

2170496	DATA SHEET	
valid from: 30.03.2021	ETHERLINE® Cat.5 ARM 1x4x22/1 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, compliant to the "PROFINET Cabling and Interconnection Technology" guideline
Characteristics:	flame retardant and largely resistant to acids, alkalis and certain oils, armoring off two layers galvanized steel tape guarantees a safe rodent protection
Applications:	PROFINET, EtherCAT, EtherNet/IP, Power over Ethernet (IEEE 802.3af), Power over Ethernet Plus (IEEE 802.3at) and many others



Design

Conductor	solid bare copper 22/1 AWG
Insulation	polyolefin core diameter: nom. 1.5 mm
Core identification code	pair 1: white/blue, pair 2: yellow/orange
Stranding	4 cores twisted in star quad construction on top: plastic tape (overlapping)
Screen	plastic laminated aluminium foil (overlapping) on top: braid of tinned copper wires (coverage 85 % ±5 %)
Outer sheath	Layer 1: PVC green, similar RAL 6018 diameter: nom. 6.5 mm Layer 2: 2 layers of galvanized steel tape Layer 3: PE black, similar RAL 9005 outer diameter: nom. 9.3 mm

Electrical properties at 20 °C

Loop resistance	≤ 11.82 Ω/100 m	
Insulation resistance	min. 5 GΩxkm	
Mutual capacitance	nom. 48 nF/km	
Characteristic impedance	nom. 100 Ω acc. to IEC 61156-5	
Velocity of propagation	0.67c	
Signal propagation time	≤ 530 ns/100 m	
Delay skew	≤ 25 ns/100 m	
Peak operating voltage	EN:	100 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	occasional flexing:	15 x outer diameter
	fixed installation:	10 x outer diameter
Temperature range	occasional flexing:	-20 °C up to +60 °C
	fixed installation:	-40 °C up to +70 °C
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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