



# Traction cable

## RADOX® RAILCAT CAT7 4X(2X24AWG) XM S

### Product description:

**RADOX RAILCAT CAT7** Databus cable with overall screen  
 Impedance: 100 Ohm  
 Hazard level: M (extra low temperature, extra oil and extra fuel resistant)

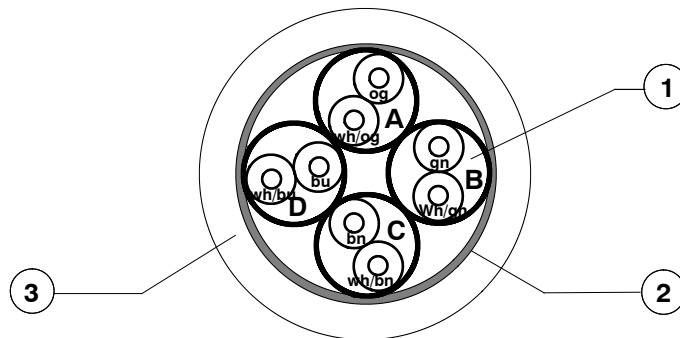
### General features:

Halogen free electron-beam cross linked cable with improved behaviour in case of fire, easy to strip, soldering iron is resistant and flexible. Meet the electrical requirements of EN 50288-4-2 and IEC 61156-6 Cat. 7.  
 The cable is especially suitable for Gigabit Ethernet and for transmission of digital data for applications up to 10 Gigabit according to IEEE 802.3.

### Application:

The cable is intended for permanent installation in rail vehicles or for applications in which a limited bending stress occur during service. Guidelines for selection and installation are described in the standard EN 50343.

The cable can be used for permanent alternating bending stress in connection with an intervehicle jumper solution from HUBER+SUHNER.



- |    |   |   |                                 |
|----|---|---|---------------------------------|
| 1. | 4 pairs, 2X24AWG twisted<br>Cores:<br><br>2 cores twisted:<br><br>Pair screen | Conductor : flexible tin plated copper<br>Insulation : RADOX FOAM<br>Pair A: white/orange-orange<br>Pair B: white/green-green<br>Pair C: white/brown-brown<br>Pair D: white/blue-blue<br>Aluminium tape | AWG 24 (7x32AWG)<br>D : 1.35 mm |
| 2. | EMC - Screen  | Tin plated copper braid   | D : 6.0 mm                      |
| 3. | Sheath  | RADOX EM 104, colour: blue  | D : 8.1 ± 0.5 mm                |

### Marking:

[a] HUBER+SUHNER RADOX RAILCAT CAT7 100 OHM 4X(2X24AWG) XM S 84124806 -[b] [c] [d]

[a]	Meter marking (in m)	Beispiel: = 1234 = m
[b]	Batch number	1234567
[c]	Production week and year	03-2017
[d]	Production place (only if China)	CN

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The product fulfils the test and specification requirements described in this document for the stated areas of application and operating conditions. HUBER+SUHNER AG does not expressly or implicitly guarantee performance under additional or changed conditions. Deviations are to be agreed upon in writing.

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### Technical data:

Frequency [MHz]	Attenuation max. [dB/100m]	NEXT min. [dB]	PS NEXT min. [dB]	ACR-F min. [dB]	PS ACR-F min. [dB]	RL min. [dB]
1	2.9	80	77	80	77	-
4	5.5	80	77	80	77	23.1
10	8.5	80	77	74	71	25
16	10.8	80	77	69.9	66.9	25
31.25	15.2	80	77	64.1	61.1	23.6
62.5	21.7	75.1	72.5	58.1	55.1	21.5
100	27.8	72.4	69.4	54	51	20.1
300	50	65.3	62.3	44.5	41.5	17.3
600	73.3	60.8	57.8	38.4	35.4	17.3

### Databus:

Characteristic Impedance	f=100MHz	100 ± 5	Ω
Capacitance	core / core	≤ 50...	pF / m
	core / screen	≤ 80	pF / m
Velocity of propagation		~75	%
Conductor resistance at 20 °C		≤ 95	Ω / km
Voltage rating		125	VAC
Test voltage		1000	VAC
Temperature range		- 50 ... + 70	°C
Min. bending radius	fixed installed	4 x cable dia	
	sporadic movement	10 x cable dia	
	free installation	depending on intervehicle jumper solution	
Cable weight	approx.	8.8	kg/100m
Fire load	approx.	705	kJ/m

### Conditions:

The upper temperature limit is determined by long term ageing according to EN 50305 Par. 7 and extrapolation to 20,000 hours.

The lower temperature limit is determined by bending and elongation tests according to EN 60811-1-4 Par. 8, respectively low temperature behaviour tests according to GOST 20.57.406-81, method 204-1 and GOST 17491-80. (fixed installation)

The specified bending radii require a careful and proper handling using proven fastening technologies.



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### The cables are in conformity with:

<b>Fire protection on railway vehicles, hazard level</b> . . . . .	<b>HL1 - HL3</b> . . . . .	<b>EN 45545</b>
Vertical flame spread . . . . .	50 < L ≤ 540 mm . . . . .	EN 60332-1-2
Vertical flame spread, bunched, 6 < D < 12 mm . . . . .	L ≤ 2.5 m . . . . .	EN 50305, 9.1.1 (EN 60332-3-25)
Smoke density . . . . .	T ≥ 70 % . . . . .	EN 61034-2
Toxicity . . . . .	ITC ≤ 6 . . . . .	EN 50305, 9.2
<b>Fire protection on railway vehicles, level of protection</b> . . . . .	<b>1 - 4</b> . . . . .	<b>DIN 5510</b>
Vertical flame spread . . . . .	50 < L ≤ 540 mm . . . . .	EN 60332-1-2
Vertical flame spread, bunched, 6 < D < 12 mm . . . . .	L ≤ 2.5 m . . . . .	EN 60332-3-25
Smoke density . . . . .	T ≥ 60 % . . . . .	EN 61034-2
Corrosivity of combustion gases . . . . .	pH ≥ 4.3, C ≤ 10 μS/mm . . . . .	EN 50267-2-2
Amount of halogen acid gas . . . . .	HCl + HBr ≤ 0.5 % . . . . .	EN 50267-2-1
Content of fluorine . . . . .	HF ≤ 0.1 % . . . . .	EN 60684-2, 45.2
Toxicity . . . . .	ITC ≤ 3 . . . . .	EN 50305, 9.2
<b>Fire protection on railway vehicles, category</b> . . . . .	<b>A1, A2, B</b> . . . . .	<b>NF F16-101</b>
Fire protection on railway vehicles, class . . . . .	C / F0 . . . . .	NF F16-101
Vertical flame spread . . . . .	50 < L ≤ 540 mm . . . . .	NF C32-070, 2.1
Vertical flame spread, bunched . . . . .	L ≤ 300 mm . . . . .	NF C32-070, 2.2
Smoke index . . . . .	I.F. ≤ 5 . . . . .	X10-702-2, NF X70-100-1
<b>Fire protection on railway vehicles, hazard level</b> . . . . .	<b>LR1 - LR4</b> . . . . .	<b>UNI CEI 11170</b>
Vertical flame spread . . . . .	50 < L ≤ 540 mm . . . . .	EN 60332-1-2
Vertical flame spread, bunched, 6 < D < 12 mm . . . . .	L ≤ 2.5 m . . . . .	EN 60332-3-25
Smoke density . . . . .	T ≥ 70 % . . . . .	EN 61034-2
Corrosivity of combustion gases . . . . .	pH ≥ 4.3, C ≤ 10 μS/mm . . . . .	EN 50267-2-2
Amount of halogen acid gas . . . . .	HCl + HBr ≤ 0.5 % . . . . .	EN 50267-2-1
Toxicity . . . . .	ITC ≤ 3 . . . . .	EN 50305, 9.2
<b>Fire protection on railway vehicles</b> . . . . .	<b>Fulfilled</b> . . . . .	<b>NFPA 130</b>
Vertical flame spread, bunched . . . . .	L ≤ 1.5 m . . . . .	UL 1685, 12 (FT4 exp.)
Smoke density . . . . .	TSR ≤ 150 m <sup>2</sup> , PSRR ≤ 0.40 m <sup>2</sup> /s . . . . .	UL 1685, 12 (FT4 exp.)
<b>Fire protection on railway vehicles, category</b> . . . . .	<b>Ia, Ib, II</b> . . . . .	<b>BS 6853, GM/RT 2130</b>
Vertical flame spread . . . . .	50 < L ≤ 540 mm . . . . .	EN 60332-1-2
Vertical flame spread, bunched . . . . .	L ≤ 2.5 m . . . . .	EN 50266, BS 6853 An. D.8.7
Smoke density . . . . .	A <sub>0</sub> ≤ BS 6853 . . . . .	BS 6853 An. D.8.7
Toxicity . . . . .	R ≤ 1.0 . . . . .	BS 6853 An. B.1
<b>Requirement of hazard level code M</b> . . . . .	(acc. to EN50264-1 or EN50306-1)	
Extra low temperature . . . . .	- 40°C	
Extra oil resistance . . . . .	IRM 902, 72h, 100°C	
Extra fuel resistance . . . . .	IRM 903, 168h, 70°C	