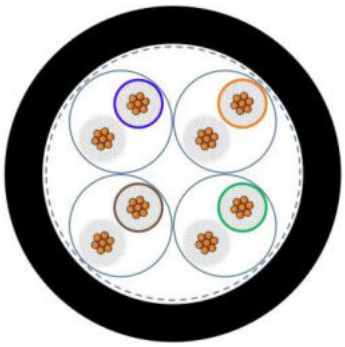
2170456	DATA SHEET	LAPP
valid from: 09.08.2021	ETHERLINE® ROBUST FR Cat. 7 FLEX 4x2x26/7 AWG	

Application

Field of use:	Connecting cable for cabling systems acc. to ISO/IEC 11801 and EN 50173. Meeting the transmission requirements of IEC 61156-6, Category 7 and EN 50288-4-2.
Performance:	4-pair, screened foiled twisted pair cable (S/FTP), having a nominal impedance of 100 Ω, supporting a bandwidth of 10 Gbit/s (e.g. 100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, 10GBASE-T) over up to 100 m.
Characteristics:	Flame retardant, UV-resistant, ozone resistant
Applications:	EtherCAT, EtherNet/IP and others



Design

Conductor	stranded bare copper 26/7 AWG
Insulation	polyolefin (foamed) core diameter: nom. 1.05 mm
Core identification code	pair 1: white/blue, pair 2: white/orange, pair 3: white/green, pair 4: white/brown (colored ring marking on the white cores is optional)
Stranding	2 cores stranded to pair, 4 pairs stranded to bundle with central separating element
Pair screen	plastic laminated aluminium foil (overlapping)
Screen	braid of tinned copper wires (coverage 85 % ± 5 %)
Outer sheath	TPE black, similar to RAL 9005 outer diameter: nom. 6.5 mm (± 0.3 mm)

Electrical properties at 20 °C

Loop resistance	≤ 29 Ω/100 m	
Insulation resistance	≥ 5 GΩ×km	
Characteristic impedance	100 MHz:	100 Ω acc. to IEC 61156-6
Velocity of propagation	100 MHz:	0.76 c
Signal propagation time	4 MHz - 600 MHz:	≤ 480 ns/100 m
Delay skew	4 MHz - 600 MHz:	≤ 25 ns/100 m
Maximum operating voltage	EN:	100 V (not for power applications)
Test voltage	core/core: core/screen:	700 V 700 V

Electrical transmission properties at 20°C

The transmission characteristics meet the requirements of the standards EN 50288-4-2 and IEC 61156-6 for category 7. The normative requirements for the transmission properties are shown in the following table:

f [MHz]		4	10	20	62,5	100	200	250	500	600
(max.) Attenuation	[dB/100 m]	5,5	8,5	21,1	21,7	27,8	40,1	45,3	66,2	73,3
(min.) TCL	[dB]	34	30	27	22	20	17	16	13	12,2
(min.) EL TCTL	[dB/100 m]	23	15	9	—	—	—	—	—	—
(min.) NEXT	[dB]	80	80	80	75,5	72,4	67,9	66,5	61,9	60,8
(min.) PS EL FEXT	[dB/100 m]	77	71	65	55,1	51	45	43	37	35,4
(min.) ACR-F/EL FEXT	[dB/100 m]	80	74	68	58,1	54	48	46	40	38,4
(min.) Return Loss	[dB]	23	25	25	21,5	20,1	18	17,3	17,3	17,3

Mechanical and thermal properties

Minimum bending radius	flexing: fixed installation:	10 × outer diameter 8 × outer diameter
Temperature range	flexing: fixed installation:	-40 °C up to +80 °C -50 °C up to +80 °C
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2	
UV resistance	acc. to EN 50525-1 §5.7.4.2 acc. to ISO 4892-2, method A	
Ozone resistance	acc. to EN 50396 §8.1 method B	

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).

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