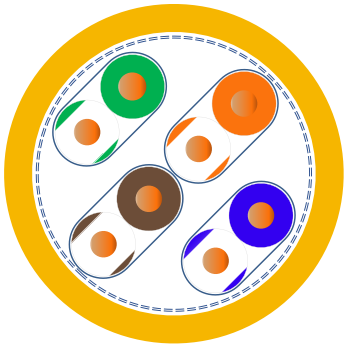
2170976	DATA SHEET	LAPP
valid from: 10.01.2025	ETHERLINE® LAN 1600 Cat.7A S/FTP LSZH 4x2x22/1 AWG	

Application

Field of use: Installation cable for generic cabling systems acc. to ISO/IEC 11801 and EN 50173
Performance: Bandwidth up to 1600 MHz (up to 1000 MHz acc. to IEC 61156-5 Category 7A and EN 50288-9-1) and applications up to 10GBase-T
Characteristics: halogen free, flame retardant and largely resistant to acids, alkalis and certain oils
Applications: EtherCAT, EtherNet/IP, PoE (IEEE 802.3af), PoE+ (IEEE 802.3at) and many others



Design

Certification	EN 13501-6 and EN 50575 Classification of fire behaviour
Conductor	solid bare copper 22/1 AWG
Insulation	Polyethylene core diameter: ca. 1.55 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 stranded to pairs, 4 pairs stranded to bundle
Pair screen	plastic laminated aluminium foil (overlapping)
Screen	braid of tinned copper wires
Outer sheath	LSZH yellow, similar RAL 1021 outer diameter: 8.2 mm (± 0.3 mm)

Electrical properties at 20 °C

Loop resistance	max. 13.0 Ω/100 m
Test voltage	core/core: 1000 V core/screen: 1000 V
Maximum operating voltage	100 V (not for ower purposes)
Insulation resistance	min. 5 GΩ x km
Mutual capacitance	nom. 43 nF/km
Transfer impedance	Grade 1 acc. to IEC 61156-5
Coupling attenuation	> 80 dB (30 MHz - 1000 MHz)
Velocity of propagation	0.71 c
Characteristic impedance	nom. 100 Ω acc. to IEC 61156-5
Signal propagation time	≤ 480 ns/100 m
Delay skew	≤ 20 ns/100 m

Transmission properties at 20°C

The transmission characteristics meet the requirements of IEC 61156-5 for category 7A.

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	25.0	3.7	34.0	23.0	78.0	75.0	78.0	75.0	—	23.0
10	545.4	25.0	5.8	30.0	15.0	78.0	75.0	80.3	77.3	—	25.0
20	542.0	25.0	8.2	27.0	9.0	78.0	75.0	75.8	72.8	—	25.0
62.5	538.6	25.0	14.6	22.0	—	78.0	75.0	68.4	65.4	—	21.5
100	537.6	25.0	18.5	20.0	—	75.4	72.4	65.3	62.3	100 ± 5	20.1
250	536.3	25.0	29.7	16.0	—	69.4	66.4	59.3	56.3	—	17.3
500	535.6	25.0	42.8	—	—	64.9	61.9	54.8	51.8	—	15.6
600	535.5	25.0	47.1	—	—	63.7	60.7	53.6	50.6	—	17.3
1000	535.1	25.0	61.9	—	—	60.4	57.4	50.3	47.3	—	15.6

Mechanical and thermal properties

Minimum bending radius	fixed installation: 4x outer diameter occasional flexing: 8x outer diameter
Temperature range	fixed installation: -20 °C up to +60 °C occasional flexing: 0 °C up to +50 °C
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2 flame propagation acc. to IEC 60332-3-24 resp. EN 60332-3-24
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 resp. EN 61034

General requirements

This cable is 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).
This cable is classified in accordance with the EU-Regulation no. 305/2011 (CPR).

Environmental information

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