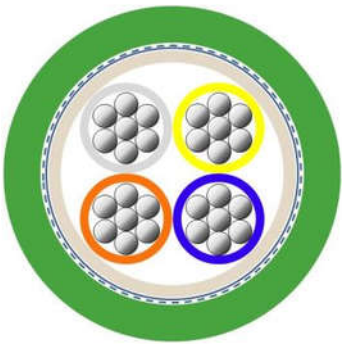
2170890	DATA SHEET	LAPP
valid from: 16.11.2020	ETHERLINE® PN Cat.5e FRNC FLEX FC 2x2x22/7 AWG	

Application

ETHERLINE® PN Cat.5e FRNC FLEX FC is a CATEGORY 5e high speed data cable for industrial usage. The screening ensures high transmission reliability in areas with a high load of electromagnetic capacity. The cable is halogen free, sunlight resistant and flame retardant.



Design

Certification	c(UL)us CMG 75°C acc. to UL 444 and CSA C22.2 No. 214-17 (UL) PLTC acc. to UL 13
Conductor	stranded tinned copper 22/7 AWG
Insulation	polyolefin core diameter: ca. 1.53 mm
Core identification code	pair 1: white/blue, pair 2: yellow/orange
Stranding	star quad on top: plastic tape (overlapping)
Inner sheath	FRNC
Screen	plastic laminated aluminium foil (overlapping) on top: braid of tinned copper wires (coverage 85 % ±5 %)
Outer sheath	FRNC green, similar RAL 6018 outer diameter: 6.5 mm (± 0.3 mm)

Electrical properties at 20°C

Loop resistance	max. 11.48 Ω/100 m	
Insulation resistance	min. 5 GΩxkm	
Mutual capacitance	nom. 48 nF/km	
Characteristic impedance	nom. 100 Ω acc. to IEC 61156-6	
Velocity of propagation	0.67 c	
Signal propagation time	≤ 530 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 and UL 13
Test voltage	core/core: core/screen:	1700 V 1700 V

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Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-2-2 and IEC 61156-6 for category 5e.
The normative requirements for the transmission properties are shown in the following table:

f [MHz]		4	10	16	20	31,25	62,5	100
(max.) Attenuation	[dB/100 m]	6	9,5	12,1	13,5	17,1	24,8	32
(min.) TCL	[dB]	34	30	28	27	25,1	22	20
(min.) EL TCTL	[dB/100 m]	23	15	10,9	9	5,1	—	—
(min.) NEXT	[dB]	56,3	50,3	47,2	45,8	42,9	38,4	35,3
(min.) PS EL FEXT	[dB/100 m]	49	41	36,9	35	31,1	25,1	21
(min.) ACR-F/EL FEXT	[dB/100 m]	52	44	39,9	38	34,1	28,1	24
(min.) Return Loss	[dB]	23	25	25	25	23,6	21,5	20,1

Mechanical and thermal properties

Minimum bending radius	fixed installation: occasional flexing:	3x outer diameter 7,5x outer diameter
Temperature range	fixed installation: occasional flexing: c(UL)us CMG: UL PLTC:	-40 ˚C up to +80 ˚C -30 ˚C up to +50 ˚C +75 °C +75°C
Flammability	flame retardant acc. to. IEC 60332-1-2 resp. EN 60332-1-2 FT4 gemäß UL 1685 §12 - §19 (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	
UV resistance	SUN RES acc. to UL 13 §29.1	
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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