


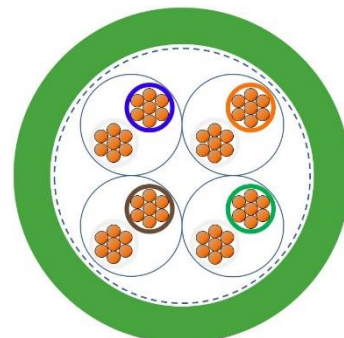
<b>2170609</b>	<b>DATA SHEET</b>	
<b>valid from: 16.11.2020</b>	<b>ETHERLINE® PN Cat.7 FRNC FLEX A 4x2x 23/7 AWG</b>	

## Application

ETHERLINE® PN CAT.7 FRNC FLEX A (bandwidth up to 600 MHz), has a performance for the cabling class “F” and a maximum transfer rate (IEEE 802.3) of 10 GBit/s to 100m. The electrical parameter of the cable with a nominal impedance of 100 Ω and excellent shielding properties (pair and total screen) are normatively specified to IEC 61156-5.

It is provided for industrial secondary and tertiary cable according to EN 50173-3 ISO/IEC 24702. Other applications are Profinet with 4 Pairs, EtherCAT, EtherNet/IP, Power over Ethernet (IEEE's 802.3af) and Power over Ethernet Plus (802.3at).

The product is flame retardant, halogen free and comes in rough industrial environments for use. It is suitable for fixed installation and serves to wiring of machines, tools, devices, appliances and control cabinets.




## Design

Certification	c(UL)us CM 75 °C acc. to UL 444 and CSA C22.2 No. 214-17 EN 13501-6 and EN 50575 Classification of fire behaviour
Conductor	stranded bare copper 23/7 AWG
Insulation	foamed polyolefin core diameter: ca. 1.53 mm
Core identification code	pair 1: white(-blue)/blue, pair 2: white(-orange)/orange, pair 3: white(-green)/green, pair 4: white(-brown)/brown
Stranding	2 cores stranded to pair, 4 pairs stranded together
Pair screen	plastic laminated aluminium foil (overlapping)
Screen	braid of tinned copper wires (coverage 85 % ±5 %)
Outer sheath	FRNC green, similar RAL 6018 outer diameter: 8.7 mm (± 0.3 mm)

## Electrical properties at 20°C

Loop resistance	max. 13.84 Ω/100 m
Insulation resistance	min. 5 GΩxkm
Mutual capacitance	nom. 44 nF/km
Characteristic impedance	nom. 100 Ω acc. to IEC 61156-6
Velocity of propagation	0.75c
Signal propagation time	≤ 470 ns/100 m
Delay skew	≤ 25 ns/100 m
Operating voltage (max.)	EN: 125 V (not for power purposes)
Rated voltage	UL: 300 V acc. to UL 444
Test voltage	core/core: 1700 V core/screen: 1700 V

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### Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-4-2 and IEC 61156-6 for category 7. The normative requirements for the transmission properties are shown in the following table:

<b>f [MHz]</b>		<b>4</b>	<b>10</b>	<b>20</b>	<b>62,5</b>	<b>100</b>	<b>200</b>	<b>250</b>	<b>500</b>	<b>600</b>
(max.) Attenuation	[dB/100 m]	5,5	8,5	21,1	21,7	27,8	40,1	45,3	66,2	73,3
(min.) TCL	[dB]	34	30	27	22	20	17	16	13	12,2
(min.) EL TCTL	[dB/100 m]	23	15	9	—	—	—	—	—	—
(min.) NEXT	[dB]	80	80	80	75,5	72,4	67,9	66,5	61,9	60,8
(min.) PS EL FEXT	[dB/100 m]	77	71	65	55,1	51	45	43	37	35,4
(min.) ACR-F/EL FEXT	[dB/100 m]	80	74	68	58,1	54	48	46	40	38,4
(min.) Return Loss	[dB]	23	25	25	21,5	20,1	18	17,3	17,3	17,3

### Mechanical and thermal properties

Minimum bending radius	fixed installation: 4x outer diameter occasional flexing: 8x outer diameter
Temperature range	fixed installation: -40 °C up to +80 °C occasional flexing: -30 °C up to +50 °C c(UL)us CM: +75 °C
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2 UL flame exposure acc. to UL 1685 §4 - §11 (smoke measurements are not applicable)
Halogen free	acc. to IEC 60754-1 resp. EN 60754-1
Corrosivity of gases	acc. to IEC 60754-2 resp. EN 60754-2
Smoke density	acc. to IEC 61043 resp. EN 61034
General requirements	This cable is 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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