



**Product:** [BA43992](#)

RailTuff™ Cat 5e SF/UTP 100Ω 4x0.5mm2 (QUAD)

**Product Description**

4C (QUAD), 0.5mm2 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 |
|------------------------|---|

**Construction Details**

| Conductor |            |              |                 |
|-----------|------------|--------------|-----------------|
| Size      | Stranding  | No. of Pairs | No. of Elements |
| 0.5 mm²   | 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  |                        |
| LSZH - Low Smoke Zero Halogen (Flame Retardant) |                        |
| 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 |
| 40.1 Ohm/km (12.2 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 |
|--------------|---|

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 |
|--------------|----------|

Bend Radius

| Installation Min. |
|-------------------|
| 10*D mm           |

|                    |  |
|--------------------|--|
| Table Notes:       | Setting (fixed) radius:5*D mm, 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  |

History

|                      |   |
|----------------------|---|
| Update and Revision: | Revision Number: 0.23 Revision Date: 05-26-2025 |
|----------------------|---|

Part Numbers

Variants

| Item #          | Color | Length |
|-----------------|-------|--------|
| BA43992 010500M | Black | 500 m  |

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