HUBER+SUHNER

Traction cable
RADOX RAILDAT 120 OHM nX0.5 XM S MVB

General properties:

Halogen-free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip and flexible.
Meets the requirements of IEC 61375-3-1 standard.

Databus cables with 0.5 mm^2 - cores and overall screen

Impedance:	120 Ohm
Hazard level:	XM (extra low temperature resistant, extra oil and fuel resistant)
Fire safety:	fulfil EN 45545-2

Application:

The cores are intended for fixed installation inside railway vehicles or for installation in applications where limited alternating bending stresses occur during operation. Guidelines for selection and installation are described in the standard EN 50343.

Construction [mm^2]	**2X0.5**	**2X0.5+1X0.5**	**2X2X0.5**	**2X2X0.5+2X0.5**
Part-No. Turquoise	**85114509**	**85114508**	**85141959**	**85141960**
Cores of Databus cable				
Conductor	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.89mm	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.89mm	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.97mm	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.97mm
Insulation	RADOX FOAM	RADOX FOAM	RADOX FOAM	RADOX FOAM
Core Diameter $_{nom.}$ [mm]	2.30 ± 0.04	2.30 ± 0.04	2.30 ± 0.04	2.30 ± 0.04
Colours of Pairs	BU-RD	BU-RD	BU-RD BN-GY	BU-RD BN-GY
Additional Core [mm^2]		**0.5**		**0.5**
Conductor	-	Tin plated copper wire $D_{nom.}$: 0.9mm	-	Tin plated copper wire $D_{nom.}$: 0.9mm
Insulation	-	RADOX EI 303	-	RADOX EI 303
Core Diameter $_{nom.}$ [mm]	-	1.42 ± 0.03	-	1.42 ± 0.03
Colours of Insulation	-	WH	-	BK YE
Construction of Cable				
Twists of Cores	pairs	pairs	pairs	pairs
Fillers	yes	yes	yes	none
Tape	yes	yes	yes	yes
Laminated Al-tape	yes	yes	yes	yes
EMC - Screen	Tin plated copper braid	Tin plated copper braid	Tin plated copper braid	Tin plated copper braid
Braiding-Diameter $_{nom.}$ [mm]	5.9	5.9	9.6	9.6
Tape	yes	yes	yes	yes
Sheath	RADOX EM 104	RADOX EM 104	RADOX EM 104	RADOX EM 104
Diameter [mm]	**7.4 ± 0.3**	**7.4 ± 0.3**	**11.4 ± 0.4**	**11.4 ± 0.4**
Fireload [kJ/m]	785	760	1790	1635
Cable weight [kg/100 m]	7.2	7.6	15.8	16.9
Applications: MVB	X	X	X	X
CAN	X	X	X	X
RS 485	X	X	X	

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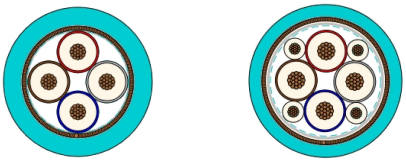

Construction [mm²]	**4X0.5**	**4X0.5+4X0.25**
Part-No. Turquoise	**85109096**	**85140715**
Cores of Databus cable		
Conductor	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.97mm	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.97mm
Insulation	RADOX FOAM	RADOX FOAM
Core Diameter $_{nom.}$ [mm]	2.30 ± 0.04	2.30 ± 0.04
Colours of Pairs	BU-RD BN-GY	BU-RD BN-GY
Additional Core [mm²]		**0.25**
Conductor	-	Tin plated copper wire $D_{nom.}$: 0.60mm
Insulation	-	RADOX EI 303
Core Diameter [mm]	-	1.17 ± 0.03
Colours of Insulation	-	WH, numbered 1...4
Construction of Cable		
Twists of Cores	quad	quad
Fillers	none	none
Tape	yes	yes
Laminated Al-tape	yes	yes
EMC - Screen	Tin plated copper braid	Tin plated copper braid
Braiding-Diameter $_{nom.}$ [mm]	6.5	7.0
Tape	yes	yes
Sheath	RADOX EM 104	RADOX EM 104
Diameter [mm]	**8.4 ± 0.3**	**8.4 ± 0.3**
Fireload [kJ/m]	965	950
Cable weight [kg/100 m]	9.8	10.3
Applications: MVB **CAN** **RS 485**	X X	X (max. 170m)

Marking:

[a] **HUBER+SUHNER RADOX RAILDAT 120 OHM** [b] **XM S MVB** [c]-[d] [e] [f]

		example:
[a]	Meter marking (in m)	= 001234 = m
[b]	Construction	2X0.5
[c]	Part number	12345678
[d]	Batch number	1234567
[e]	Production week and year	03-2017
[f]	Production place (only if China)	CN

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Technical data:

Conductor resistance at 20°C	0.5 mm²	≤ 40.1	Ω / km
Mutual capacitance (wire / wire)	f = 1.5 MHz	≤ 46	pF / m
Capacitive unbalance to shield	f = 1.5 MHz	≤ 1.5	pF / m
Impedance	f = 0.75 ... 3 MHz	120 ± 12	Ω
Attenuation	f = 1.5 MHz	≤ 15	dB / km
	f = 3.0 MHz	≤ 20	dB / km
NEXT	f = 0.75 ... 3 MHz	≥ 45	dB
Part-No. 85109096 only	f = 0.75 ... 3 MHz	≥ 55	dB
Transferimpedance	f ≤ 20 MHz	≤ 20	mΩ / m
Voltage rating		300	VAC
Test voltage		2000	VAC
Temperature range	fixed installation	- 50 ... + 90	°C
Min. bending radius	fixed installation	3 x D	
	sporadic movement	5 x D	

NB:
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 60811-504/505, respectively low temperature behaviour tests for static conditions, e.g. for fixed installation according to GOST 20.57.406-81 - method 204-1 and GOST 17491-80.
The specified bending radii require a careful and proper handling using proven fastening technologies.

The cables are in conformity with:

Fire protection on railway vehicles, hazard level	**HL1 - HL3**	**EN 45545-2**
Vertical flame spread	50 mm < 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 60754-2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 60754-1
Content of fluorine	HF ≤ 0.1 %	EN 60684-2, 45.2
Toxicity	ITC ≤ 6	EN 50305, 9.2
Fire safety, class	**O1.8.1.2.1 (single)** **P1b.8.1.2.1 (bundle)**	**GOST 31565**
Vertical flame spread	50 mm < L ≤ 540 mm	EN 60332-1-2
Vertical flame spread, bunched	L ≤ 2.5 m	EN 60332-3-22
Corrosivity of combustion gases	pH ≥ 4.3, C ≤ 10 µS/mm	EN 60754-2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 60754-1
Toxicity	40 < Tx ≤ 120 g/m³	GOST 12.1.044-89
Smoke density	T ≥ 60 %	EN 61034-2
Fire protection on railway vehicles	**Fulfilled**	**NFPA 130**
Vertical flame spread, bunched	L ≤ 1.5 m	UL 1685, 12 (FT4 exp.)
Smoke density	TSR ≤ 150 m², PSRR ≤ 0.40 m²/s	UL 1685, 12 (FT4 exp.)
Requirement of hazard level code M	**(according to EN 50264-1 or EN 50306-1)**	
Extra low temperature	- 40°C	
Extra oil resistance	IRM 902, 72 h, 100°C	
Extra fuel resistance	IRM 903, 168 h, 70°C	

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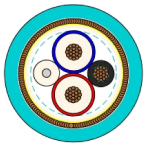
Customized items:



Construction [mm²]	**2X0.5+1X0.5**
Part-No. Turquoise	**85166635**
Cores of Databus cable	
Conductor	stranded tin plated copper, acc. to EN 60228 cl. 5, $D_{nom.}$: 0.89mm
Insulation	RADOX FOAM
Core Diameter $_{nom.}$ [mm]	2.30 ± 0.04
Colours of Pairs	BU-RD
Additional Core [mm²]	**0.5**
Conductor	Tin plated copper wire $D_{nom.}$: 0.9mm
Insulation	RADOX EI 303
Core Diameter $_{nom.}$ [mm]	1.42 ± 0.03
Colours of Insulation	BK
Construction of Cable	
Twists of Cores	pairs
Fillers	yes
Tape	yes
Laminated Al-tape	yes
EMC - Screen	Tin plated copper braid
Braiding-Diameter $_{nom.}$ [mm]	5.9
Tape	yes
Sheath	RADOX EM 104
Diameter [mm]	**7.4 ± 0.3**
Fireload [kJ/m]	760
Cable weight [kg/100 m]	7.6
Applications: MVB	X
CAN	X
RS 485	X

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