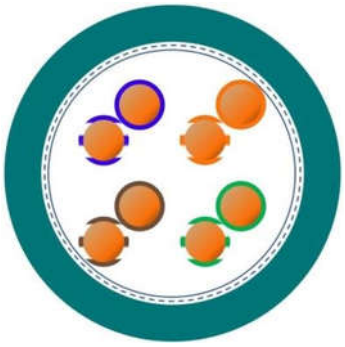
2170296	DATA SHEET	LAPP
valid from: 27.10.2020	ETHERLINE® H Cat.5e 4x2x24/1 AWG	

Application

Field of use:	Installation cable for generic cabling systems acc. to ISO/IEC 11801 and EN 50173
Performance:	Bandwidth up to 100 MHz acc. to IEC 61156-5 Category 5e and EN 50288-2-1
Characteristics:	halogen free, flame retardant, and largely resistant to acids, alkalis and certain oils
Applications:	Profinet with 4 pairs, EtherCAT, EtherNet/IP, Power over Ethernet (IEEE 802.3af), Power over Ethernet Plus (IEEE 802.3at) and many others



Design

Certification	certified for CC-Link IE Field Network
Conductor	solid bare copper 24/1 AWG
Insulation	foamed PE core ⌀: ca. 1,00 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	cores twisted to pairs, pairs stranded together
Screen	plastic laminated aluminum foil on top: braid of tinned copper wire (coverage ca. 85 %)
Outer sheath	LSZH blue, similar RAL 5021 outer ⌀: ca. 6.1 mm

Electrical properties at 20°C

Loop resistance	max. 19.0 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	0.77 c
Signal propagation time	≤ 430 ns/100 m
Delay skew	≤ 25 ns/100 m (at 100 MHz)
Operating voltage (max.)	125 V (not for power purposes)
Test voltage	core/core: 1000 V core/screen: 1000 V

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Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-2-1 and IEC 61156-5 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]	4	6,3	8	9	11,4	16,5	21,3
(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: 7.5 x cable Ø
Temperature range	fixed: -30 °C bis +80 °C
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2
Halogen free	acc. to IEC 60754-1 resp. EN 60754-1
Corrosivity of gases	acc. to IEC 60754-2 resp. EN 60754-2
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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