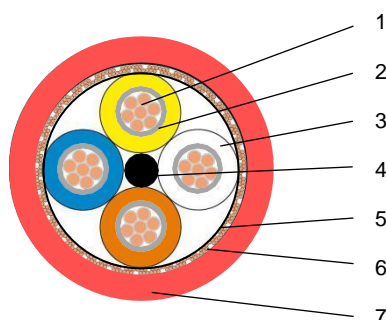


Technical datasheet

BETrans® DATA-ENX C-flex 100 Ω CAT 5 / 5e FR red
1 X (4 X AWG 22/19)St blue, yellow, white, orange

part no.: 317720



Product description

Robust, halogen free, electron-beam cross linked 100 MHz data bus cable with improved fire performance and high resistance to temperature. This cable fulfils 120 minutes of circuit integrity and 120 minutes of system circuit integrity as well as the fire protection standard for railway vehicles HL 3 according to EN 45545-2. The cable sheath complies with the EM 104 requirements of EN 50264-1, EN 50306-1 and class M according to EN 50306-4.

Application

This cable is used for fixed and protected installation inside of rail vehicles and buses, where resistance to fire is intended for use in emergency power circuits for alarm, lightning and communication purposes. It is optimised for data transfer applications class D with the rate up to 1 GbE according to IEEE 802.3 and to maintain the transfer function over a limited period of time even in the case of fire.

Construction

1	conductor	tinned fine copper strands AWG 22	Ø: 0.78 mm
2	flame barrier	construction 19 x 0.16 mm according to VDE 0295 / IEC 60228 class 5	
3	insulation	phlogopite tape	
		polyethylene cross-linked	Ø: 2.40 mm
		colours blue, yellow, white, orange	
4	center	filler	
5	wrapping	aluminium-bonded polyester tape	
6	shielding	tinned fine copper braid	
		single core diameter 0.10 mm	
7	sheath	electron-beam cross-linked polyolefine copolymer	Ø: 8.50 mm
	colour	corresponds to EN 50306-1 und EN 50264-1 type EM 104	
	printing	red	
		STUDERCABLES.COM BETATRANS DATA-ENX C-FLEX 100 OHM CAT 5/5E FR (EN 50306-4)	
		1 X (4 X AWG 22)ST CCHDA -	
		1 2 3	

1 part no.. 317720
2 production no. e.g. 1451234
3 production date e.g. 150822

Product properties

nominal voltage		30 V
testing voltage	core - core	700 VAC (50 Hz / 1 min.)
	core - shielding	700 VAC (50 Hz / 1 min.)
temperature range	fixed installation	-40 °C bis +90 °C
min. bending radius	fixed installation	> 8 x Ø

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Electromagnetic characteristics according to EN 50288-2-2 class 2

transfer impedance*	at 1 MHz	< 50 mΩ / m
	at 10 MHz	< 100 mΩ / m
	at 30 MHz	< 200 mΩ / m
	at 100 MHz	< 1000 mΩ / m

Electrical characteristics at +20 C°

bandwidth		100 MHz
DC resistance		≤ 54.4 Ω / km
unbalanced resistance		< 2 %
unbalanced capacity to earth*		< 3400 pF / km
skew ¹	at 100 MHz	< 45 ns / 100 m
return loss	4-100MHz	< 15 dB
characteristic impedance	at 100 MHz	100 ± 15 Ω

* according to IEC 61156-2

frequency [MHz]	attenuation [dB/100m] max. ¹	NEXT [dB] min. ¹	PS-NEXT [dB] min. ¹	ACR-F [dB/100m] min. ¹	PSACR-F [dB/100m] min. ¹
4	6.7	56	53	52	49
10	10.7	50	47	44	41
16	13.5	47	44	40	37
20	15.1	46	43	38	35
31.25	19.1	43	40	34	31
62.5	27.6	38	35	28	25
100	35.6	35	32	24	21

¹ in accordance with EN 50288-2-2

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Circuit integrity under fire conditions

<p>circuit integrity (testing voltage 80V)</p> <p>circuit integrity</p>	<p>EN 50200</p> <p>EN 50289-4-16</p>	<p>120 min.</p> <p>120 min.</p>
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Fire performance for rolling stock

vertical flame propagation for a single insulated wire or cable
vertical flame spread of bunched wires or cables > 6 < 12 mm
smoke density
toxicity of gases

absence of halogens

corrosivity of gases

EN 45545-2

Hazard Level HL1 - HL3

<p>EN 60332-1-2</p> <p>EN 60332-3-25</p> <p>EN 61034-2</p> <p>EN 50305</p> <p>EN 50267-2-1</p> <p>EN 60684-2</p> <p>EN 50267-2-2</p> <p>EN 50267-2-2</p>	<p>carbonization > 50 and ≤ 540 mm</p> <p>carbonization < 2.5 m</p> <p>transmittance > 70 %</p> <p>insulation ITC ≤ 6</p> <p>sheath ITC ≤ 6</p> <p>HCl and HBr < 0.5 %</p> <p>HF < 0.1 %</p> <p>pH > 4.3</p> <p>conductivity < 10 μS / mm</p>
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Fire performance for rolling stock

vertical flame propagation for a single insulated wire or cable
vertical flame spread of bunched wires or cables > 6 < 12 mm
smoke density
toxicity of gases

absence of halogens

corrosivity of gases

EN 50306-1

<p>EN 60332-1-2</p> <p>EN 60332-3-25</p> <p>EN 61034-2</p> <p>EN 50305</p> <p>EN 50267-2-1</p> <p>EN 60684-2</p> <p>EN 50267-2-2</p> <p>EN 50267-2-2</p>	<p>carbonization > 50 and ≤ 540 mm</p> <p>carbonization < 2.5 m</p> <p>transmittance > 70 %</p> <p>insulation ITC ≤ 6</p> <p>sheath ITC ≤ 6</p> <p>HCl and HBr < 0.5 %</p> <p>HF < 0.1 %</p> <p>pH > 4.3</p> <p>conductivity < 10 μS / mm</p>
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Material properties of sheath

resistance to ozone

high resistance to cold
high resistance to oil
high resistance to fuel
resistance to acid
resistance to alkaline
low fire load

EN 50264-1

EN 50306-1

EM 104

<p>EN 60811-403</p> <p>EN 60811-504</p> <p>EN 60811-404</p> <p>EN 60811-404</p> <p>EN 60811-404</p> <p>EN 60811-404</p> <p>DIN 51900</p>	<p>72 h / 40 °C, method B</p> <p>volume concentration 200x10⁻⁶</p> <p>- 40 °C</p> <p>72 h / 100 °C, IRM 902</p> <p>168 h / 70 °C, IRM 903</p> <p>168 h / 23 °C, n-Oxalic</p> <p>168 h / 23 °C, n-NaOH</p>
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All information subject to the technical release

All information regarding properties, technical data, etc. are without obligation. Dimensions and weights are reference values. All information can be changed at any time and without prior notice. The confirmation of the fire performances is based on the certified test reports made on the basic versions within the same cable family and compound.