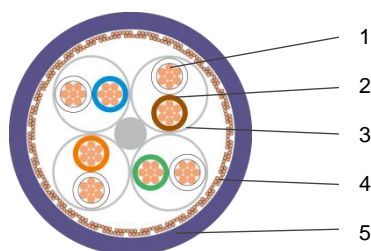


## Technical datasheet

**BETAtrans® DATA-ENX C-flex R 100 Ω GigaCAT 7 FOAM violet**  
**4 X (2 X AWG 26/7)St**

**part no: 315808**



Studer  
Switzerland HL3 fire performance data cable for Metros  
special properties are highlighted in yellow colour

### Product description

Halogen free, electron-beam cross-linked 1200 MHz databus cable with improved fire performance. Better than category 7 according EN 50288 and IEC 61156, excellent NEXT, low attenuation, excellent screening characteristics (pair - and overall screen), low skew. The cable fulfils the fire protection standard for railway vehicles EN 45545-2 (HL1 - HL3). The cable sheath complies with the EM 104 requirements of EN 50264-1, EN 50306-1 and class M according to EN 50306-4. In the harsh train environment it performs with excellent resistance to oils and fuels.

### Application

This cable is used for fixed and protected installation inside and outside of rail vehicles and buses. It is optimally for all applications of classes D to F multimedia (video, datas, speech) up to 10 GbE according to IEEE 802.3. Current supply (up to 350/600 mA) and voltage (up to 48 V) can be provided via PoE/PoE+ (according to IEEE 802.3af/at), considering ISO/IEC TS 29125 for the cable layout.

### Construction

1. conductor	tinned fine copper strands AWG 26 construction 7 x 0.16 mm according to ASTM	Ø: 0.47 ± 0.05 mm
2. insulation	cellular PE, Comp 717	Ø: 1.05 ± 0.10 mm
3. pair	colors white/blue, white/orange, white/green, white/brown	
4. shielding	4 x (2 x AWG 26) covered with aluminium-bonded polyester tape tinned fine copper braid single wire of braid 0.10 mm	Ø: 5.00 ± 0.20 mm
5. sheath	<b>polyolefine copolymer electron-beam cross-linked, Comp 752</b> corresponds to EN 50306-1 and EN 50264-1 type EM104	Ø: 6.60 ± 0.20 mm
color	violet	
min. wall thickness	0.65 mm	
printing	<b>STUDERCABLES.COM BETATRANS DATA-ENX C-FLEX R 100 OHM GIGACAT 7 FOAM (EN 50306-4)</b> <b>4X(2XAWG26/7)ST CCHDA .....</b>	

	1.	2.	3.
1. part no.		<b>315808</b>	
2. production code		e. g. 1287215	
3. production date		e. g. 050719	

### Product properties

nominal voltage	U <sub>0</sub>	125 V AC
testing voltage	core - core	1000 V AC (50 Hz / 1 min.)
	core - shielding	1000 V AC (50 Hz / 1 min.)
temperature range	fixed installation	-40 °C up to +80 °C
min. bending radius	fixed installation	> 6 x Ø
max. tensile load	installation	≤ 60 N
	operating	≤ 15 N

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### BETrans® DATA-ENX C-flex R 100 Ω GigaCAT 7 FOAM violet 4 X (2 X AWG 26/7)St

part no: 315808

#### Technical data

cable weight 54 kg / km  
fire load 0.129 kWh / m

#### Electromagnetic characteristics

coupling resistor\* at 10 MHz 5 mΩ / m  
coupling attenuation\* up to 1000 MHz 90 dB  
unbalanced attenuation near end 1 up to 600 MHz  $\geq 40 - 10 \times \log(f)$  dB  
screening attenuation\* up to 1000 MHz 60 dB

#### Electrical characteristics at 20°C

bandwidth 1200 MHz  
DC resistance  $\leq 145 \Omega / \text{km}$   
unbalanced resistance  $< 2 \%$   
insulation resistance  $\geq 5 \text{ G}\Omega \cdot \text{km}$   
operating capacitance core - core  $\approx 44 \text{ nF} / \text{km}$   
unbalanced capacity to earth\* 1500 pF / km  
envelope velocity\*  $\approx 0.78 \text{ c}$   
propagation delay\* 440 ns / 100 m  
skew\* at 100 MHz 2.5 ns / 100 m  
propagation velocity 0.197 m / ns  
characteristic impedance at 100 MHz  $100 \pm 5 \Omega$

\* nominal values

Frequency MHz	Attenuation dB/10m		NEXT dB		PS-NEXT dB		ACR dB@10m		PS-ACR dB@10m		EL-FEXT dB@10m		PS-ELFEXT dB@10m		RL dB	
	typ.	cat.7 max.*	typ.	cat.7 min.*	typ.	cat.7 min.*	typ.	cat.7 min.*	typ.	cat.7 min.*	typ.	cat.7 min.*	typ.	cat.7 min.*	typ.	cat.7 min.*
1	0.25	0.29	100	80	97	77	100	80	97	77	100	80	97	80	24	23
10	0.76	0.85	99	80	96	77	99	79	96	77	95	74	92	71	33.9	25
100	2.49	2.78	95	72	92	69	93	70	90	69	69	54	66	51	38.3	20.1
200	3.69	4.01	92	68	89	65	88	64	85	65	65	48	62	45	35.3	18
250	4.18	4.53	90	66	87	63	86	62	83	63	62	46	59	43	32.9	17.3
500	5.60	6.62	83	62	80	59	78	55	75	59	54	40	51	37	29.7	17.3
600	6.74	7.33	81	61	78	58	74	53	71	58	50	38	47	35	30.6	17.3
700	7.32	-	80	-	77	-	72	-	69	-	50	-	47	-	31	-
800	7.89	-	77	-	74	-	69	-	66	-	50	-	47	-	26.7	-
900	8.50	-	75	-	72	-	67	-	64	-	34	-	31	-	28.6	-
1000	9.11	-	74	-	71	-	65	-	62	-	32	-	29	-	27.5	-
1100	9.50	-	72	-	69	-	63	-	60	-	28	-	25	-	26.9	-
1200	9.90	-	70	-	67	-	61	-	58	-	24	-	21	-	26.3	-

\* EN 50288-4-2 (2004) / IEC 61156-6 (2002)

## Technical datasheet

### BETrans® DATA-ENX C-flex R 100 Ω GigaCAT 7 FOAM violet 4 X (2 X AWG 26/7)St

part no: 315808

<b>Fire performance for rolling stock</b>	<b>EN 45545-2</b>	<b>hazard level HL1 - HL3</b>
vertical flame propagation for a single insulated wire or cable	EN 60332-1-2	carbonisation > 50 and ≤ 540 mm
vertical flame spread of bunched wires or cables > 6 < 12 mm	EN 60332-3-25	carbonisation < 2.5 m
smoke density	EN 61034-2	transmittance > 70 %
toxicity of gases	EN 50305	insulation ITC ≤ 6
absence of halogens	EN 50267-2-1	sheath ITC ≤ 3
corrosivity of gases	EN 60684-2	HCl und HBr < 0.5 %
	EN 50267-2-2	HF < 0.1 %
	<b>EN 50267-2-2</b>	<b>pH &gt; 4.3</b>
		<b>conductivity &lt; 10 µS / mm</b>
<b>Fire performance for rolling stock</b>	<b>EN 50264-1</b>	
	<b>EN 50306-1</b>	
vertical flame propagation for a single insulated wire or cable	EN 60332-1-2	carbonisation > 50 and ≤ 540 mm
vertical flame spread of bunched wires or cables > 6 < 12 mm	EN 60332-3-25	carbonisation < 2.5 m
smoke density	EN 61034-2	transmittance > 70 %
toxicity of gases	EN 50305	insulation ITC ≤ 6
<b>absence of halogens</b>	EN 50267-2-1	sheath ITC ≤ 3
corrosivity of gases	EN 60684-2	HCl and HBr < 0.5 %
	EN 50267-2-2	HF < 0.1 %
	EN 50267-2-2	<b>pH &gt; 4.3</b>
		conductivity < 10 µS / mm
<b>Fire performance for rolling stock</b>	<b>NFPA130</b>	
vertical flame propagation for bunched wires or cables	FT 4/IEEE 1202	carbonisation ≤ 1,5 m
smoke release	UL 1685	peak smoke rate ≤ 0.25 m <sup>2</sup> / s
		total smoke released ≤ 95 m <sup>2</sup>
<b>Material properties of sheath</b>	<b>EN 50264-1</b>	<b>EM 104</b>
	<b>EN 50306-1</b>	
resistance to ozone	EN 60811-403	72 h / 40 °C, method B
high resistance to cold	EN 60811-504	volume concentration 200x10 <sup>-6</sup>
high resistance to oil	EN 60811-404	- 40 °C
resistance to fuel	EN 60811-404	72 h / 100 °C, IRM 902
resistance to acid	EN 60811-404	168 h / 70 °C, IRM 903
resistance to alkaline	EN 60811-404	168 h / 23 °C, n-Oxalic
low fire load	DIN 51900	168 h / 23 °C, n-NaOH
<b>Technical prescriptions concerning the burning behaviour</b>	<b>UNECE-R 118</b>	
resistance to flame propagation	ISO 14572	combustion duration ≤ 70 sec.
		length of unburned area ≥ 50 mm

### Approvals

Swiss Federal Railways

The national standards as BS 6853, DIN 5510-2, NF F 16-101, PN-K-02511, UNI CEI 11170 had been withdraw and replaced by EN 45545-2. 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.