



Product: [BA43708](#) 

RailTuff™ Cat 5e SF/UTP 100Ω 4x20AWG (QUAD)

Product Description

4C (QUAD), 20AWG stranded tinned copper conductors, Polyolefin insulation, shielded, E-beam X-FRNC/LSNH outer jacket

Technical Specifications

Product Overview

Suitable Applications:	PROFINET Cat 5e, For use in railway applications such as rolling stock, buses or other vehicles, cable meets the requirements of the relevant parts of international railway standards like DIN 5510-2, EN 50153, EN 50155, EN 50305, EN 45545-2, and TJ/CL-313
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Construction Details

Conductor

Size	Stranding	No. of Pairs	No. of Elements
20 AWG	19x0.18 mm	2	4

Insulation

Material	Nom. Insulation Diameter	Color Code
PO - Polyolefin	2.2 mm (0.087 in)	White & Blue & Yellow & Orange

Cable Core

Description
1 quad with center filler

Outer Shield

Shield Type	Material	Coverage
Tape	Bi-Laminate (Alum+Poly)	
Braid	Tinned Copper (TC)	80%

Outer Jacket

Material	Nom. Diameter
LSZH - Low Smoke Zero Halogen (Flame Retardant)	8.0 mm (0.31 in)

Table Notes:	e-Beamed to Cross-link
Overall Cable Diameter (Nominal):	8.0 mm (0.31 in)

Electrical Characteristics

Electricals

Max. Conductor DCR	Nom. Characteristic Impedance
36.7 Ohm/km (11.2 Ohm/1000ft)	100 Ohm

Delay

Max. Delay Skew
570 ns/100m

High Frequency

Frequency [MHz]	Max. Insertion Loss (Attenuation) [dB/100m]	Min. NEXT [dB]	Min. FEXT [dB]	Min. RL (Return Loss) [dB]
1	2.1	65.3	64.0	20.0

4	4.1	56.3	52.0	23.0
10	6.5	50.3	44.0	25.0
16	8.3	47.2	39.9	25.0
20	9.4	45.8	38.0	25.0
31.25	11.7	42.9	34.1	23.6
62.5	17	38.4	28.1	21.5
100	22	35.3	24.0	20.1

Table Notes:	High frequency (at 20°), reference standard: ISO/IEC61156-5
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Transfer Impedance

Frequency	Max. Transfer Impedance
10MHz	Max. 200 mOhm/m

Voltage

UL Voltage Rating
300 V

Mechanical Characteristics

Temperature

Operating	Installation	Storage
-40°C to +90°C	-5°C to +50°C	-40°C to +90°C

Table Notes:	86 kg/km
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Bend Radius

Installation Min.
10*D mm

Table Notes:	Setting (fixed) radius: 5*D, Reference standard: IEC60288-2-2 and ISO/IEC11801 ed. 2.0Cat5e as a minimum
Bulk Cable Weight:	86 kg/km (58 lbs/1000ft)

Standards and Compliance

Environmental Suitability:	Indoor
Flammability / Reaction to Fire:	IEC 60332-1-2, IEC 60332-3-25, UN ECE R118.03
IEEE Compliance:	POE per 802.3af & POE+ 802.3at-2009
Data Category:	Category 5e
ISO/IEC Compliance:	IEC 61034-2 - Smoke Density Min Transmittance = 70%
CENELEC Compliance:	EN 45545-2
European Halogen Free Standards:	IEC 62821-1 Halogen Free Compliance = Yes, IEC 60754-1 - Halogen Amount = Zero, IEC 60754-2 - Halogen Acid Gas Amount - Max. Conductivity = 10 µS/mm, IEC 60754-2 - Halogen Acid Gas Amount - Min. pH = 4.3
European Directive Compliance:	EU CE Mark
Other Standard Compliance(s):	DIN 5510-2

History

Update and Revision:	Revision Number: 0.21 Revision Date: 05-14-2025
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Part Numbers

Variants

Item #	Color	Length
BA43708 010500M	Black	500 m

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