# UNITRONIC® FD CP (TP) plus

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

UNITRONIC® FD CP (TP) plus: Low-frequency PUR data cable UL AWM CMX VW-1 Halogen-free, Highly flexible Drag chain, Screened Twisted pair, Low capacitance, -40 °C

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




Torsion-resistant

Interference signals

Power chain

Oil-resistant

Mechanical resistance

Halogen-free

Wind Energy

Cold-resistant

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## 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, 2015 Ed., 12.9.2 (condition 3 under 12.9.2: Through 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.
...No use inside drag chains in the USA since the UL AWM Style 21576 does not allow for external wiring/ interconnection
For use in drag chains: 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 ratings: IEC 60332-1-2, VW-1 acc. UL 1581, FT2 (Horizontal Flame Test)
Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

## Norm references / Approvals
cULus CMX (Communications Cable listing) acc. to UL 444 and CSA C22.2 No.214, certified by UL (UL file no. for Stuttgart-based U.I. Lapp GmbH: E236660)
cULus AWM/ Recognized certification (by UL/ UL file no. for Stuttgart-based U.I. Lapp GmbH: E63634): UL AWM Style 21576 acc. to UL 758 and AWM A/B I/II to CSA C22.2 No. 210-11

## 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)


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## Technical Data

| | |
|---|---|
| Classification: | ETIM 5.0 Class-ID: EC000104<br>ETIM 5.0 Class-Description: Control cable |
| Core identification code: | DIN 47100, refer to Appendix T9 |
| Mutual capacitance: | Up to 0.5 mm²: 60 nF/km<br>Up to 1.0 mm²: 70 nF/km |
| Peak operating voltage: | Peak: 250 V (not for power current use or continuous operating voltage to ground above 49VAC or 74VDC) |
| Inductivity: | approx. 0.65 mH/km |
| Conductor stranding: | Stranded, extra-fine wire<br>From 0.5 mm²: extra-fine wire according to IEC 60228 class 6 |
| Torsion movement in WTG: | TW-0 & TW-2, refer to Appendix T0 |
| Minimum bending radius: | Flexing: 7.5 x outer diameter<br>Fixed installation: 4 x outer diameter |
| Test voltage: | Core/core: 1500 V rms<br>Core/screen: 500 V |
| Temperature range: | Flexing: -40 °C to +80 °C<br>Fixed installation: -40 °C to +80 °C<br>UL/CSA CMX: +75 °C<br>UL AWM: +80 °C |

## Note

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
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 are not to scale and do not represent detailed images of the respective products.
* Prices are net prices without VAT and surcharges. Sale to business customers.


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PRODUCT INFORMATION

# UNITRONIC® FD CP (TP) plus

| Article number | Number of pairs and mm² per conductor | Outer diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| UNITRONIC® FD CP (TP) plus | | | | |
| 0030910 | 2 x 2 x 0.14 | 5.9 | 19.4 | 42 |
| 0030911 | 3 x 2 x 0.14 | 6.2 | 23.4 | 53 |
| 0030912 | 4 x 2 x 0.14 | 6.7 | 27.1 | 59 |
| 0030913 | 5 x 2 x 0.14 | 7.3 | 37.4 | 75 |
| 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 | 4.9 | 14 | 27 |
| 0030919 | 2 x 2 x 0.25 | 6.5 | 32 | 60 |
| 0030920 | 3 x 2 x 0.25 | 6.8 | 38.4 | 72 |
| 0030921 | 4 x 2 x 0.25 | 7.4 | 43.2 | 85 |
| 0030922 | 5 x 2 x 0.25 | 8.3 | 51.5 | 103 |
| 0030923 | 6 x 2 x 0.25 | 8.9 | 71.8 | 131 |
| 0030924 | 8 x 2 x 0.25 | 10.4 | 74.4 | 155 |
| 0030925 | 10 x 2 x 0.25 | 12 | 90 | 186 |
| 0030926 | 14 x 2 x 0.25 | 12.2 | 111.2 | 219 |
| 0030963 | 1 x 2 x 0.34 | 5.3 | 20 | 36 |
| 0030928 | 2 x 2 x 0.34 | 7.1 | 41 | 81 |
| 0030929 | 3 x 2 x 0.34 | 7.5 | 52 | 101 |
| 0030930 | 4 x 2 x 0.34 | 8.4 | 59 | 119 |
| 0030932 | 6 x 2 x 0.34 | 10.1 | 86.2 | 165 |
| 0030934 | 10 x 2 x 0.34 | 13.8 | 131.1 | 274 |
| 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 | 11.8 | 99.6 | 194 |
| 0030942 | 8 x 2 x 0.5 | 14 | 144.3 | 284 |
| 0030943 | 10 x 2 x 0.5 | 15.9 | 176 | 343 |
| 0030944 | 14 x 2 x 0.5 | 16.2 | 215.4 | 401 |
| 0030965 | 1 x 2 x 0.75 | 6.3 | 34 | 61 |
| 0030946 | 2 x 2 x 0.75 | 8.9 | 60 | 112 |
| | | | | |

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# UNITRONIC® FD CP (TP) plus

| Article number | Number of pairs and mm² per conductor | Outer diameter (mm) | Copper index (kg/km) | Weight (kg/km) |
|---|---|---|---|---|
| 0030947 | 3 x 2 x 0.75 | 9.7 | 85.7 | 157 |
| 0030948 | 4 x 2 x 0.75 | 10.6 | 93.6 | 172 |
| 0030950 | 6 x 2 x 0.75 | 12.8 | 130.4 | 231 |
| 0030951 | 8 x 2 x 0.75 | 15.2 | 192.2 | 342 |
| 0030952 | 10 x 2 x 0.75 | 17.3 | 258 | 466 |
| 0030953 | 14 x 2 x 0.75 | 18.2 | 316.6 | 545 |
| 0030955 | 1 x 2 x 1 | 6.7 | 42 | 71 |
| 0030956 | 2 x 2 x 1 | 9.7 | 73 | 129 |
| 0030957 | 3 x 2 x 1 | 10.4 | 93.6 | 169 |
| 0030958 | 4 x 2 x 1 | 11.6 | 117.8 | 204 |
| 0030959 | 5 x 2 x 1 | 12.7 | 139 | 237 |

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