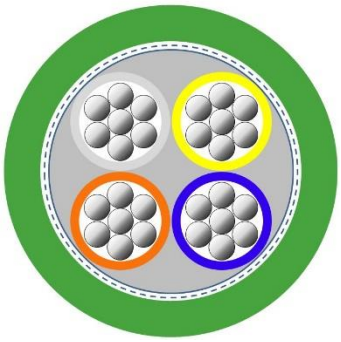
2170889	DATA SHEET	LAPP
valid from: 13.11.2020	ETHERLINE® MARINE FRNC FC CAT.5 2x2x22/7 AWG	

Application

Field of use:	Industrial Ethernet Cat.5 cable for Marine and Offshore applications, Connecting cable for generic cabling systems acc. to ISO/IEC 11801 and EN 50173
Performance:	Bandwidth up to 100 MHz acc. to IEC 61156-6 Category 5e and EN 50288-2-2
Characteristics:	halogen free, flame retardant and largely resistant to acids, alkalis and certain oils, the "Fast Connect" design allows easy stripping and assembly of the cable
Applications:	PROFINET, EtherCAT, EtherNet/IP, Power over Ethernet (IEEE 802.3af), Power over Ethernet Plus (IEEE 802.3at) and many others



Design

Certification	(UL) PLTC acc. to UL 13, c(UL)us CMG 75 °C acc. to UL 444 DNV GL certificate TAE00001JE
Conductor	stranded tinned copper 22/7 AWG
Insulation	Polyolefin core ⌀: ca. 1.5 mm
Core identification code	pair 1: white/blue, pair 2: yellow/orange
Stranding	star quad (optional with central filler)
Inner sheath	FRNC outer Ø: ca. 3.9 mm
Screen	plastic laminated aluminium foil (overlapping) on top: braid of tinned copper wires (coverage 85 % ± 5 %)
Outer sheath	FRNC green, similar to RAL 6018 outer Ø: 6.5 mm (± 0.3 mm)

Electrical properties at 20°C

Loop resistance	max. 11.48 Ω/100 m	
Insulation resistance	min. 5 GΩxkm	
Characteristic impedance	nom. 100 Ω acc. to IEC 61156-6	
Velocity of propagation	0.67c	
Signal propagation time	<530 ns/100 m	
Operating voltage (max.)	EN:	100 V (not for power purposes)
Rated voltage	UL:	300 V
Test voltage	core/core: core/screen:	1700 V 1700 V

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: 3x cable diameter occasional flexing: 7,5x cable diameter
Temperature range	fixed: -25 °C up to +70 °C occasional flexing: 0 °C up to +50 °C UL, DNV GL: 75 °C
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2 flame spread acc. to IEC 60332-3-22 resp. EN 60332-3-23 vertical tray flame test acc. to UL 13 §28
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 1581 §1200
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).