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11139500	DATA SHEET	LAPP
valid from: 20.01.2025	UNITRONIC® FD CP (TP) plus A	

Application

UNITRONIC® FD CP (TP) plus A 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	acc. to UL AWM Style 11117 and 21576, UL 758 and CSA C22.2 No. 210 based on standard VDE 0812 and EN 50288-7
Certification	UL AWM Style 21576 (File No. E63634), UL 758 AWM I/II A/B (File No. E63634)
Conductor	extra fine wire strands of bare copper acc. to IEC 60228 resp. EN IEC 60228, class 6
Insulation	special Polyolefin-based compound
Core identification code	acc. to DIN 47100
Cable assembly	cores twisted to pairs, pairs are stranded in layers, optionally with fillers wrapping with fleece on the outer layer
Screen	Braiding with tinned copper wires, coverage 85 % (nominal value)
Taping	wrapping with fleece on the screen
Outer sheath	special TPU-based compound, flame retardant, halogen free colour: grey (similar RAL 7001)

Electrical properties at 20 °C

Conductor resistance	0.14 mm²: max. 138.0 Ω/km 0.25 mm²: max. 79.0 Ω/km 0.34 mm²: max. 55.4 Ω/km 0.5 mm²: class 5 0.75 mm²: class 5 1 mm²: class 5
Specific volume resistivity	> 5 G Ω x km
Mutual capacitance	up to 0.5 mm²: approx. 60 nF/km up to 1 mm²: approx. 70 nF/km
Inductance	approx. 0.65 mH/km
Maximum operating voltage	0.14 mm²: 350 V ≥ 0.25 mm²: 500 V (not intended to be used in conjunction with low impedance sources, such as power grids)
Rated voltage	UL/CSA: 1000 V
Test voltage	C/C: 1500 V C/S: 1500 V

Mechanical and thermal properties

Minimum bending radius	flexing: 7.5 x outer diameter fixed installation: 4 x outer diameter
Temperature range	EN: flexing: -40 °C up to +80 °C fixed installation: -40 °C up to +80 °C UL/CSA: max. +80 °C
Bending cycles and power chain operation parameters	bending radius: ≥ 7.5 x outer diameter travel distance: ≤ 5 m Acceleration: ≤ 3 m/s² Velocity: ≤ 3 m/s Cycles: ≥ 5.000.000 Please comply with assembly guideline Appendix T3

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Torsional stress	Torsion movement in WTG TW-0 (5000 cycles at ≥ +5 °C) TW-2 (2000 cycles at ≥ -40 °C) ± 150 °/m at 1 revolution per minute
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2 UL: Horizontal Flame Test acc. to UL 1581 CSA: FT2 acc. to CSA 22.2 No. 2556
Halogen free	acc. to IEC 60754-1 resp. EN 60754-1
Weather and UV resistance	acc. to ISO 4892-2, method A (change of colour allowed)
Ozone resistance	acc. to EN 50396, method B
Oil resistance	acc. to EN 50363-6, test method acc. to EN 60811-404
General requirements	These cables are conform to EU-Directive 2014/35/EU (Low Voltage Directive) and to EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).
Environmental information	These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).

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