

2170280	DATA SHEET	
valid from: 2024-04-26	ETHERLINE® H Cat.5e 2x2x24/1 AWG	

Application

Field of use:

Industrial Ethernet cable for generic cable system acc. to ISO/IEC 11801 and EN 50173. Suitable for fixed installation. Meeting the transmission requirements of IEC 61156-5, Category 5e and EN 50288-2-1.

Performance:

2-pair, overall braid and foil screened symmetrical cable (SF/UTP), having a nominal impedance of 100 Ω, supporting a bandwidth of 100 Mbit/s (e.g. 10BASE-T, 100BASE-T) over up to 100 m.

Characteristics:

flame retardant, halogen free, low-corrosivity of gases, low smoke density, chemical resistant

Applications:

PoE (IEEE 802.3af), EtherCAT, EtherNet/IP and other



Design

Conductor

bare copper wire
24/1 AWG (0.22 mm²)

Insulation

PO (Polyolefine)
core diameter: max. 1.09 mm

Core identification code

pair 1: white-orange/orange; pair 2: white-green/green

Stranding

cores twisted to pairs
pairs stranded to bundle (with fillers)

Taping

plastic tape

Screen

plastic laminated aluminum foil
on top:
braid of tinned copper wires (coverage nom. 85 %)

Outer sheath

HFFR (halogen-free flame-retardant compound)
blue, similar RAL 5021
outer diameter: 5.8 mm ± 0.3 mm

Electrical properties at 20 °C

Loop resistance

≤ 17.18 Ω/100 m

Test voltage

core/core: 700 V
core/screen: 700 V

Maximum operating voltage

IEC/EN: 125 V (not intended to be used in conjunction with low impedance sources, such as utility mains)

Insulation resistance

≥ 5 GΩxkm

Mutual capacitance

1 kHz: nom. 50 nF/km

Capacitance unbalance

1 kHz: ≤ 1600 pF/km

Transfer impedance

Grade 1 acc. to IEC 61156-6
1 MHz: ≤ 15 mΩ/m
10 MHz: ≤ 10 mΩ/m
30 MHz: ≤ 30 mΩ/m
100 MHz: ≤ 100 mΩ/m

Coupling attenuation

Type I acc. to IEC 61156-6
30 MHz: ≥ 85
100 MHz: ≥ 85
1000 MHz: ≥ 65

Velocity of propagation

100 MHz: nom. 0,67 c

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Transmission properties at 20°C

The transmission characteristics meet the requirements of IEC 61156-5 for category 5e.

Frequency	(max.) Phase delay	(max.) Differential delay	(max.) Attenuation	(min.) TCL Level 1	(min.) EL TCTL Level 1	(min.) NEXT	(min.) PS NEXT	(min.) ACR-F	(min.) PS ACR-F	Char. Impedance	(min.) RL
f [MHz]	[ns/ 100 m]	[ns/ 100 m]	[dB/ 100 m]	[dB]	[dB]	[dB]	[dB]	[dB/ 100 m]	[dB/ 100 m]	[Ohm]	[dB]
4	552.0	45.0	4.1	34.0	23.0	56.3	53.3	55.0	52.0	—	23.0
10	545.4	45.0	6.5	30.0	15.0	50.3	47.3	49.0	46.0	—	25.0
16	543.0	45.0	8.3	28.0	10.9	47.2	44.2	45.9	42.9	—	25.0
20	542.0	45.0	9.3	27.0	9.0	45.8	42.8	44.5	41.5	—	25.0
30	540.6	45.0	11.5	25.2	5.5	43.1	40.1	41.8	38.8	—	23.8
62.5	538.6	45.0	17.0	22.0	—	38.4	35.4	37.1	34.1	—	21.5
100	537.6	45.0	22.0	20.0	—	35.3	32.3	34.0	31.0	100 ± 5	20.1

Mechanical and thermal properties

Minimum bending radius	fixed installation:	8× outer diameter
Temperature range	fixed installation:	-20°C up to +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	
Smoke density	acc. to IEC 61034-2 resp. EN 61034-2	

General requirements

These cables are conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances) and the LV-Directive 2014/35/EU (Low voltage Directive).

Environmental information

These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).

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