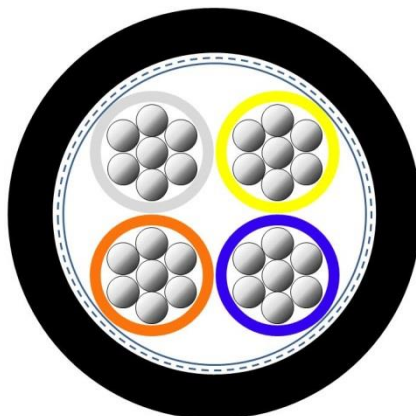


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Application

ETHERLINE® TRAIN FLEX Cat. 5e PE 1x4x22/7 AWG is an electron beam cross-linked, highly flame retardant and halogen free CATEGORY 5e high speed data transmission cable for rolling stock applications. The cable is designed for fixed installation and flexible applications. They are particularly used in areas, where human and animal life is exposed to high risk of fire hazards as well as valuable property. The high quality screen ensures high transmission reliability of data transfer in electromagnetically polluted areas. The cable is oil-, fuel-, acid- and alkali resistant acc. to EN 50264-3-1.

Design



Conductor	tinned stranded copper, 22/7 AWG
Insulation	PE (electron beam cross-linked), core Ø ca. 1.5 mm
Core identification code	white, yellow, blue, orange
Stranding	star quad, non-woven tape
Screen	plastic laminated aluminum foil on top: braid of tinned copper wire, coverage ca. 85 %
Taping	(optional) thin non-woven tape, longitudinally applied (used for improved stripping characteristics)
Outer sheath	electron beam cross-linked polymer compound, halogen free and flame retardant, EM 104 acc. to EN 50264-1 black (similar to RAL 9005), outer Ø ca. 6.5 mm

Electrical properties at 20°C

Loop resistance	max. 114,8 Ω/km (acc. to VDE 0881)
Insulation resistance	min. 5 GΩ x km
Peak operating voltage	125 V (not for power purposes)
Test voltage	conductor/conductor 1000 V conductor/screen 1000 V

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Electrical transmission properties at 20°C

f [MHz]	Attenuation [dB/100m]	NEXT [dB]	EL FEXT [dB]	Return Loss [dB]
	standard	standard	standard	standard
4	6	56,3	52	23
10	9,5	50,6	43,6	25
16	12,1	47,2	39,8	25
31,25	17,1	42,9	34,1	23,3
62,5	24,8	38,4	28,1	20,8
100	32	35,3	24,0	19

Mechanical and thermal properties

Minimum bending radius	moved: 10 x cable Ø fixed installation: 8 x cable Ø
Temperature range	moved: -35° C up to +90° C fixed installation: -45° C up to +90° C
Flammability	EN 45545-2: Hazard Level HL1, HL2, HL3 flame retardant acc. to IEC 60332-1-2 no flame propagation > 6 mm and <12 mm: acc. to IEC 60332-3-25 NF F 16-101 Internal: Vehicle Categories A1, A2, B External: Vehicle Categories A1, A2, B Category C for flame propagation Category F0 for smoke density acc. to NF C 32-070, Category C1 and C2
Halogen free	acc. to EN 60684-2 (fluorine) acc. to IEC 60754-1; EN 60754-1; EN 50267-2-1 (chlorine and bromine)
Corrosivity of gases	acc. to EN 50264-1, pH ≥ 4.3 and conductivity ≤ 10µS/mm acc. to IEC 60754-2; EN 60754-2; EN 50267-2-2
Smoke density	acc. to EN 50264-1 (light transmission: min. 70%) acc. to IEC 61034-2; EN 61034-2 acc. to NF X 10-702
Toxicity	acc. to EN 50264-1(< 3) acc. to EN 50305 acc. to NF X 70-100
UV resistance	acc. to EN 50525-1 (VDE 0285-525-1) are cables with black sheath suitable for permanent outdoor use.
Ozone resistance	acc. to EN 50264-3-2, method A or B acc. to EN 50305
Oil resistance	acc. to EN 50264-1, EM 104
Fuel resistance	acc. to EN 50264-1, EM 104
General requirements	This cable is conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).

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