

UNITRONIC® FD CP (TP) plus

DB0030961

valid from: 21.05.2014

Application

UNITRONIC® FD CP (TP) plus is a high flexible, screened and twisted pair data cable with an outer sheath of PUR.

The cable with low capacitance is designed especially for use in power chains, automatic manipulators, in permanently moved machines parts.

The cable is increased oil-, abrasion-, tear and notch resistant, in addition microbe- and hydrolysis resistant.

It is cold-resistant and for harsh environmental conditions.

Decoupling by means of twisted pair cable design and the screen protects against interference.

This cable is suitable for torsion application in wind turbines (WTG). The torsional load is limited to applications, as they typically occur in the loop of a wind turbine.

Design

Design	based on UL AWM Style 11117 and 21576 and according to VDE 0812
Conductor	superfine wire strands of bare copper wires
Insulation	special Polyolefin-based compound
Core identification code	according to DIN 47100
Stranding	cores twisted to pairs, pairs are stranded in layers, wrapping with fleece on the outer layer
Screen	Braiding with tinned copper wires, wrapping with fleece on the screen
Outer sheath	special PUR-based compound, flame retardant, halogen free colour: grey (RAL 7001)

Electrical properties at 20°C

Conductor resistance

Cross section		max.
[mm²]	[AWG]	[Ω/km]
0.14	26	138.0
0.25	24	79.0
0.34	22	55.4
0.5	21	39.0
0.75	19	26.0
1	18	19.5

Specific insulation resistance > 5 G Ω x km

Mutual capacitance up to 0.5 mm²: approx. 60 nF/km
up to 1 mm²: approx. 70 nF/km

Inductivity approx. 0.65 mH/km

Peak working voltage VDE: 0.14 mm²: 350 V (not for power applications)
≥ 0.25 mm²: 500 V (not for power applications)
UL: 1000 V

Test voltage C/C: 1500 V
C/S: 1500 V

Mechanical and thermal properties

Minimum bending radius Flexing: 7.5 x cable Ø
Fixed installation: 4 x cable Ø

Temperature range Bewegt:
VDE/UL AWM: - 40 °C bis +80 °C
UL CMX: - 40 °C bis +75 °C
Fest verlegt:
VDE/UL AWM: - 40 °C bis +80 °C
UL CMX: - 40 °C bis +75 °C

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Torsion movement in WTG	TW-0 (5000 cycles at $\geq +5^{\circ}\text{C}$) TW-2 (2000 cycles at $\geq -40^{\circ}\text{C}$) $\pm 150^{\circ}/\text{m}$ at 1 revolution per minute
Flammability	flammwidrig nach IEC 60332-1-2 und nach UL: VW-1 und FT2
UV resistance	according to ISO 4892-2, method A (change of colour allowed)
Ozone resistance	according to EN 50396 resp. VDE 0473-396, method B
Oil resistance	EN 50363-10-2 resp. VDE 0207-363-10-2
Approvals	c(UL)us, Type CMX according to UL 444 and CSA C22.2 No. 214-08 UL AWM Style 21576
EC directive	This cable is conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).