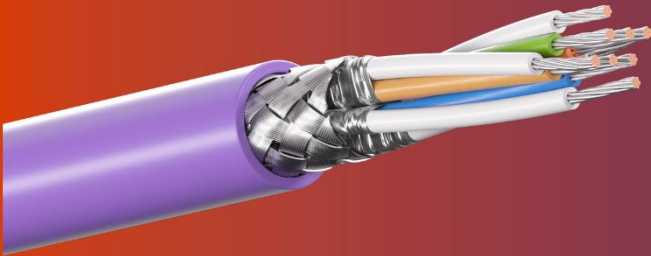


ROLLING STOCK - DATACABLE
**BETrans® DATA-ENX C-flex 100 Ω GigaCAT 7 FOAM
4 X (2 X AWG 24/7)St**


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, data, 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

Conductor	Tinned fine copper strands AWG 24
Insulation	Cellular PE, Comp 717
Pair	4 x (2 x AWG 24) covered with aluminium-bonded polyester tape
Shield	Tinned copper braid
Sheath	Polyolefin Copolymer, Comp 752, electronbeam cross-linked
Sheath colour	Purple

Advantages

- Halogen free
- Good media resistance
- Compliant with EN 45545-2
- Qualified for PoE / PoE++
- High level cold resistance
- Good data transmission up to 10 Gbit / s
- Improved fire performance
- Resistant to environmental conditions
- Low fire load

Electrical properties

Rated value	U0	125 V
Test voltage	Core/core	1 kV, 50 Hz / 1 min.
Test voltage	Core/shield	1 kV, 50 Hz / 1 min.

Thermal properties

Max. operating temperature	fixed installation	+80°C
Min. ambient temperature	fixed installation	-40°C
Max. operating temperature	free installation	+70°C
Min. ambient temperature	free installation	-25°C

Mechanical properties

Bending radius	fixed installation	$\geq 5 \times \varnothing$
Bending radius	fixed installation	$\geq 6 \times \varnothing$

Material properties / Standards

Resistance to ozone	EN 60811-403
High resistance to cold	EN 60811-504
High resistance to oil	EN 60811-404
Resistance to fuel	EN 60811-404
Resistance to acid	EN 60811-404
Resistance to alkaline	EN 60811-404
Low fire load	DIN 51900

Material properties / Standards

Fire performance for rolling stock	EN 45545-2 HL1 - HL3
Vertical flame propagation for a single insulated wire or cable	EN 60332-1-2
Vertical flame spread of bunched wires or cables > 6 < 12 mm	EN 60332-3-25
Smoke density	EN 61034-2
Toxicity of gases	EN 50305
Absence of halogens	EN 50267-2-1 EN 60684-2
Corrosivity of gases	EN 50267-2-2
Fire performance for rolling stock	EN 50264-1 EN 50306-1
Vertical flame propagation for a single insulated wire or cable	EN 60332-1-2
Vertical flame spread of bunched wires or cables > 6 < 12 mm	EN 60332-3-25
Smoke density	EN 61034-2
Toxicity of gases	EN 50305
Absence of halogens	EN 50267-2-1 EN 60684-2
Corrosivity of gases	EN 50267-2-2
Fire performance for rolling stock	NFPA130
Vertical flame propagation for bunched wires or cables	FT 4/IEEE 1202
Smoke release	UL 1685
Technical prescriptions concerning the burning behaviour	UN/ECE-R 118
Resistance to flame propagation	ISO 14572

Approval

Swiss Federal Railways

Technical data

cable weight 75 kg / km
 fire load 0.211 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 700 MHz
 DC resistance $\leq 84 \Omega / \text{km}$
 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* $\approx 0.75 \text{ c}$
 propagation delay* 440 ns / 100 m
 skew* at 100 MHz 7 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	0.23	0.29	90	80	87	77	90	80	87	77	90	80	87	77	23.3	-
4	0.40	0.55	90	80	87	77	90	79	87	77	90	80	87	77	25	23
10	0.63	0.85	90	80	87	77	89	79	86	77	90	74	87	71	30	25
16	0.79	1.08	90	80	87	77	89	79	86	77	90	70	87	67	30	25
20	0.91	1.21	90	80	87	77	89	79	86	77	85	68	82	65	30	25
100	2.07	2.78	81	72.4	78	69	79	70	76	69	64	54	61	51	24	20.1
200	3.07	4.01	76	67.9	73	65	73	64	70	65	57	48	54	45	24	18
250	3.43	4.53	74	66.5	71	63	71	62	68	63	53	46	50	43	24	17.3
500	4.77	6.62	70	61.9	67	59	65	55	62	59	45	40	42	37	21	17.3
600	5.23	7.33	68	60.8	65	58	63	53	60	58	42	38	39	35	21	17.3
700	5.65	-	65	-	62	-	59	-	56	-	39	-	36	-	19	-

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