



Traction cable

RADOX RAILCAT CAT5e

Product description:

RADOX RAILCAT CAT5e Multicore cables 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 cables with improved behaviour in case of fire, easy to strip, soldering iron resistant and flexible. Meet the requirements of EN 50288- 2- 2 and IEC 61156- 6.

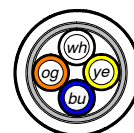
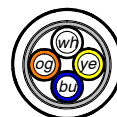
Application:

The cables are intended for permanent installation in rail vehicles or for applications in which a limited alternating bending stress occur during service. (see table) Guidelines for selection and installation are described in the standard EN 50343.

Marking:

[a] HUBER+SUHNER RADOX RAILCAT CAT5e [b] [c]- [d] [e] [f]

example:
 [a] Meter marking (in m) = 001234 = m
 [b] Construction 4x22AWG XM S
 [c] Part number 12345678
 [d] Batch number 1234567
 [e] Production week and year 03- 2017
 [f] Production place (only if China) CN



Construction	4x22AWG XM S RW	4x22AWG XM S RW E	4x22AWG XM S	4x22AWG XM S E	4x0.5 XM S
H+S part no. black	12584038	-	12568935	-	12585489
H+S part no. blue	85068348	85065038	85068347	84142178	85068349
Construction					
Conductor	Cu- Ag	Cu- Sn	Cu- Ag	Cu- Sn	Cu- Sn
Core insulation	RADOX FOAM	RADOX FOAM	RADOX COM	RADOX COM	RADOX COM
Core diameter	1.55 mm	1.55 mm	1.95 mm	1.95 mm	2.3 mm
Core colours	WH- BU, OG- YE	WH- BU,OG- YE	WH- BU, OG- YE	WH- BU, OG- YE	WH- BU, OG- YE
Tape	over quad	over quad	no	no	no
Laminated Al- tape	over quad	over quad	over quad	over quad	over quad
EMC- screen	Tin plated copper braid	Tin plated copper braid	Tin plated copper braid	Tin plated copper braid	Tin plated copper braid
Screen diameter	4.6 mm	4.6 mm	5.3 mm	5.3 mm	6.2 mm
Wrapping	Tape	Tape	Tape	Tape	Tape
Cable sheath	RADOX EM 104	RADOX EM 104	RADOX EM 104	RADOX EM 104	RADOX EM 104
Cable diameter	6.6±0.3 mm	6.6±0.3 mm	7.25±0.3 mm	7.25±0.3 mm	8.3±0.3 mm
Type of installation	fixed	fixed	flexible fixed	flexible fixed	fixed
Temperature range	- 50°C...+90°C	- 40°C...+70°C	- 40°C - 50°C +90°C +90°C	- 40°C - 50°C +90°C +90°C	- 50°C...+90°C
Fireload	580 kJ/m	580 kJ/m	745 kJ/m	745 kJ/m	1240 kJ/m
Cable weight	7 kg/100m	7 kg/100m	8.1 kg/100m	8.1 kg/100m	10.2 kg/100m
Connector	RJ 45 / M 12	RJ 45 / M 12	M 12	M 12	M 12

Designation legend

X : Core insulation material is not defined in the standard EN 50264- 1
 M : Sheet material EM 104 according to EN 50264- 1
 S : Overall screen
 RW : Cores with reduced wall thickness
 E : Eco version

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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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RADOX RAILCAT CAT5e

General technical data:

Characteristic Impedance	f = 100MHz	100 ± 5	Ω
Resistance unbalance at 20 °C		≤ 1.1	Ω / km
Capacitance	core / core	< 56	pF / m
	core / screen	≤ 100	pF / m
Voltage rating		300	VAC
Test voltage, 50 Hz, 5 min.		2000	VAC
Screening attenuation	30 MHz ≤ f ≤ 100 MHz	40	dB
Transfer impedance	f ≤ 30 MHz	200	mΩ/m
Temperature range	fixed	- 50 ... + 90	°C
	sporadic movement	- 40 ... + 90	°C
Min. bending radius	fixed	6 x cable dia	
	sporadic movement	10 x cable dia (12568935 / 84142178 / 85086347)	

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 60811-504/505, 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.

The cables are developed to meet the requirements of the following standard:

Multi-element metallic cables used in analogue and digital communication and control - Part 2-2: Sectional specification for screened cables characterised up to 100 MHz - Work area and patch cord cables; German version EN 50288-2-2:

Specific technical data: 12584038, 85068348

Conductor resistance at 20 °C	≤ 54.4	Ω / km
Signal propagation	75	%

Frequency (MHz)	Attenuation (db/100m)		NEXT(db) Pr/Pr		FEXT (db) Pr/Pr		Return loss (db)	
	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
1	2.0	3.1	73	65.3	78	60.8	-	20
4	4.4	6	70	56.3	77	51.8	25	23
10	7.4	9.5	65	50.3	70	43.8	30	25
31.25	14	17.1	57	42.9	65	33.9	30	23.6
62.5	20	24.8	52	38.4	56	27.9	30	21.5
100	26	32.0	48	35.3	48	23.8	28	20.1
200	27	47.0	50	37.8	50	19.0	21	16.4

Max. / Min. : 1 - 100 MHz standard defaults according to IEC 61156-6 CAT5e, 200 MHz according to IEC 61156-6 CAT6



Traction cable

RADOX RAILCAT CAT5e

Specific technical data: 85065038

Conductor resistance at 20 °C ≤ 54.7 Ω / km
 Signal propagation 75 %

Frequency (MHz)	Attenuation (db/100m)		NEXT(db) Pr/Pr		FEXT (db) Pr/Pr		Return loss (db)	
	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
1	2.5	3.1	68	65.3	80	60.8	-	20
4	5	6	63	56.3	67	51.8	25	23
10	7.5	9.5	60	50.3	57	43.8	27	25
31.25	12	17.1	50	42.9	46	33.9	27	23.6
62.5	17	24.8	40	38.4	42	27.9	24	21.5
100	23	32.0	38	35.3	36	23.8	23	20.1
200	27	47.0	50	37.8	50	19.0	21	16.4

Max. / Min. : 1 - 100 MHz standard defaults according to IEC 61156-6 CAT5e, 200 MHz according to IEC 61156-6 CAT6

Specific technical data: 12568935, 85068347

Conductor resistance at 20 °C ≤ 54.4 Ω / km
 Signal propagation 66 %

Frequency (MHz)	Attenuation (db/100m)		NEXT(db) Pr/Pr		FEXT (db) Pr/Pr		Return loss (db)	
	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
1	2	3.1	80	65.3	80	60.8	-	20
4	4	6	76	56.3	70	51.8	35	23
10	6.5	9.5	67	50.3	65	43.8	35	25
31.25	10.5	17.1	60	42.9	58	33.9	35	23.6
62.5	14	24.8	56	38.4	59	27.9	33	21.5
100	18	32.0	53	35.3	67	23.8	33	20.1

Max. / Min. : 1 - 100 MHz standard defaults according to IEC 61156-6 CAT5e

Specific technical data: 84142178

Conductor resistance at 20 °C ≤ 54.7 Ω / km
 Signal propagation 66 %

Frequency (MHz)	Attenuation (db/100m)		NEXT(db) Pr/Pr		FEXT (db) Pr/Pr		Return loss (db)	
	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
1	2	3.1	80	65.3	80	60.8	-	20
4	4	6	76	56.3	70	51.8	35	23
10	6.5	9.5	67	50.3	65	43.8	35	25
31.25	10.5	17.1	60	42.9	58	33.9	35	23.6
62.5	14	24.8	56	38.4	59	27.9	33	21.5
100	18	32.0	53	35.3	67	23.8	33	20.1

Max. / Min. : 1 - 100 MHz standard defaults according to IEC 61156-6 CAT5e



Traction cable

RADOX RAILCAT CAT5e

Specific technical data: 12585489, 85068349

Conductor resistance at 20 °C ≤ 40.1 Ω / km

Signal propagation 66 %

Frequency (MHz)	Attenuation (db/100m)		NEXT(db) Pr/Pr		FEXT (db) Pr/Pr		Return loss (db)	
	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
1	2.0	3.1	70	65.3	80	60.8	-	20
4	4	6	68	56.3	70	51.8	25	23
10	6.5	9.5	65	50.3	65	43.8	34	25
31.25	10.5	17.1	53	42.9	55	33.9	34	23.6
62.5	14	24.8	49	38.4	50	27.9	30	21.5
100	18	32.0	45	35.3	45	23.8	28	20.1

Max. / Min. : 1 - 100 MHz standard defaults according to IEC 61156-6 CAT5e

The cables are in conformity with:

Fire protection on railway vehicles, hazard level ... HL1 - HL3 EN 45545
 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 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 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, 72h, 100°C
 Extra fuel resistance IRM 903, 168h, 70°C