                       |                |            |          |        |                   |    |
| 22260202       | AB-C3-2,0PUR-M8FS     | 3              | 2          | straight | no     | 60                | 1  |
| 22260200       | AB-C3-5,0PUR-M8FS     | 3              | 5          | straight | no     | 60                | 1  |
| 22260219       | AB-C3-10,0PUR-M8FS    | 3              | 10         | straight | no     | 60                | 1  |
| 22260203       | AB-C3-2,0PUR-M8FA     | 3              | 2          | angled   | no     | 60                | 1  |
| 22260201       | AB-C3-5,0PUR-M8FA     | 3              | 5          | angled   | no     | 60                | 1  |
| 22260220       | AB-C3-10,0PUR-M8FA    | 3              | 10         | angled   | no     | 60                | 1  |
| 22260275       | AB-C3-2,0PUR-M8FA-2L  | 3              | 2          | angled   | 2 LEDs | 24                | 1  |
| 22260276       | AB-C3-5,0PUR-M8FA-2L  | 3              | 5          | angled   | 2 LEDs | 24                | 1  |
| 22260277       | AB-C3-10,0PUR-M8FA-2L | 3              | 10         | angled   | 2 LEDs | 24                | 1  |
| <b>4-pin</b>   |                       |                |            |          |        |                   |    |
| <b>Plug</b>    |                       |                |            |          |        |                   |    |
| 22260300       | AB-C4-M8MS-2,0PUR     | 4              | 2          | straight | no     | 30                | 1  |
| 22260308       | AB-C4-M8MS-5,0PUR     | 4              | 5          | straight | no     | 30                | 1  |
| 22260318       | AB-C4-M8MS-10,0PUR    | 4              | 10         | straight | no     | 30                | 1  |
| 22260056       | AB-C4-M8MA-2,0PUR     | 4              | 2          | angled   | no     | 30                | 1  |
| 22260057       | AB-C4-M8MA-5,0PUR     | 4              | 5          | angled   | no     | 30                | 1  |
| 22260058       | AB-C4-M8MA-10,0PUR    | 4              | 10         | angled   | no     | 30                | 1  |
| <b>Socket</b>  |                       |                |            |          |        |                   |    |
| 22260309       | AB-C4-2,0PUR-M8FS     | 4              | 2          | straight | no     | 30                | 1  |
| 22260310       | AB-C4-5,0PUR-M8FS     | 4              | 5          | straight | no     | 30                | 1  |
| 22260317       | AB-C4-10,0PUR-M8FS    | 4              | 10         | straight | no     | 30                | 1  |
| 22260311       | AB-C4-2,0PUR-M8FA     | 4              | 2          | angled   | no     | 30                | 1  |
| 22260312       | AB-C4-5,0PUR-M8FA     | 4              | 5          | angled   | no     | 30                | 1  |
| 22260319       | AB-C4-10,0PUR-M8FA    | 4              | 10         | angled   | no     | 30                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. / No copper surcharge.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / UL certifications can be found in the data sheet.

### Accessories

- EPIC® SENSOR M8 refer to page 383



## UNITRONIC® SENSOR M8-M8

M8 plug on M8 socket



### Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

### Application range

- For increased mechanical stress and harsh operating conditions

### Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

### Product Make-up

- Core cross section: 0.25 mm<sup>2</sup>
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Minimum bending radius

Fixed installation: 5 x outer diameter  
Flexing: 10 x outer diameter



#### Protection rating

IP65/IP67/IP68



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C  
Fixed installation -40°C to +80°C  
Flexing -25°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number        | Article designation       | Number of pins | Length (m) | Design            | LED    | Rated voltage (V) | PU |
|-----------------------|---------------------------|----------------|------------|-------------------|--------|-------------------|----|
| <b>Plug on socket</b> |                           |                |            |                   |        |                   |    |
| <b>3-pin</b>          |                           |                |            |                   |        |                   |    |
| 22260206              | AB-C3-M8MS-0,3PUR-M8FS    | 3              | 0.3        | straight-straight | no     | 60                | 1  |
| 22260207              | AB-C3-M8MS-0,6PUR-M8FS    | 3              | 0.6        | straight-straight | no     | 60                | 1  |
| 22260208              | AB-C3-M8MS-1,0PUR-M8FS    | 3              | 1          | straight-straight | no     | 60                | 1  |
| 22260209              | AB-C3-M8MS-2,0PUR-M8FS    | 3              | 2          | straight-straight | no     | 60                | 1  |
| 22260210              | AB-C3-M8MS-0,3PUR-M8FA    | 3              | 0.3        | straight-angled   | no     | 60                | 1  |
| 22260211              | AB-C3-M8MS-0,6PUR-M8FA    | 3              | 0.6        | straight-angled   | no     | 60                | 1  |
| 22260212              | AB-C3-M8MS-1,0PUR-M8FA    | 3              | 1          | straight-angled   | no     | 60                | 1  |
| 22260213              | AB-C3-M8MS-2,0PUR-M8FA    | 3              | 2          | straight-angled   | no     | 60                | 1  |
| 22260214              | AB-C3-M8MS-0,3PUR-M8FA-2L | 3              | 0.3        | straight-angled   | 2 LEDs | 24                | 1  |
| 22260215              | AB-C3-M8MS-0,6PUR-M8FA-2L | 3              | 0.6        | straight-angled   | 2 LEDs | 24                | 1  |
| 22260216              | AB-C3-M8MS-1,0PUR-M8FA-2L | 3              | 1          | straight-angled   | 2 LEDs | 24                | 1  |
| 22260217              | AB-C3-M8MS-2,0PUR-M8FA-2L | 3              | 2          | straight-angled   | 2 LEDs | 24                | 1  |
| <b>4-pin</b>          |                           |                |            |                   |        |                   |    |
| 22260313              | AB-C4-M8MS-0,3PUR-M8FS    | 4              | 0.3        | straight-straight | no     | 30                | 1  |
| 22260314              | AB-C4-M8MS-0,6PUR-M8FS    | 4              | 0.6        | straight-straight | no     | 30                | 1  |
| 22260315              | AB-C4-M8MS-1,0PUR-M8FS    | 4              | 1          | straight-straight | no     | 30                | 1  |
| 22260316              | AB-C4-M8MS-2,0PUR-M8FS    | 4              | 2          | straight-straight | no     | 30                | 1  |
| 22260059              | AB-C4-M8MS-0,3PUR-M8FA    | 4              | 0.3        | straight-angled   | no     | 30                | 1  |
| 22260060              | AB-C4-M8MS-0,6PUR-M8FA    | 4              | 0.6        | straight-angled   | no     | 30                | 1  |
| 22260061              | AB-C4-M8MS-1,0PUR-M8FA    | 4              | 1          | straight-angled   | no     | 30                | 1  |
| 22260062              | AB-C4-M8MS-2,0PUR-M8FA    | 4              | 2          | straight-angled   | no     | 30                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

No copper surcharge.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UL certifications can be found in the data sheet.



## UNITRONIC® SENSOR M8-M12

M8 plug on M12 socket

### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request



### Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

### Application range

- For increased mechanical stress and harsh operating conditions

### Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

### Product Make-up

- Core cross section: 0.25 mm<sup>2</sup>
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)
- Outer sheath: PUR, black

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Minimum bending radius

Fixed installation: 5 x outer diameter  
Flexing: 10 x outer diameter



#### Protection rating

IP65/IP67/IP68



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C  
Fixed installation -40°C to +80°C  
Flexing -25°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number | Article designation        | Number of pins | Length (m) | Design            | LED    | Rated voltage (V) | PU |
|----------------|----------------------------|----------------|------------|-------------------|--------|-------------------|----|
| <b>3-pin</b>   |                            |                |            |                   |        |                   |    |
| 22260241       | AB-C3-M8MS-0,3PUR-M12FS    | 3              | 0.3        | straight-straight | no     | 60                | 1  |
| 22260242       | AB-C3-M8MS-0,6PUR-M12FS    | 3              | 0.6        | straight-straight | no     | 60                | 1  |
| 22260243       | AB-C3-M8MS-1,0PUR-M12FS    | 3              | 1          | straight-straight | no     | 60                | 1  |
| 22260244       | AB-C3-M8MS-2,0PUR-M12FS    | 3              | 2          | straight-straight | no     | 60                | 1  |
| 22260245       | AB-C3-M8MS-0,3PUR-M12FA    | 3              | 0.3        | straight-angled   | no     | 60                | 1  |
| 22260246       | AB-C3-M8MS-0,6PUR-M12FA    | 3              | 0.6        | straight-angled   | no     | 60                | 1  |
| 22260247       | AB-C3-M8MS-1,0PUR-M12FA    | 3              | 1          | straight-angled   | no     | 60                | 1  |
| 22260248       | AB-C3-M8MS-2,0PUR-M12FA    | 3              | 2          | straight-angled   | no     | 60                | 1  |
| 22260271       | AB-C3-M8MS-0,3PUR-M12FA-2L | 3              | 0.3        | straight-angled   | 2 LEDs | 24                | 1  |
| 22260272       | AB-C3-M8MS-0,6PUR-M12FA-2L | 3              | 0.6        | straight-angled   | 2 LEDs | 24                | 1  |
| 22260273       | AB-C3-M8MS-1,0PUR-M12FA-2L | 3              | 1          | straight-angled   | 2 LEDs | 24                | 1  |
| 22260274       | AB-C3-M8MS-2,0PUR-M12FA-2L | 3              | 2          | straight-angled   | 2 LEDs | 24                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

No copper surcharge.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UL certifications can be found in the data sheet.



## UNITRONIC® SENSOR PVC M8

M8 plug/socket on free conductor end



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

### Application range

- For medium mechanical stress in dry conditions

### Product features

- Partly oil and chemical resistant
- PWIS-free
- Including tag carrier

### Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

### Product Make-up

- Core cross section: 0.25 mm<sup>2</sup>
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PVC, black

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Technical data



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Protection rating

IP65/IP67/IP68



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C  
Fixed installation -25°C to +80°C  
Flexing -5°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number | Article designation | Number of pins | Length (m) | Design   | Rated voltage (V) | PU |
|----------------|---------------------|----------------|------------|----------|-------------------|----|
| <b>3-pin</b>   |                     |                |            |          |                   |    |
| <b>Plug</b>    |                     |                |            |          |                   |    |
| 22260847       | AB-C3-M8MS-2,0PVC   | 3              | 2          | straight | 60                | 1  |
| 22260665       | AB-C3-M8MS-5,0PVC   | 3              | 5          | straight | 60                | 1  |
| 22260848       | AB-C3-M8MS-10,0PVC  | 3              | 10         | straight | 60                | 1  |
| <b>Socket</b>  |                     |                |            |          |                   |    |
| 22262093       | AB-C3-2,0PVC-M8FA   | 3              | 2          | angled   | 60                | 1  |
| 22262081       | AB-C3-5,0PVC-M8FA   | 3              | 5          | angled   | 60                | 1  |
| 22260370       | AB-C3-10,0PVC-M8FA  | 3              | 10         | angled   | 60                | 1  |
| <b>4-pin</b>   |                     |                |            |          |                   |    |
| <b>Plug</b>    |                     |                |            |          |                   |    |
| 22262105       | AB-C4-M8MS-2,0PVC   | 4              | 2          | straight | 30                | 1  |
| 22262106       | AB-C4-M8MS-5,0PVC   | 4              | 5          | straight | 30                | 1  |
| 22262107       | AB-C4-M8MS-10,0PVC  | 4              | 10         | straight | 30                | 1  |
| <b>Socket</b>  |                     |                |            |          |                   |    |
| 22260846       | AB-C4-2,0PVC-M8FA   | 4              | 2          | angled   | 30                | 1  |
| 22260845       | AB-C4-5,0PVC-M8FA   | 4              | 5          | angled   | 30                | 1  |
| 22260844       | AB-C4-10,0PVC-M8FA  | 4              | 10         | angled   | 30                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

No copper surcharge.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UL certifications can be found in the data sheet.

### Accessories

- EPIC® SENSOR M8 refer to page 383



## EPIC® SENSOR M8

Field mountable connectors M8



### Benefits

- Easy connection with proven screw clamp connection
- For creating of individual cable lengths
- Quick and easy on-site assembly
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology

### Product features

- 3 and 4-pin version
- Version with piercing, insulation displacement contacts (IDC) or screw connection
- PWIS-free

### Suitable cables

- UNITRONIC® SENSOR Page 376
- UNITRONIC® SENSOR FD Page 377
- UNITRONIC® ROBUST S/A FD Page 378

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002062  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector

**Material**  
Contact: CuZn  
Contact surface: Au (gold)

**Protection rating**  
IP 65/IP 67 (IDC)  
IP 68 (piercing)  
IP 67 (screw)

**Ambient temperature (operation)**  
Plug/socket  
-25°C to +80°C (IDC)  
-25°C to +85°C (piercing)  
-40°C to +85°C (screw)

**Coding**  
A-standard

**Rated current (A)**  
4 A

| Article number                   | Article designation  | Number of pins | Connection type | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|----------------------------------|----------------------|----------------|-----------------|----------------------|----------------------|-------------------|----|
| <b>Plug, straight</b>            |                      |                |                 |                      |                      |                   |    |
| 22260993                         | AB-C3-M8MS-F0,25     | 3              | IDC             | 0.08 - 0.25          | 2.5 - 5              | 60                | 1  |
| 22260985                         | AB-C3-M8MS-F0,5      | 3              | IDC             | 0.25 - 0.5           | 2.5 - 5              | 60                | 1  |
| 22260043                         | AB-C4-M8MS-F0,25     | 4              | IDC             | 0.08 - 0.25          | 2.5 - 5              | 30                | 1  |
| 22260044                         | AB-C4-M8MS-F0,5      | 4              | IDC             | 0.25 - 0.5           | 2.5 - 5              | 30                | 1  |
| 22260122                         | AB-C3-M8MS-P         | 3              | Piercing        | 0.14 - 0.38          | 3 - 5                | 60                | 1  |
| 22260123                         | AB-C4-M8MS-P         | 4              | Piercing        | 0.14 - 0.38          | 3 - 5                | 30                | 1  |
| 22260120                         | AB-C3-M8MS           | 3              | screw           | 0.14 - 0.5           | 3.5 - 5              | 60                | 1  |
| 22260121                         | AB-C4-M8MS           | 4              | screw           | 0.14 - 0.5           | 3.5 - 5              | 30                | 1  |
| <b>Plug, straight shielded</b>   |                      |                |                 |                      |                      |                   |    |
| 22262025                         | AB-C3-M8MS-M-0,34-SH | 3              | screw           | 0.14 - 0.5           | 3.5 - 5.5            | 60                | 1  |
| 22262027                         | AB-C4-M8MS-M-0,34-SH | 4              | screw           | 0.14 - 0.5           | 3.5 - 5              | 30                | 1  |
| <b>Plug, angled</b>              |                      |                |                 |                      |                      |                   |    |
| 22262110                         | AB-C3-M8MA           | 3              | screw           | 0.14 - 0.5           | 3.5 - 5              | 60                | 1  |
| 22262111                         | AB-C4-M8MA           | 4              | screw           | 0.14 - 0.5           | 3.5 - 5              | 30                | 1  |
| <b>Socket, straight</b>          |                      |                |                 |                      |                      |                   |    |
| 22260994                         | AB-C3-M8FS-F0,25     | 3              | IDC             | 0.08 - 0.25          | 2.5 - 5              | 60                | 1  |
| 22260986                         | AB-C3-M8FS-F0,5      | 3              | IDC             | 0.25 - 0.5           | 2.5 - 5              | 60                | 1  |
| 22260045                         | AB-C4-M8FS-F0,25     | 4              | IDC             | 0.08 - 0.25          | 2.5 - 5              | 30                | 1  |
| 22260046                         | AB-C4-M8FS-F0,5      | 4              | IDC             | 0.25 - 0.5           | 2.5 - 5              | 30                | 1  |
| 22260124                         | AB-C3-M8FS-P         | 3              | Piercing        | 0.14 - 0.38          | 3 - 5                | 60                | 1  |
| 22260119                         | AB-C4-M8FS-P         | 4              | Piercing        | 0.14 - 0.38          | 3 - 5                | 30                | 1  |
| 22260125                         | AB-C3-M8FS           | 3              | screw           | 0.14 - 0.5           | 3.5 - 5              | 60                | 1  |
| 22260126                         | AB-C4-M8FS           | 4              | screw           | 0.14 - 0.5           | 3.5 - 5              | 30                | 1  |
| <b>Socket, straight shielded</b> |                      |                |                 |                      |                      |                   |    |
| 22262026                         | AB-C3-M8FS-M-0,34-SH | 3              | screw           | 0.14 - 0.5           | 3.5 - 5.5            | 60                | 1  |
| 22262028                         | AB-C4-M8FS-M-0,34-SH | 4              | screw           | 0.14 - 0.5           | 3.5 - 5.5            | 30                | 1  |
| <b>Socket, angled</b>            |                      |                |                 |                      |                      |                   |    |
| 22262112                         | AB-C3-M8FA           | 3              | screw           | 0.14 - 0.5           | 3.5 - 5              | 60                | 1  |
| 22262113                         | AB-C4-M8FA           | 4              | screw           | 0.14 - 0.5           | 3.5 - 5              | 30                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® SENSOR Flush-type M8



### Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)

### Application range

- Connection of enclosures and cabinets

### Product features

- M8 fastening thread
- Designs for front mounting
- PWIS-free

### Product Make-up

- TPE single strands, l = 0.5 m
- Core cross section: 0.25 mm<sup>2</sup>

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC002061  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector chassis



#### Material

Contact: CuSn  
Contact surface: Ag



#### Protection rating

IP 67



#### Ambient temperature (operation)

Plug/socket  
-25°C to +85°C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number                      | Article designation | Number of pins | Rated voltage (V) | PU |
|-------------------------------------|---------------------|----------------|-------------------|----|
| <b>Panel-mount connector male</b>   |                     |                |                   |    |
| 22260100                            | AB-C3-M8MS-0,5      | 3              | 60                | 1  |
| 22260101                            | AB-C4-M8MS-0,5      | 4              | 30                | 1  |
| <b>Panel-mount connector female</b> |                     |                |                   |    |
| 22260102                            | AB-C3-M8FS-0,5      | 3              | 60                | 1  |
| 22260103                            | AB-C4-M8FS-0,5      | 4              | 30                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Matching fitting nut: 22260104



## UNITRONIC® SENSOR M12 open-ended Cordsets

### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

### Application range

- For increased mechanical stress and harsh operating conditions

### Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

### Product Make-up

- Wire cross-section: 0.34mm<sup>2</sup> (8-pin: 0.25mm<sup>2</sup>)
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)  
5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)  
8-pin: wh (1), bn (2), gn (3), ye (4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Technical data



#### Classification

ETIM 5.0 Class-ID: EC001855  
ETIM 5.0 Class-Description: Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Minimum bending radius

Fixed installation: 5 x outer diameter  
Flexing: 10 x outer diameter



#### Protection rating

IP 65/IP 67/IP 68



#### Ambient temperature (operation)

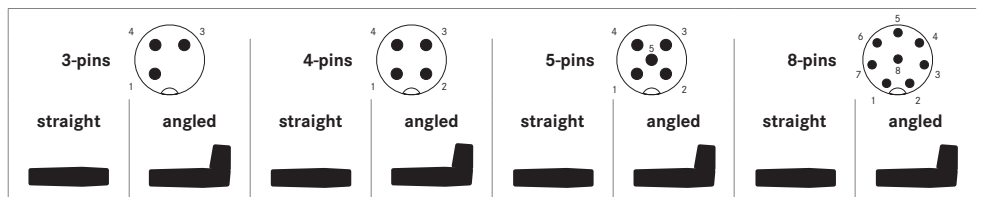
Plug/socket: -25°C to +90°C  
Fixed installation: -40°C to +80°C  
Flexing: -25°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A  
2 A (8-pin)



| Product                      | Length | Article number |            |          |            |            |            |            |            |
|------------------------------|--------|----------------|------------|----------|------------|------------|------------|------------|------------|
| Plug, unshielded             | 2.0m   | 22260221       | 22260223   | 22260320 | 22260301   | 22260400   | 22260402   | 22260091   | 22260094   |
|                              | 5.0m   | 22260222       | 22260224   | 22260321 | 22260302   | 22260401   | 22260403   | 22260092   | 22260095   |
|                              | 10.0m  | 22260249       | 22260256   | 22260342 | 22260303   | 22260414   | 22260417   | 22260093   | 22260096   |
| Socket, unshielded           | 2.0m   | 22260257       | 22260258   | 22260322 | 22260324   | 22260404   | 22260406   | 22260726   | 22260141   |
|                              | 5.0m   | 22260250       | 22260259   | 22260323 | 22260325   | 22260405   | 22260407   | 22260728   | 22260615   |
|                              | 10.0m  | 22260251       | 22260260   | 22260343 | 22260341   | 22260415   | 22260418   | 22260729   | 22260616   |
| Socket with LEDs, unshielded | 2.0m   | 22260252       | 22260253   | 22260344 | 22260326   | On request | 22260408   | ---        | ---        |
|                              | 5.0m   | 22260265       | 22260254   | 22260345 | 22260327   |            | 22260409   |            |            |
|                              | 10.0m  | 22260266       | 22260255   | 22260346 | 22260340   |            | 22260416   |            |            |
| Plug, shielded               | 2.0m   | 22260453       | On request | 22260459 | On request | 22260465   | 22261004   | On request | On request |
|                              | 5.0m   | 22260454       |            | 22260460 |            | 22260466   | 22261005   |            |            |
|                              | 10.0m  | 22260455       |            | 22260461 |            | 22260467   | On request |            |            |
| Socket, shielded             | 2.0m   | 22260450       | 22260074   | 22260456 | 22260074   | 22260462   | 22260946   | On request | On request |
|                              | 5.0m   | 22260451       | 22260675   | 22260457 | 22260675   | 22260463   | 22260714   | 22260863   | 22260859   |
|                              | 10.0m  | 22260452       | 22260680   | 22260458 | 22260680   | 22260464   | 22260991   | 22262001   | On request |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
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UL certifications can be found in the data sheet.



## UNITRONIC® SENSOR M12 Cordsets



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

### Application range

- For increased mechanical stress and harsh operating conditions

### Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

### Product Make-up

- Wire cross-section: 0.34mm<sup>2</sup> (8-pin: 0.25mm<sup>2</sup>)
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)  
5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)  
8-pin: wh (1), bn (2), gn (3), ye (4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

### Technical data



#### Classification

ETIM 5.0 Class-ID: EC001855  
ETIM 5.0 Class-Description: Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Minimum bending radius

Fixed installation: 5 x outer diameter  
Flexing: 10 x outer diameter



#### Protection rating

IP 65/IP 67/IP 68



#### Ambient temperature (operation)

Plug/socket: -25°C to +90°C  
Fixed installation: -40°C to +80°C  
Flexing: -25°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A  
2 A (8-pin)

| Socket | Length | Plug            |               |                 |               |                 |               |                 |               |
|--------|--------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
|        |        | 3-pins straight | 3-pins angled | 4-pins straight | 4-pins angled | 5-pins straight | 5-pins angled | 8-pins straight | 8-pins angled |
|        | 0.3m   | 22260233        | On request    | 22260328        | 22260304      | 22260410        | On request    | 22260097        | On request    |
|        | 0.6m   | 22260234        |               | 22260329        | 22260305      | 22260411        |               | 22260098        |               |
|        | 1.0m   | 22260235        |               | 22260330        | 22260306      | 22260412        |               | 22260099        |               |
|        | 2.0m   | 22260236        |               | 22260331        | 22260307      | 22260413        |               | 22260042        |               |
|        | 0.3m   | 22260237        | On request    | 22260332        | On request    | 22260063        | On request    | 22260137        | On request    |
|        | 0.6m   | 22260238        |               | 22260333        | 22260692      | 22260064        |               | 22260138        |               |
|        | 1.0m   | 22260239        |               | 22260334        | 22260965      | 22260065        |               | 22260139        |               |
|        | 2.0m   | 22260240        |               | 22260335        | 22260693      | 22260066        |               | 22260140        |               |
|        | 0.3m   | 22260261        | On request    | 22260336        | On request    | 22260067        | On request    | ---             | ---           |
|        | 0.6m   | 22260262        |               | 22260337        |               | 22260068        |               |                 |               |
|        | 1.0m   | 22260263        |               | 22260338        |               | 22260069        |               |                 |               |
|        | 2.0m   | 22260264        |               | 22260339        |               | 22260070        |               |                 |               |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UL certifications can be found in the data sheet.



## UNITRONIC® SENSOR M12-M8

M12 plug on M8 socket

### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

### Application range

- For increased mechanical stress and harsh operating conditions

### Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for drag chains
- Including tag carrier

### Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

### Product Make-up

- Core cross section: 0.25 mm<sup>2</sup>
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

### Technical data

|  |                                                                                                                                                              |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001855<br>ETIM 5.0/6.0 Class-Description:<br>Sensor-actuator patch cord                           |
|  | <b>Material</b><br>Contact: CuSn<br>Contact surface: Ni/Au<br>Knurl: Zinc die-cast, nickel-plated<br>Gripping body: TPU, flame-retardant, self-extinguishing |
|  | <b>Minimum bending radius</b><br>Fixed installation: 5 x outer diameter<br>Flexing: 10 x outer diameter                                                      |
|  | <b>Protection rating</b><br>IP65/IP67/IP68                                                                                                                   |
|  | <b>Ambient temperature (operation)</b><br>Plug/socket -25°C to +90°C<br>Fixed installation -40°C to +80°C<br>Flexing -25°C to +80°C                          |
|  | <b>Coding</b><br>A-standard                                                                                                                                  |
|  | <b>Rated current (A)</b><br>4 A                                                                                                                              |

| Article number        | Article designation        | Length (m) | Design            | LED    | Rated voltage (V) | PU |
|-----------------------|----------------------------|------------|-------------------|--------|-------------------|----|
| <b>Plug on socket</b> |                            |            |                   |        |                   |    |
| <b>3-pin</b>          |                            |            |                   |        |                   |    |
| 22260225              | AB-C3-M12MS-0,3PUR-M8FS    | 0.3        | straight-straight | no     | 60                | 1  |
| 22260226              | AB-C3-M12MS-0,6PUR-M8FS    | 0.6        | straight-straight | no     | 60                | 1  |
| 22260227              | AB-C3-M12MS-1,0PUR-M8FS    | 1          | straight-straight | no     | 60                | 1  |
| 22260228              | AB-C3-M12MS-2,0PUR-M8FS    | 2          | straight-straight | no     | 60                | 1  |
| 22260229              | AB-C3-M12MS-0,3PUR-M8FA    | 0.3        | straight-angled   | no     | 60                | 1  |
| 22260230              | AB-C3-M12MS-0,6PUR-M8FA    | 0.6        | straight-angled   | no     | 60                | 1  |
| 22260231              | AB-C3-M12MS-1,0PUR-M8FA    | 1          | straight-angled   | no     | 60                | 1  |
| 22260232              | AB-C3-M12MS-2,0PUR-M8FA    | 2          | straight-angled   | no     | 60                | 1  |
| 22260267              | AB-C3-M12MS-0,3PUR-M8FA-2L | 0.3        | straight-angled   | 2 LEDs | 24                | 1  |
| 22260268              | AB-C3-M12MS-0,6PUR-M8FA-2L | 0.6        | straight-angled   | 2 LEDs | 24                | 1  |
| 22260269              | AB-C3-M12MS-1,0PUR-M8FA-2L | 1          | straight-angled   | 2 LEDs | 24                | 1  |
| 22260270              | AB-C3-M12MS-2,0PUR-M8FA-2L | 2          | straight-angled   | 2 LEDs | 24                | 1  |
| <b>4-pin</b>          |                            |            |                   |        |                   |    |
| 22260347              | AB-C4-M12MS-0,3PUR-M8FS    | 0.3        | straight-straight | no     | 30                | 1  |
| 22260349              | AB-C4-M12MS-0,6PUR-M8FS    | 0.6        | straight-straight | no     | 30                | 1  |
| 22260350              | AB-C4-M12MS-1,0PUR-M8FS    | 1          | straight-straight | no     | 30                | 1  |
| 22260348              | AB-C4-M12MS-2,0PUR-M8FS    | 2          | straight-straight | no     | 30                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.  
UL certifications can be found in the data sheet.

### Accessories

- FLEXIMARK® Label LMB refer to page 921



## UNITRONIC® SENSOR PVC M12 | M12-M12

M12 plug/socket on M12 plug/socket/free conductor end



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance
- Integrated vibration protection (mechanical lock-in)

### Application range

- For medium mechanical stress in dry conditions

### Product features

- Partly oil and chemical resistant
- Including tag carrier
- PWIS-free

### Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

### Product Make-up

- Wire cross-section: 0,34 mm<sup>2</sup>
- Colour-code:  
3-pin: bn (1), bu (3), bk (4)  
4-pin: bn (1), wh (2), bu (3), bk (4)  
5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
- Outer sheath: PVC, black

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Minimum bending radius

Fixed installation: 5 x outer diameter  
Flexing: 10 x outer diameter



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C  
Fixed installation -40°C to +80°C  
Flexing -25°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number        | Article designation       | Number of pins | Length (m) | Design          | Rated voltage (V) | PU |
|-----------------------|---------------------------|----------------|------------|-----------------|-------------------|----|
| <b>3-pin</b>          |                           |                |            |                 |                   |    |
| <b>Socket</b>         |                           |                |            |                 |                   |    |
| 22260080              | AB-C3-2,0PVC-M12FS        | 3              | 2          | straight        | 250               | 1  |
| 22260663              | AB-C3-5,0PVC-M12FS        | 3              | 5          | straight        | 250               | 1  |
| 22260081              | AB-C3-10,0PVC-M12FS       | 3              | 10         | straight        | 250               | 1  |
| 22262095              | AB-C3-2,0PVC-M12FA        | 3              | 2          | angled          | 250               | 1  |
| 22260661              | AB-C3-5,0PVC-M12FA        | 3              | 5          | angled          | 250               | 1  |
| 22262083              | AB-C3-10,0PVC-M12FA       | 3              | 10         | angled          | 250               | 1  |
| <b>Plug on socket</b> |                           |                |            |                 |                   |    |
| 22262096              | AB-C3-M12MS-2,0PVC-M12FA  | 3              | 2          | straight-angled | 250               | 1  |
| 22262097              | AB-C3-M12MS-5,0PVC-M12FA  | 3              | 5          | straight-angled | 250               | 1  |
| 22262098              | AB-C3-M12MS-10,0PVC-M12FA | 3              | 10         | straight-angled | 250               | 1  |
| <b>4-pin</b>          |                           |                |            |                 |                   |    |
| <b>Socket</b>         |                           |                |            |                 |                   |    |
| 22260688              | AB-C4- 2,0PVC-M12FS       | 4              | 2          | straight        | 250               | 1  |
| 22260689              | AB-C4-5,0PVC-M12FS        | 4              | 5          | straight        | 250               | 1  |
| 22260685              | AB-C4-10,0PVC-M12FS       | 4              | 10         | straight        | 250               | 1  |
| 22260841              | AB-C4- 2,0PVC-M12FA       | 4              | 2          | angled          | 250               | 1  |
| 22260678              | AB-C4-5,0PVC-M12FA        | 4              | 5          | angled          | 250               | 1  |
| 22260683              | AB-C4-10,0PVC-M12FA       | 4              | 10         | angled          | 250               | 1  |
| <b>Plug on socket</b> |                           |                |            |                 |                   |    |
| 22260832              | AB-C4-M12MS-2,0PVC-M12FA  | 4              | 2          | straight-angled | 250               | 1  |
| 22260705              | AB-C4-M12MS-5,0PVC-M12FA  | 4              | 5          | straight-angled | 250               | 1  |
| 22260833              | AB-C4-M12MS-10,0PVC-M12FA | 4              | 10         | straight-angled | 250               | 1  |
| <b>5-pin</b>          |                           |                |            |                 |                   |    |
| <b>Socket</b>         |                           |                |            |                 |                   |    |
| 22262099              | AB-C5-2,0PVC-M12FS        | 5              | 2          | straight        | 60                | 1  |
| 22262100              | AB-C5-5,0PVC-M12FS        | 5              | 5          | straight        | 60                | 1  |
| 22262101              | AB-C5-10,0PVC-M12FS       | 5              | 10         | straight        | 60                | 1  |
| <b>Plug on socket</b> |                           |                |            |                 |                   |    |
| 22262102              | AB-C5-M12MS-2,0PVC-M12FA  | 5              | 2          | straight-angled | 60                | 1  |
| 22262103              | AB-C5-M12MS-5,0PVC-M12FA  | 5              | 5          | straight-angled | 60                | 1  |
| 22262104              | AB-C5-M12MS-10,0PVC-M12FA | 5              | 10         | straight-angled | 60                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Photographs and graphics are not to scale and do not represent detailed images of the respective products. / UL certifications can be found in the data sheet.

### Accessories

- EPIC® SENSOR M12 refer to page 390
- EPIC® SENSOR M12 V4A refer to page 391
- FLEXIMARK® Label LMB refer to page 921



## UNITRONIC® SENSOR HD M12

S/A cable: Hygienic Design for Food&Beverage



### Info

- IP69 for high-pressure cleaning
- - 40 °C to + 105 °C



### Benefits

- Hygienic Design for ideal cleaning results
- Guaranteed density by meeting the highest protection class
- Stainless steel knurl to ensure protection against corrosion
- Bright colors to detect contamination quickly

### Application range

- Food production and packaging machinery
- Freezing plants, cold storage
- Washdown area with frequent contact with cleaning agents

### Product features

- Suitable for drag chains
- 4-pin plug/socket M12 on free conductor end

### Norm references / Approvals

- ECOLAB®  
Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600  
Special sealing element for food and beverage industry in North America

### Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:  
4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: TPE halogen-free, grey (similar to RAL 7035)

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Technical data

|  |                                                                                                                                    |
|--|------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001855<br>ETIM 5.0/6.0 Class-Description:<br>Sensor-actuator patch cord |
|  | <b>Material</b><br>Contact: CuSn<br>Contact surface: Ni/Au<br>Knurl: Stainless steel (V4A)<br>Gripping body: PP                    |
|  | <b>Minimum bending radius</b><br>Fixed installation: 5 x outer diameter<br>Flexing: 10 x outer diameter                            |
|  | <b>Protection rating</b><br>IP65/IP67/IP68/IP69                                                                                    |
|  | <b>Ambient temperature (operation)</b><br>Fixed installation -40 °C to +105 °C<br>Flexing -25 °C to +105 °C                        |
|  | <b>Coding</b><br>A-standard                                                                                                        |
|  | <b>Rated current (A)</b><br>4 A                                                                                                    |

| Article number        | Article designation          | Number of pins | Length (m) | Design            | Rated voltage (V) | PU |
|-----------------------|------------------------------|----------------|------------|-------------------|-------------------|----|
| <b>Plug</b>           |                              |                |            |                   |                   |    |
| 22262040              | AB-C4-M12MS-2,0TPE-HD        | 4              | 2          | straight          | 250               | 1  |
| 22262041              | AB-C4-M12MS-5,0TPE-HD        | 4              | 5          | straight          | 250               | 1  |
| 22262060              | AB-C4-M12MS-7,5TPE-HD        | 4              | 7.5        | straight          | 250               | 1  |
| 22262042              | AB-C4-M12MS-10,0TPE-HD       | 4              | 10         | straight          | 250               | 1  |
| 22262061              | AB-C4-M12MS-15,0TPE-HD       | 4              | 15         | straight          | 250               | 1  |
| <b>Socket</b>         |                              |                |            |                   |                   |    |
| 22262043              | AB-C4-2,0TPE-M12FS-HD        | 4              | 2          | straight          | 250               | 1  |
| 22262044              | AB-C4-5,0TPE-M12FS-HD        | 4              | 5          | straight          | 250               | 1  |
| 22262062              | AB-C4-7,5TPE-M12FS-HD        | 4              | 7.5        | straight          | 250               | 1  |
| 22262045              | AB-C4-10,0TPE-M12FS-HD       | 4              | 10         | straight          | 250               | 1  |
| 22262063              | AB-C4-15,0TPE-M12FS-HD       | 4              | 15         | straight          | 250               | 1  |
| 22262046              | AB-C4-2,0TPE-M12FA-HD        | 4              | 2          | angled            | 250               | 1  |
| 22262047              | AB-C4-5,0TPE-M12FA-HD        | 4              | 5          | angled            | 250               | 1  |
| 22262064              | AB-C4-7,5TPE-M12FA-HD        | 4              | 7.5        | angled            | 250               | 1  |
| 22262048              | AB-C4-10,0TPE-M12FA-HD       | 4              | 10         | angled            | 250               | 1  |
| 22262065              | AB-C4-15,0TPE-M12FA-HD       | 4              | 15         | angled            | 250               | 1  |
| <b>Plug on socket</b> |                              |                |            |                   |                   |    |
| 22262184              | AB-C4-M12MS-0,3TPE-M12FS-HD  | 4              | 0.3        | straight-straight | 250               | 1  |
| 22262185              | AB-C4-M12MS-0,6TPE-M12FS-HD  | 4              | 0.6        | straight-straight | 250               | 1  |
| 22262180              | AB-C4-M12MS-1,0TPE-M12FS-HD  | 4              | 1          | straight-straight | 250               | 1  |
| 22262181              | AB-C4-M12MS-2,0TPE-M12FS-HD  | 4              | 2          | straight-straight | 250               | 1  |
| 22262182              | AB-C4-M12MS-5,0TPE-M12FS-HD  | 4              | 5          | straight-straight | 250               | 1  |
| 22262183              | AB-C4-M12MS-10,0TPE-M12FS-HD | 4              | 10         | straight-straight | 250               | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

No copper surcharge.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- EPIC® SENSOR M12 refer to page 390
- EPIC® SENSOR M12 V4A refer to page 391

**EPIC® SENSOR M12**

Field mountable connectors M12

**Benefits**

- For creating of individual cable lengths
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology
- Easy connection with proven screw clamp connection

**Product features**

- 4, 5 and 8-pin version
- Screened and non-screened version
- Screw connection or insulation displacement contacts (IDC)
- PWIS-free

**Technical data**

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002062  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector

**Material**  
Contact: CuZn  
Contact surface: CuSnZn

**IP** **Protection rating**  
IP 65/IP 67 (IDC)  
IP 67 (screw)

**Ambient temperature (operation)**  
Plug/socket  
-25°C to +80°C (IDC)  
-40°C to +85°C (screw)

**Coding**  
A-standard

**Rated current (A)**  
4 A  
2 A (8-pin)

| Article number                   | Article designation      | Number of pins | Connection type | Cross-section in mm <sup>2</sup> | Cable diameter in mm | Rated voltage (V) | PU |
|----------------------------------|--------------------------|----------------|-----------------|----------------------------------|----------------------|-------------------|----|
| <b>Plug, straight</b>            |                          |                |                 |                                  |                      |                   |    |
| 22260132                         | AB-C4-M12MS-F0,34        | 4              | IDC             | 0.14 - 0.34                      | 3.5 - 6              | 125               | 1  |
| 22260134                         | AB-C4-M12MS-F0,75        | 4              | IDC             | 0.34 - 0.75                      | 4 - 8                | 250               | 1  |
| 22260649                         | AB-C4-M12MS-PG7          | 4              | screw           | 0.25 - 0.75                      | 4 - 6                | 250               | 1  |
| 22260995                         | AB-C4-M12MS-PG9          | 4              | screw           | 0.25 - 0.75                      | 6 - 8                | 250               | 1  |
| 22260129                         | AB-C5-M12MS-PG7          | 5              | screw           | 0.25 - 0.75                      | 4 - 6                | 60                | 1  |
| 22260651                         | AB-C5-M12MS-PG9          | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| 22260996                         | AB-C5-M12MS-PG9-SKINTOP® | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| <b>Plug, straight shielded</b>   |                          |                |                 |                                  |                      |                   |    |
| 22260135                         | AB-C5-M12MS-PG9-SH       | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| 22260825                         | AB-C8-M12MS-PG9-SH       | 8              | screw           | 0.25 - 0.75                      | 6 - 8                | 30                | 1  |
| <b>Plug, angled</b>              |                          |                |                 |                                  |                      |                   |    |
| 22260647                         | AB-C4-M12MA-PG7          | 4              | screw           | 0.25 - 0.75                      | 4 - 6                | 250               | 1  |
| 22260130                         | AB-C5-M12MA-PG7          | 5              | screw           | 0.25 - 0.75                      | 4 - 6                | 60                | 1  |
| 22260648                         | AB-C5-M12MA-PG9          | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| 22262023                         | AB-C5-M12MA-PG9-SKINTOP® | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| <b>Plug angled, shielded</b>     |                          |                |                 |                                  |                      |                   |    |
| 22262108                         | AB-C5-M12MA-PG7-SH       | 5              | screw           | 0.25 - 0.75                      | 4 - 6                | 60                | 1  |
| <b>Socket, straight</b>          |                          |                |                 |                                  |                      |                   |    |
| 22260131                         | AB-C4-M12FS-F0,34        | 4              | IDC             | 0.14 - 0.34                      | 3.5 - 6              | 125               | 1  |
| 22260133                         | AB-C4-M12FS-F0,75        | 4              | IDC             | 0.34 - 0.75                      | 4 - 8                | 250               | 1  |
| 22260640                         | AB-C4-M12FS-PG7          | 4              | screw           | 0.25 - 0.75                      | 4 - 6                | 250               | 1  |
| 22260641                         | AB-C4-M12FS-PG9          | 4              | screw           | 0.25 - 0.75                      | 6 - 8                | 250               | 1  |
| 22260127                         | AB-C5-M12FS-PG7          | 5              | screw           | 0.25 - 0.75                      | 4 - 6                | 60                | 1  |
| 22260644                         | AB-C5-M12FS-PG9          | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| 22260997                         | AB-C5-M12FS-PG9-SKINTOP® | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| <b>Socket, straight shielded</b> |                          |                |                 |                                  |                      |                   |    |
| 22260136                         | AB-C5-M12FS-PG9-SH       | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| 22260826                         | AB-C8-M12FS-PG9-SH       | 8              | screw           | 0.25 - 0.75                      | 6 - 8                | 30                | 1  |
| <b>Socket, angled</b>            |                          |                |                 |                                  |                      |                   |    |
| 22260636                         | AB-C4-M12FA-PG7          | 4              | screw           | 0.25 - 0.75                      | 4 - 6                | 250               | 1  |
| 22260128                         | AB-C5-M12FA-PG7          | 5              | screw           | 0.25 - 0.75                      | 4 - 6                | 60                | 1  |
| 22260638                         | AB-C5-M12FA-PG9          | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| 22262024                         | AB-C5-M12FA-PG9-SKINTOP® | 5              | screw           | 0.25 - 0.75                      | 6 - 8                | 60                | 1  |
| <b>Socket angled, shielded</b>   |                          |                |                 |                                  |                      |                   |    |
| 22262109                         | AB-C5-M12FA-PG7-SH       | 5              | screw           | 0.25 - 0.75                      | 4 - 6                | 60                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® SENSOR M12 V4A

Field mountable connectors M12 for Food & Beverage/ Outdoor



### Technical data

|  |                                                                                                                                   |
|--|-----------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC002062<br>ETIM 5.0/6.0 Class-Description:<br>Sensor-actuator connector |
|  | <b>Material</b><br>Contact: CuZn<br>Contact surface: Au (gold)<br>Knurl: Stainless steel (V4A)                                    |
|  | <b>Protection rating</b><br>IP 67                                                                                                 |
|  | <b>Ambient temperature (operation)</b><br>Plug/socket -40°C to +85°C                                                              |
|  | <b>Coding</b><br>A-standard                                                                                                       |
|  | <b>Rated current (A)</b><br>4 A                                                                                                   |

### Benefits

- Stainless steel knurl to ensure protection against corrosion
- Quick and easy on-site assembly
- For creating of individual cable lengths
- Space-saving due to compact dimensions
- Easy connection with proven screw clamp connection

### Application range

- Automation systems
- Conveyor and transport systems
- Food production and packaging machinery
- Version SKINTOP® for Outdoor applications

### Product features

- 4-pin connector
- Screw connection
- PWIS-free

| Article number          | Article designation        | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) | PU |
|-------------------------|----------------------------|----------------|----------------------|----------------------|-------------------|----|
| <b>Plug, straight</b>   |                            |                |                      |                      |                   |    |
| 22262049                | AB-C4-M12MS-PG7-VA         | 4              | 0.25 - 0.75          | 4 - 6                | 250               | 1  |
| 22262123                | AB-C4-M12MS-PG7-VA-SKINTOP | 4              | 0.25 - 0.75          | 4.0 - 6.5            | 250               | 1  |
| <b>Socket, straight</b> |                            |                |                      |                      |                   |    |
| 22262050                | AB-C4-M12FS-PG7-VA         | 4              | 0.25 - 0.75          | 4 - 6                | 250               | 1  |
| 22262124                | AB-C4-M12FS-PG7-VA-SKINTOP | 4              | 0.25 - 0.75          | 4.0 - 6.5            | 250               | 1  |
| <b>Socket angled</b>    |                            |                |                      |                      |                   |    |
| 22262051                | AB-C4-M12FA-PG7-VA         | 4              | 0.25 - 0.75          | 4 - 6                | 250               | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® SENSOR M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling



22262020

### Technical data

|  |                                                                                                                                           |
|--|-------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC002061<br>ETIM 5.0/6.0 Class-Description:<br>Sensor-actuator connector chassis |
|  | <b>Material</b><br>Contact: CuZn<br>Contact surface: Au (gold)<br>Contact carrier: PA 66<br>Knurl: Nickel-plated brass<br>Sealing: FKM    |
|  | <b>Protection rating</b><br>IP 67                                                                                                         |
|  | <b>Ambient temperature (operation)</b><br>Plug/socket -25°C to +85°C                                                                      |
|  | <b>Coding</b><br>A - Standard<br>(CANopen/DeviceNet/CC-Link)                                                                              |
|  | <b>Rated current (A)</b><br>4 A                                                                                                           |

### Benefits

- Plug & Play for flexible connection solutions
- M12 connector on both sides

### Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

### Product Make-up

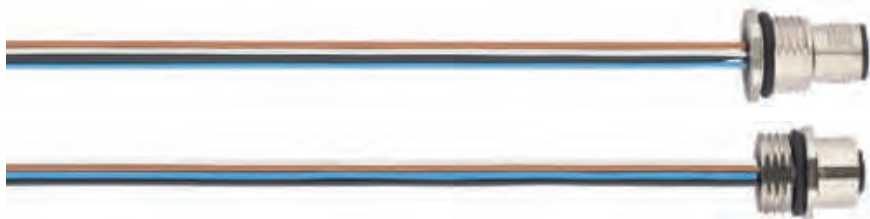
- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

| Article number                      | Article designation          | Number of pins | Rated voltage (V) | PU |
|-------------------------------------|------------------------------|----------------|-------------------|----|
| <b>Control cabinet feed through</b> |                              |                |                   |    |
| 22262020                            | AB-C5-DSI-M12MS-M12FS-M16-SH | 5              | 24                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## EPIC® SENSOR Flush-type M12



### Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Outside pluggable with M12 connection, inside housing connected with fixed wires

### Application range

- Connection of enclosures and cabinets

### Product features

- With M12, M16 or PG9 fastening thread
- Designs for front and rear wall-mounting
- M12 connector, A-coded with quick-locking system
- PWIS-free
- Rear wall-mounting versions inclusive fitting nut

### Norm references / Approvals

- UL File Number: E249137

### Product Make-up

- TPE single strands, l = 0.5 m
- Wire cross-section: 0,34 mm<sup>2</sup>

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002061  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector chassis

**Material**  
Contact: CuZn  
Contact surface: Au (gold)

**Protection rating**  
IP 67

**Ambient temperature (operation)**  
Plug/socket  
-25°C to +85°C

**Coding**  
A-standard

**Rated current (A)**  
4 A

| Article number                   | Article designation     | Number of pins | Fastening thread | Rated voltage (V) | PU |
|----------------------------------|-------------------------|----------------|------------------|-------------------|----|
| <b>Plug for front-mounting</b>   |                         |                |                  |                   |    |
| 22260108                         | AB-C4-M12MS-M16-0,5     | 4              | M16              | 250               | 1  |
| 22260106                         | AB-C5-M12MS-M16-0,5     | 5              | M16              | 60                | 1  |
| 22260083                         | AB-C4-M12MS-M16-PO-0,5  | 4              | M16 positionable | 250               | 1  |
| 22260084                         | AB-C5-M12MS-M16-PO-0,5  | 5              | M16 positionable | 60                | 1  |
| 22260113                         | AB-C4-M12MS-PG9-0,5     | 4              | PG9              | 250               | 1  |
| 22260112                         | AB-C5-M12MS-PG9-0,5     | 5              | PG9              | 60                | 1  |
| 22260087                         | AB-C4-M12MS-PG9-PO-0,5  | 4              | PG9 positionable | 250               | 1  |
| 22260088                         | AB-C5-M12MS-PG9-PO-0,5  | 5              | PG9 positionable | 60                | 1  |
| <b>Plug for rear-mounting</b>    |                         |                |                  |                   |    |
| 22260999                         | AB-C4-DSI-M12MS-M12-0,5 | 4              | M12              | 250               | 1  |
| 22260117                         | AB-C4-DSI-M12MS-PG9-0,5 | 4              | PG9              | 250               | 1  |
| 22260115                         | AB-C5-DSI-M12MS-PG9-0,5 | 5              | PG9              | 60                | 1  |
| <b>Socket for front-mounting</b> |                         |                |                  |                   |    |
| 22260107                         | AB-C4-M12FS-M16-0,5     | 4              | M16              | 250               | 1  |
| 22260105                         | AB-C5-M12FS-M16-0,5     | 5              | M16              | 60                | 1  |
| 22260085                         | AB-C4-M12FS-M16-PO-0,5  | 4              | M16 positionable | 250               | 1  |
| 22260086                         | AB-C5-M12FS-M16-PO-0,5  | 5              | M16 positionable | 60                | 1  |
| 22260114                         | AB-C4-M12FS-PG9-0,5     | 4              | PG9              | 250               | 1  |
| 22260111                         | AB-C5-M12FS-PG9-0,5     | 5              | PG9              | 60                | 1  |
| 22260089                         | AB-C4-M12FS-PG9-PO-0,5  | 4              | PG9 positionable | 250               | 1  |
| 22260090                         | AB-C5-M12FS-PG9-PO-0,5  | 5              | PG9 positionable | 60                | 1  |
| <b>Socket for rear-mounting</b>  |                         |                |                  |                   |    |
| 22260118                         | AB-C4-DSI-M12FS-PG9-0,5 | 4              | PG9              | 250               | 1  |
| 22260116                         | AB-C5-DSI-M12FS-PG9-0,5 | 5              | PG9              | 60                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- Matching fitting nut: 22261062 (M12), 52003500 (PG9), 22260110 (M16)

## EPIC® SENSOR M12 T-distributor

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling

### Technical data



#### Material

Contact: CuZn  
Contact surface: Ni/Au  
Contact carrier: TPU GF  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing  
Sealing: NBR



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C

#### Coding

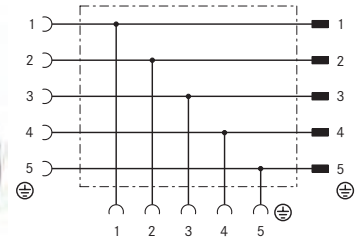
A - Standard  
(CANopen/DeviceNet/CC-Link)

#### Rated current (A)

4 A



22260765



### Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

### Product features

- PWIS-free

### Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

| Article number       | Article designation   | PU |
|----------------------|-----------------------|----|
| <b>T distributor</b> |                       |    |
| 22260765             | AB-C5-M12T-2XM12FS DN | 5  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## EPIC® SENSOR CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables



21700641

### Technical data



#### Material

Contact: CuZn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: Zinc die-cast, nickel-plated



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

-40°C to +85°C

#### Rated current (A)

4 A

### Benefits

- Optimum EMC protection with 360 ° shielding
- Time-saving assembly with IDC connection technology

### Product features

- 5-pin cable coupler round
- Screened version

### Application range

- To extend existing cable systems
- Repairkit for damaged cables

| Article number             | Article designation | Number of pins | Cross-section in mm² | Cable diameter in mm | Rated voltage (V) |
|----------------------------|---------------------|----------------|----------------------|----------------------|-------------------|
| <b>Cable coupler round</b> |                     |                |                      |                      |                   |
| 21700641                   | AB-C5-CCR-SH        | 5              | 0.14 - 0.50          | 5.0 - 9.7            | 60                |

DeviceNet is a registered trademark of ODVA

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## UNITRONIC® SENSOR Valve

valve connector on free conductor end



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

### Product features

- Suitable for drag chains
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)  
With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

### Product Make-up

- 3 or 5 x 0.5 mm<sup>2</sup>
- Core identification code:  
Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:  
4.5 mm (3 pins)  
5.3 mm (5 pins)

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord

**Material**  
Contact: CuSn  
Contact surface: Ag

**Protection rating**  
IP65/IP67

**Ambient temperature (operation)**  
Valve connector -20°C to +85°C  
Fixed installation -40°C to +80°C  
Flexing -20°C to +80°C

**Rated current (A)**  
4 A

| Article number                                           | Article designation   | Number of pins | Length (m) | LED    | Rated voltage (V) | PU |
|----------------------------------------------------------|-----------------------|----------------|------------|--------|-------------------|----|
| <b>Valve connector type A (18 mm)</b>                    |                       |                |            |        |                   |    |
| 22260584                                                 | AB-C3- 2,0PUR-A-1L-S  | 3              | 2          | 1 LED  | 24                | 1  |
| 22260576                                                 | AB-C3- 5,0PUR-A-1L-S  | 3              | 5          | 1 LED  | 24                | 1  |
| 22260577                                                 | AB-C3-10,0PUR-A-1L-S  | 3              | 10         | 1 LED  | 24                | 1  |
| <b>Valve connector type A (18mm) for pressure switch</b> |                       |                |            |        |                   |    |
| 22260589                                                 | AB-C5-2,0PUR-AD-2L    | 5              | 2          | 2 LEDs | 24                | 1  |
| 22260590                                                 | AB-C5-5,0PUR-AD-2L    | 5              | 5          | 2 LEDs | 24                | 1  |
| 22260591                                                 | AB-C5-10,0PUR-AD-2L   | 5              | 10         | 2 LEDs | 24                | 1  |
| <b>Valve connector type B (10 mm)</b>                    |                       |                |            |        |                   |    |
| 22260585                                                 | AB-C3- 2,0PUR-B-1L-S  | 3              | 2          | 1 LED  | 24                | 1  |
| 22260578                                                 | AB-C3- 5,0PUR-B-1L-S  | 3              | 5          | 1 LED  | 24                | 1  |
| 22260579                                                 | AB-C3-10,0PUR-B-1L-S  | 3              | 10         | 1 LED  | 24                | 1  |
| <b>Valve connector type BI (11 mm)</b>                   |                       |                |            |        |                   |    |
| 22260586                                                 | AB-C3- 2,0PUR-BI-1L-S | 3              | 2          | 1 LED  | 24                | 1  |
| 22260580                                                 | AB-C3- 5,0PUR-BI-1L-S | 3              | 5          | 1 LED  | 24                | 1  |
| 22260581                                                 | AB-C3-10,0PUR-BI-1L-S | 3              | 10         | 1 LED  | 24                | 1  |
| <b>Valve connector type C (8 mm)</b>                     |                       |                |            |        |                   |    |
| 22260587                                                 | AB-C3- 2,0PUR-C-1L-S  | 3              | 2          | 1 LED  | 24                | 1  |
| 22260582                                                 | AB-C3- 5,0PUR-C-1L-S  | 3              | 5          | 1 LED  | 24                | 1  |
| 22260583                                                 | AB-C3-10,0PUR-C-1L-S  | 3              | 10         | 1 LED  | 24                | 1  |
| <b>Valve connector type CI (9.4 mm)</b>                  |                       |                |            |        |                   |    |
| 22260588                                                 | AB-C3- 2,0PUR-CI-1L-S | 3              | 2          | 1 LED  | 24                | 1  |
| 22260574                                                 | AB-C3- 5,0PUR-CI-1L-S | 3              | 5          | 1 LED  | 24                | 1  |
| 22260575                                                 | AB-C3-10,0PUR-CI-1L-S | 3              | 10         | 1 LED  | 24                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

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### Accessories

- FLEXIMARK® Label LMB refer to page 921
- SENSOR STRIP stripping tool refer to page 961



## UNITRONIC® SENSOR Valve-M 12

valve connector on straight M 12 plug



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

### Product features

- Suitable for drag chains
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)  
With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

### Product Make-up

- 3 or 5 x 0.5 mm<sup>2</sup>
- Core identification code:  
Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:  
4.5 mm (3 pins)  
5.3 mm (5 pins)

### Technical data

|  |                                                                                                                                                                            |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Classification ETIM 5/6</b><br>ETIM 5.0/6.0 Class-ID: EC001855<br>ETIM 5.0/6.0 Class-Description:<br>Sensor-actuator patch cord                                         |
|  | <b>Material</b><br>Contact: CuSn<br>Contact surface: Ni/Au<br>Knurl: Zinc die-cast, nickel-plated<br>Gripping body: TPU, flame-retardant, self-extinguishing               |
|  | <b>Protection rating</b><br>IP65/IP67                                                                                                                                      |
|  | <b>Ambient temperature (operation)</b><br>Valve connector -20°C to +85°C<br>Connector/socket -25°C to +90°C<br>Fixed installation -40°C to +80°C<br>Flexing -20°C to +80°C |
|  | <b>Coding</b><br>A-standard                                                                                                                                                |
|  | <b>Rated current (A)</b><br>4 A                                                                                                                                            |

| Article number                                                                 | Article designation        | Number of pins | Length (m) | LED    | Rated voltage (V) | PU |
|--------------------------------------------------------------------------------|----------------------------|----------------|------------|--------|-------------------|----|
| <b>Straight connector to valve connector type A (18 mm)</b>                    |                            |                |            |        |                   |    |
| 22260550                                                                       | AB-C3-M12MS-0,3PUR-A-1L-S  | 3              | 0.3        | 1 LED  | 24                | 1  |
| 22260551                                                                       | AB-C3-M12MS-0,6PUR-A-1L-S  | 3              | 0.6        | 1 LED  | 24                | 1  |
| 22260552                                                                       | AB-C3-M12MS-1,0PUR-A-1L-S  | 3              | 1          | 1 LED  | 24                | 1  |
| 22260553                                                                       | AB-C3-M12MS-2,0PUR-A-1L-S  | 3              | 2          | 1 LED  | 24                | 1  |
| <b>Straight connector to valve connector type A (18mm) for pressure switch</b> |                            |                |            |        |                   |    |
| 22260573                                                                       | AB-C5-M12MS-0,3PUR-AD-2L   | 5              | 0.3        | 2 LEDs | 24                | 1  |
| 22260572                                                                       | AB-C5-M12MS-0,6PUR-AD-2L   | 5              | 0.6        | 2 LEDs | 24                | 1  |
| 22260571                                                                       | AB-C5-M12MS-1,0PUR-AD-2L   | 5              | 1          | 2 LEDs | 24                | 1  |
| 22260570                                                                       | AB-C5-M12MS-2,0PUR-AD-2L   | 5              | 2          | 2 LEDs | 24                | 1  |
| <b>Straight connector to valve connector type B (10 mm)</b>                    |                            |                |            |        |                   |    |
| 22260558                                                                       | AB-C3-M12MS-0,3PUR-B-1L-S  | 3              | 0.3        | 1 LED  | 24                | 1  |
| 22260559                                                                       | AB-C3-M12MS-0,6PUR-B-1L-S  | 3              | 0.6        | 1 LED  | 24                | 1  |
| 22260560                                                                       | AB-C3-M12MS-1,0PUR-B-1L-S  | 3              | 1          | 1 LED  | 24                | 1  |
| 22260561                                                                       | AB-C3-M12MS-2,0PUR-B-1L-S  | 3              | 2          | 1 LED  | 24                | 1  |
| <b>Straight connector to valve connector type BI (11 mm)</b>                   |                            |                |            |        |                   |    |
| 22260554                                                                       | AB-C3-M12MS-0,3PUR-BI-1L-S | 3              | 0.3        | 1 LED  | 24                | 1  |
| 22260555                                                                       | AB-C3-M12MS-0,6PUR-BI-1L-S | 3              | 0.6        | 1 LED  | 24                | 1  |
| 22260556                                                                       | AB-C3-M12MS-1,0PUR-BI-1L-S | 3              | 1          | 1 LED  | 24                | 1  |
| 22260557                                                                       | AB-C3-M12MS-2,0PUR-BI-1L-S | 3              | 2          | 1 LED  | 24                | 1  |
| <b>Straight connector to valve connector type C (8 mm)</b>                     |                            |                |            |        |                   |    |
| 22260566                                                                       | AB-C3-M12MS-0,3PUR-C-1L-S  | 3              | 0.3        | 1 LED  | 24                | 1  |
| 22260567                                                                       | AB-C3-M12MS-0,6PUR-C-1L-S  | 3              | 0.6        | 1 LED  | 24                | 1  |
| 22260568                                                                       | AB-C3-M12MS-1,0PUR-C-1L-S  | 3              | 1          | 1 LED  | 24                | 1  |
| 22260569                                                                       | AB-C3-M12MS-2,0PUR-C-1L-S  | 3              | 2          | 1 LED  | 24                | 1  |
| <b>Straight connector to valve connector type CI (9.4 mm)</b>                  |                            |                |            |        |                   |    |
| 22260562                                                                       | AB-C3-M12MS-0,3PUR-CI-1L-S | 3              | 0.3        | 1 LED  | 24                | 1  |
| 22260563                                                                       | AB-C3-M12MS-0,6PUR-CI-1L-S | 3              | 0.6        | 1 LED  | 24                | 1  |
| 22260564                                                                       | AB-C3-M12MS-1,0PUR-CI-1L-S | 3              | 1          | 1 LED  | 24                | 1  |
| 22260565                                                                       | AB-C3-M12MS-2,0PUR-CI-1L-S | 3              | 2          | 1 LED  | 24                | 1  |

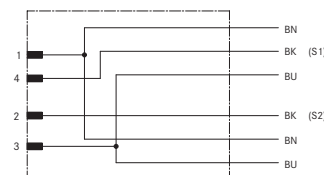
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- FLEXIMARK® Label LMB refer to page 921

**UNITRONIC® SENSOR M 12Y**

M 12 Y plug straight on 2x free conductor end

**Benefits**

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions

**Product features**

- 4-pin M 12Y plug on free conductor end
- Including tag carrier
- PWIS-free
- Suitable for drag chains

**Product Make-up**

- 3 x 0.34 mm<sup>2</sup>
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

**Suitable tools**

- DATA STRIP stripping tool refer to page 959

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC001855

ETIM 5.0/6.0 Class-Description:

Sensor-actuator patch cord

**Material**

Contact: CuSn

Contact surface: Ni/Au

Knurl: Zinc die-cast, nickel-plated

Gripping body: TPU, flame-retardant, self-extinguishing

**Protection rating**

IP65/IP67/IP68

**Ambient temperature (operation)**

Plug/socket -25°C to +90°C

Fixed installation -40°C to +80°C

Flexing -25°C to +80°C

**Coding**

A-standard

**Rated current (A)**

4 A

| Article number                          | Article designation | Length (m) | LED | Rated voltage (V) | PU |
|-----------------------------------------|---------------------|------------|-----|-------------------|----|
| <b>Y plug to 2 x free conductor end</b> |                     |            |     |                   |    |
| 22260500                                | AB-C3-M 12Y-2,0PUR  | 2          | no  | 250               | 1  |
| 22260513                                | AB-C3-M 12Y-5,0PUR  | 5          | no  | 250               | 1  |
| 22260526                                | AB-C3-M 12Y-10,0PUR | 10         | no  | 250               | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Copper price basis: inclusive of copper. Refer to catalogue appendix T 17 for the definition and calculation of copper-related surcharges.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UL certifications can be found in the data sheet.

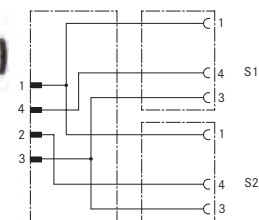
**Accessories**

- FLEXIMARK® Label LMB refer to page 921



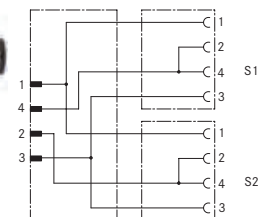
## UNITRONIC® SENSOR M12Y-M8

M12 Y plug straight on 2x M8 socket



## UNITRONIC® SENSOR M12Y-M12

M12 Y plug straight on 2x M12 socket



### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855

ETIM 5.0/6.0 Class-Description:

Sensor-actuator patch cord



#### Material

Contact: CuSn

Contact surface: Ni/Au

Knurl: Zinc die-cast, nickel-plated

Gripping body: TPU, flame-retardant, self-extinguishing



#### Protection rating

IP65/IP67/IP68



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C

Fixed installation -40°C to +80°C

Flexing -25°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A

### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

### Product features

- 4-pin M12Y connector on 2 x M12 socket (4-pin), Pin 2+4 bridged
- 4-pin M12Y plug on 2 x M8 socket (3-pin)
- Including tag carrier
- PWIS-free
- Suitable for drag chains

### Product Make-up

- M12Y-M8: 3 x 0.25 mm<sup>2</sup>
- M12Y-M12: 3 x 0.34 mm<sup>2</sup>
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

| Article number                 | Article designation          | Number of pins | Length (m) | LED    | Rated voltage (V) | PU |
|--------------------------------|------------------------------|----------------|------------|--------|-------------------|----|
| <b>M12Y on 2x M8</b>           |                              |                |            |        |                   |    |
| <b>Straight socket</b>         |                              |                |            |        |                   |    |
| 22260514                       | AB-C3-M12Y-0,3PUR-M8FS       | 3              | 0.3        | no     | 60                | 1  |
| 22260515                       | AB-C3-M12Y-0,6PUR-M8FS       | 3              | 0.6        | no     | 60                | 1  |
| 22260516                       | AB-C3-M12Y-1,0PUR-M8FS       | 3              | 1          | no     | 60                | 1  |
| 22260517                       | AB-C3-M12Y-2,0PUR-M8FS       | 3              | 2          | no     | 60                | 1  |
| <b>Angled socket</b>           |                              |                |            |        |                   |    |
| 22260518                       | AB-C3-M12Y-0,3PUR-M8FA       | 3              | 0.3        | no     | 60                | 1  |
| 22260519                       | AB-C3-M12Y-0,6PUR-M8FA       | 3              | 0.6        | no     | 60                | 1  |
| 22260520                       | AB-C3-M12Y-1,0PUR-M8FA       | 3              | 1          | no     | 60                | 1  |
| 22260521                       | AB-C3-M12Y-2,0PUR-M8FA       | 3              | 2          | no     | 60                | 1  |
| <b>Angled socket with LEDs</b> |                              |                |            |        |                   |    |
| 22260522                       | AB-C3-M12Y-0,3PUR-M8FA-2L    | 3              | 0.3        | 2 LEDs | 24                | 1  |
| 22260523                       | AB-C3-M12Y-0,6PUR-M8FA-2L    | 3              | 0.6        | 2 LEDs | 24                | 1  |
| 22260524                       | AB-C3-M12Y-1,0PUR-M8FA-2L    | 3              | 1          | 2 LEDs | 24                | 1  |
| 22260525                       | AB-C3-M12Y-2,0PUR-M8FA-2L    | 3              | 2          | 2 LEDs | 24                | 1  |
| <b>M12Y on 2x M12</b>          |                              |                |            |        |                   |    |
| <b>Straight socket</b>         |                              |                |            |        |                   |    |
| 22260501                       | AB-C3-M12Y-0,3PUR-M12FS-B    | 3              | 0.3        | no     | 250               | 1  |
| 22260502                       | AB-C3-M12Y-0,6PUR-M12FS-B    | 3              | 0.6        | no     | 250               | 1  |
| 22260503                       | AB-C3-M12Y-1,0PUR-M12FS-B    | 3              | 1          | no     | 250               | 1  |
| 22260504                       | AB-C3-M12Y-2,0PUR-M12FS-B    | 3              | 2          | no     | 250               | 1  |
| <b>Angled socket</b>           |                              |                |            |        |                   |    |
| 22260505                       | AB-C3-M12Y-0,3PUR-M12FA-B    | 3              | 0.3        | no     | 250               | 1  |
| 22260506                       | AB-C3-M12Y-0,6PUR-M12FA-B    | 3              | 0.6        | no     | 250               | 1  |
| 22260507                       | AB-C3-M12Y-1,0PUR-M12FA-B    | 3              | 1          | no     | 250               | 1  |
| 22260508                       | AB-C3-M12Y-2,0PUR-M12FA-B    | 3              | 2          | no     | 250               | 1  |
| <b>Angled socket with LEDs</b> |                              |                |            |        |                   |    |
| 22260509                       | AB-C3-M12Y-0,3PUR-M12FA-2L-B | 3              | 0.3        | 2 LEDs | 24                | 1  |
| 22260510                       | AB-C3-M12Y-0,6PUR-M12FA-2L-B | 3              | 0.6        | 2 LEDs | 24                | 1  |
| 22260511                       | AB-C3-M12Y-1,0PUR-M12FA-2L-B | 3              | 1          | 2 LEDs | 24                | 1  |
| 22260512                       | AB-C3-M12Y-2,0PUR-M12FA-2L-B | 3              | 2          | 2 LEDs | 24                | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.  
UL certifications can be found in the data sheet.

### Accessories

- FLEXIMARK® Label LMB refer to page 921



## EPIC® SENSOR M8Y | M12Y

Y distributor M8 | M12



### Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

### Product features

- Design: Plug on 2x socket
- M12 design with screw hole
- PWIS-free

### Product Make-up

- 22260600:  
M12, 3-pin+ PE, straight M12 plug on  
2x straight M12 socket, pin 2+4 bridged
- 22260601:  
M12, 3-pin+ PE, straight M12 plug on  
2x straight M12 socket
- 22260602:  
M12, 5-pin straight M12 plug on 2x 3-pin  
straight M8 socket, parallel distributor
- 22260603:  
M8, 4-pin M8 plug on 2x 3pin M8 socket
- 22260604:  
M8 plug on M8 socket, 3-pin parallel  
distributor

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002062  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector

**Material**  
Contact: CuZn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant,  
self-extinguishing

**Protection rating**  
IP65/IP67

**Ambient temperature (operation)**  
Plug/socket -25°C to +90°C

**Coding**  
A-standard

**Rated current (A)**  
4 A

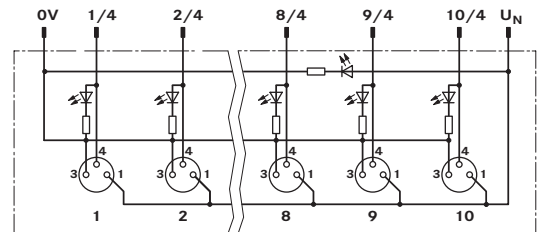
| Article number           | Article designation    | Rated voltage (V) | PU |
|--------------------------|------------------------|-------------------|----|
| <b>M12 Y distributor</b> |                        |                   |    |
| 22260600                 | AB-C3-M12Y-2XM12FS B E | 60                | 5  |
| 22260601                 | AB-C3-M12Y-2XM12FS E   | 60                | 5  |
| 22260602                 | AB-C5-M12Y-2XM12FS V   | 60                | 5  |
| <b>M8 Y distributor</b>  |                        |                   |    |
| 22260603                 | AB-C3-M8Y-2XM8FS       | 30                | 5  |
| 22260604                 | AB-C3-M8Y-2XM8FS V     | 60                | 5  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## Distribution Box M8

Distribution box with M8 slots and master cable/connection M12/M16



### Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission
- There are no assembly costs as the master cable is already pre-assembled
- Suitable for drag chains

### Product features

- Single-occupied boxes
- With fixed master cable or M12/M16 socket
- LEDs indicate the operating mode of the distributor and the status of the sensors
- PWIS-free

### Norm references / Approvals

- E-File number: E75770

### Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

### Suitable cables

- M12 master cable  
8-pos. 5/10 m: 22260615/22260616
- M16 master cable  
8-pos 5/10m: 22260607/22260608  
10-pos 5/10m: 22260609/22260610  
12-pos 5/10m: 22260611/22260612  
14-pos 5/10m: 22260613/22260614

### Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002585  
ETIM 5.0/6.0 Class-Description:  
Passive sensor-actuator interface

**Protection rating**  
IP65/IP67

**Ambient temperature (operation)**  
-30°C to +80°C  
Fixed installation -40°C to +90°C  
Flexing -5°C to 80°C

**Current rating per slot**  
2 A

| Article number            | Article designation   | Connection cable<br>(No. of poles) | Length (m) | Number of slots | Status display |
|---------------------------|-----------------------|------------------------------------|------------|-----------------|----------------|
| <b>Fixed master cable</b> |                       |                                    |            |                 |                |
| 22260026                  | AB-B4-M8L-4-5,0PUR    |                                    | 5          | 4               | With LEDs      |
| 22260027                  | AB-B4-M8L-4-10,0PUR   |                                    | 10         | 4               | With LEDs      |
| 22260028                  | AB-B6-M8L-6-5,0PUR    |                                    | 5          | 6               | With LEDs      |
| 22260029                  | AB-B6-M8L-6-10,0PUR   |                                    | 10         | 6               | With LEDs      |
| 22260030                  | AB-B8-M8L-8-5,0PUR    |                                    | 5          | 8               | With LEDs      |
| 22260031                  | AB-B8-M8L-8-10,0PUR   |                                    | 10         | 8               | With LEDs      |
| 22260032                  | AB-B10-M8L-10-5,0PUR  |                                    | 5          | 10              | With LEDs      |
| 22260033                  | AB-B10-M8L-10-10,0PUR |                                    | 10         | 10              | With LEDs      |
| <b>M12 connection</b>     |                       |                                    |            |                 |                |
| 22260038                  | AB-B4-M8L-4-M12       | 8                                  |            | 4               | With LEDs      |
| 22260039                  | AB-B6-M8L-6-M12       | 8                                  |            | 6               | With LEDs      |
| <b>M16 connection</b>     |                       |                                    |            |                 |                |
| 22260034                  | AB-B4-M8L-4-M16       | 8                                  |            | 4               | With LEDs      |
| 22260035                  | AB-B6-M8L-6-M16       | 10                                 |            | 6               | With LEDs      |
| 22260036                  | AB-B8-M8L-8-M16       | 12                                 |            | 8               | With LEDs      |
| 22260037                  | AB-B10-M8L-10-M16     | 14                                 |            | 10              | With LEDs      |

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

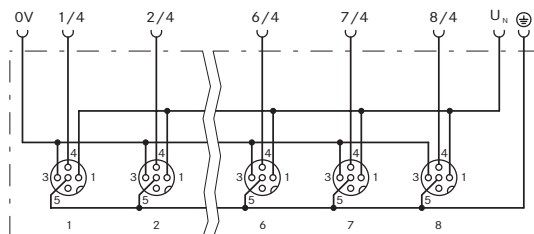
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).



## Distribution Box M12

Distribution box with M12 slots and master cable/mountable/M23 connection



### Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

### Product features

- With fixed master cable, mountable or M23 socket
- Single or double-occupied sensor/actuator box
- M12 quick-locking system, optional diagnostic LEDs (PNP)
- Suitable for drag chains
- PWIS-free

### Norm references / Approvals

- E-File number: E75770

### Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

### Suitable cables

- UNITRONIC® SENSOR master cable Page 375
- M23 connection cable: 10 m: 22260852; 15 m: 22260853; 30 m: 22260959

### Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC002585  
ETIM 5.0/6.0 Class-Description:  
Passive sensor-actuator interface

**Protection rating**  
IP65/IP67 (M23 connection)  
IP65/IP67/IP69

**Ambient temperature (operation)**  
-25°C to +75°C (M23 connection)  
-30°C to +90°C  
Fixed installation -40°C to +90°C  
Flexing -5°C to +80°C

**Max. current rating per path**  
2 A

**Current rating per slot**  
4 A

| Article number               | Article designation   | Length (m) | Number of slots | Status display |
|------------------------------|-----------------------|------------|-----------------|----------------|
| <b>Single-occupied boxes</b> |                       |            |                 |                |
| <b>Fixed master cable</b>    |                       |            |                 |                |
| 22260010                     | AB-B4-M12-4-5,0PUR    | 5          | 4               | no             |
| 22260011                     | AB-B4-M12-4-10,0PUR   | 10         | 4               | no             |
| 22260014                     | AB-B8-M12-8-5,0PUR    | 5          | 8               | no             |
| 22260015                     | AB-B8-M12-8-10,0PUR   | 10         | 8               | no             |
| 22260018                     | AB-B4-M12L-4-5,0PUR   | 5          | 4               | With LEDs      |
| 22260019                     | AB-B4-M12L-4-10,0PUR  | 10         | 4               | With LEDs      |
| 22260970                     | AB-B6-M12L-6-5,0PUR   | 5          | 6               | With LEDs      |
| 22260022                     | AB-B8-M12L-8-5,0PUR   | 5          | 8               | With LEDs      |
| 22260023                     | AB-B8-M12L-8-10,0PUR  | 10         | 8               | With LEDs      |
| <b>Field mountable</b>       |                       |            |                 |                |
| 22260005                     | AB-B4-M12-4-C         |            | 4               | no             |
| 22260007                     | AB-B8-M12-8-C         |            | 8               | no             |
| 22260001                     | AB-B4-M12L-4-C        |            | 4               | With LEDs      |
| 22260003                     | AB-B8-M12L-8-C        |            | 8               | With LEDs      |
| <b>M23 connection</b>        |                       |            |                 |                |
| 22260618                     | AB-B6-6-L-M23         |            | 6               | With LEDs      |
| 22260619                     | AB-B8-8-L-M23         |            | 8               | With LEDs      |
| <b>Double-occupied boxes</b> |                       |            |                 |                |
| <b>Fixed master cable</b>    |                       |            |                 |                |
| 22260012                     | AB-B4-M12-8-5,0PUR    | 5          | 4               | no             |
| 22260013                     | AB-B4-M12-8-10,0PUR   | 10         | 4               | no             |
| 22260016                     | AB-B8-M12-16-5,0PUR   | 5          | 8               | no             |
| 22260017                     | AB-B8-M12-16-10,0PUR  | 10         | 8               | no             |
| 22260020                     | AB-B4-M12L-8-5,0PUR   | 5          | 4               | With LEDs      |
| 22260021                     | AB-B4-M12L-8-10,0PUR  | 10         | 4               | With LEDs      |
| 22260024                     | AB-B8-M12L-16-5,0PUR  | 5          | 8               | With LEDs      |
| 22260025                     | AB-B8-M12L-16-10,0PUR | 10         | 8               | With LEDs      |
| <b>Field mountable</b>       |                       |            |                 |                |
| 22260006                     | AB-B4-M12-8-C         |            | 4               | no             |
| 22260008                     | AB-B8-M12-16-C        |            | 8               | no             |
| 22260002                     | AB-B4-M12L-8-C        |            | 4               | With LEDs      |
| 22260004                     | AB-B8-M12L-16-C       |            | 8               | With LEDs      |
| <b>M23 connection</b>        |                       |            |                 |                |
| 22260621                     | AB-B8-16-M23          |            | 8               | no             |
| 22260620                     | AB-B8-16-L-M23        |            | 8               | With LEDs      |

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).

UL certifications can be found in the data sheet.



## UNITRONIC® SENSOR M12 Power

Power cable: M12 plug/socket on free conductor



### Info

- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request



### Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Customise assembly of the free conductor end

### Product features

- 4-core power cable
- M12 connector, A-coded with quick-locking system
- Including tag carrier
- Suitable for drag chains
- PWIS-free

### Product Make-up

- 4 x 0.75 mm<sup>2</sup>
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- Core insulation: PVC
- Outer sheath: PUR, black
- Outer diameter: 5.9 mm

### Suitable tools

- DATA STRIP stripping tool refer to page 959

### Suitable connectors

- EPIC® SENSOR M12 refer to page 390

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001855  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator patch cord



#### Material

Contact: CuSn  
Contact surface: Ni/Au  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: TPU, flame-retardant, self-extinguishing



#### Minimum bending radius

Flexing: 10 x outer diameter



#### Protection rating

IP65/IP67



#### Ambient temperature (operation)

Plug/socket -25°C to +90°C  
Fixed installation -25°C to +80°C  
Flexing -5°C to +80°C

#### Coding

A-standard

#### Rated current (A)

4 A

| Article number            | Article designation        | Number of pins | Length (m) | Design            | Rated voltage (V) | PU |
|---------------------------|----------------------------|----------------|------------|-------------------|-------------------|----|
| <b>Straight connector</b> |                            |                |            |                   |                   |    |
| 22260778                  | AB-PC4-M12MS-2,0PUR        | 4              | 2          | straight          | 250               | 1  |
| 22260779                  | AB-PC4-M12MS-5,0PUR        | 4              | 5          | straight          | 250               | 1  |
| 22260780                  | AB-PC4-M12MS-10,0PUR       | 4              | 10         | straight          | 250               | 1  |
| <b>Straight socket</b>    |                            |                |            |                   |                   |    |
| 22260781                  | AB-PC4-2,0PUR-M12FS        | 4              | 2          | straight          | 250               | 1  |
| 22260782                  | AB-PC4-5,0PUR-M12FS        | 4              | 5          | straight          | 250               | 1  |
| 22260783                  | AB-PC4-10,0PUR-M12FS       | 4              | 10         | straight          | 250               | 1  |
| <b>Plug on socket</b>     |                            |                |            |                   |                   |    |
| 22260784                  | AB-PC4-M12MS-0,3PUR-M12FS  | 4              | 0.3        | straight-straight | 250               | 1  |
| 22260785                  | AB-PC4-M12MS-1,0PUR-M12FS  | 4              | 1          | straight-straight | 250               | 1  |
| 22260786                  | AB-PC4-M12MS-2,0PUR-M12FS  | 4              | 2          | straight-straight | 250               | 1  |
| 22260787                  | AB-PC4-M12MS-5,0PUR-M12FS  | 4              | 5          | straight-straight | 250               | 1  |
| 22260788                  | AB-PC4-M12MS-10,0PUR-M12FS | 4              | 10         | straight-straight | 250               | 1  |

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- FLEXIMARK® Label LMB refer to page 921

**EPIC® POWER M12 60V**

Field mountable M12 POWER connectors

**Info**

- DC high-power connector  
- 60 VDC / 12 A

**Benefits**

- Compact and standardized M12 design saves space and costs
- Fault proof connection through M12 T coding of the connector face
- Low voltage drop
- Safety use in field environment by high protection class

**Application range**

- Power Supply for small devices
- Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

**Product features**

- Robust M12 circular connector with screw connection and knurled screw
- Screw-on terminals for different conductors

**Product Make-up**

- PVC Einzellitzen, L = 0,2 m (4 x AWG 16)
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- High quality gold-plated contacts
- For screw contacts: 0,75 mm<sup>2</sup> - 1,5 mm<sup>2</sup> (AWG 18 - AWG 16)

**Suitable cables**

- ÖLFLEX® FD 855 P Page 149
- (ÖLFLEX® FD 855 P: Example for harsh conditions)

**Technical data****Classification ETIM 5/6**

ETIM 5.0/6.0 Class-ID: EC002062  
ETIM 5.0/6.0 Class-Description:  
Sensor-actuator connector

**Material**

Contact: CuZn  
Contact surface: Au (gold)  
Knurl: Zinc die-cast, nickel-plated  
Gripping body: PA

**Protection rating**

IP 67

**Ambient temperature (operation)**

Plug/socket -40°C to +85°C

**Coding**

T - Power

**Rated current (A)**

12 A

| Article number             | Article designation | Design   | Number of pins | Cable diameter in mm | Rated voltage (V) | PU |
|----------------------------|---------------------|----------|----------------|----------------------|-------------------|----|
| <b>EPIC® POWER M12 60V</b> |                     |          |                |                      |                   |    |
| <b>Plug</b>                |                     |          |                |                      |                   |    |
| 22262010                   | AB-C4-M12MST-PG11   | straight | 4              | 8.0 - 10.0           | 60                | 1  |
| 22262012                   | AB-C4-M12MAT-PG11   | angled   | 4              | 8.0 - 10.0           | 60                | 1  |
| <b>Socket</b>              |                     |          |                |                      |                   |    |
| 22262011                   | AB-C4-M12FST-PG11   | straight | 4              | 8.0 - 10.0           | 60                | 1  |
| 22262013                   | AB-C4-M12FAT-PG11   | angled   | 4              | 8.0 - 10.0           | 60                | 1  |

Photographs and graphics are not to scale and do not represent detailed images of the respective products.