Industrial Ethernet Cat 5e Rail Transit Cable

SF/UTP CAT 5e – 4xAWG22 Quad Cable

High performance data cable specifically designed for the rail transport industry to support ethernet based network applications.

Ordering Information

Belden European Item Numbers

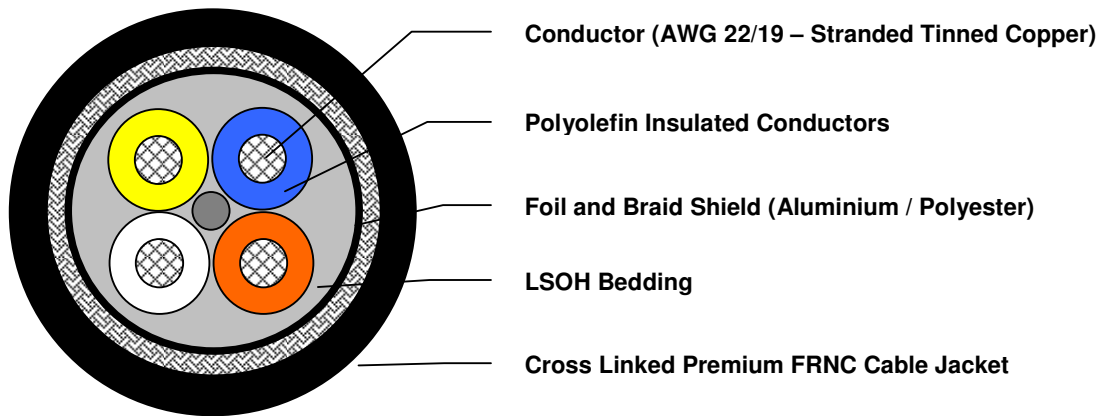| Cable Jacket Material	Cable Jacket Colour	Conductor	Transmission Performance	Item Code
Cross-linked Premium FRNC	Black	AWG 22/19 Stranded	Cat 5e	BE43769

Applications

- Ethernet based connectivity, signal transmission, monitoring, recording and control in on-board communications applications
- Passenger information and entertainment
- Security, surveillance and operational train controls (TCN = Train Control Network)
- Fare collection and ticket validation
- Location-based services (LBS)
- Combination of data, voice, video-streaming, conferencing and monitoring, tracking, intercom and system control on one single network

Features & Benefits

- Quad twist conductor design gives enhanced communication performance
- 19 strand conductor for added flexibility
- Black halogen free cable jacket
- High screen coverage in combination with Belden's Beldfoil technology to enhance electromagnetic interference (EMI) performance and maintain signal integrity
- Oil, flame and halogen resistant to international railway standards
- Compatible with M12 connectors for field installable or pre-moulded cable assemblies
- Superior constructional stability allows the cable to withstand vibration and movement whilst maintaining electrical performance over its lifetime
- Wide operating temperature -40 to +90 ˚C for use in a variety of applications
- IP67 rated
- Designed and manufactured in accordance with international railway standards:

    EN 50155:2007: Railway applications

    CEN/TS 45545-2:2009: Fire protection on railway vehicles

    DIN 5510-2: Preventive fire protection in railway vehicles

Construction & Dimensions

Conductor (AWG 22/19 – Stranded Tinned Copper)

Polyolefin Insulated Conductors

Foil and Braid Shield (Aluminium / Polyester)

LSOH Bedding

Cross Linked Premium FRNC Cable Jacket

Part Number	Conductor	Bedding (Nom. Dia.)	Braid Coverage	Cable Jacket Material	Total Cable (Nom. Dia.)	Cable Jacket Colour
BE43769	AWG 22/19	4.1mm	> 85%	Cross-linked Premium FRNC	6.70 +/- 0.3mm	Black

Electrical Properties

- IEC 60288-2-2 and ISO/IEC 11801 ed. 2.0, Cat 5e as a minimum

Voltage rating	300 V
Test voltage wire-wire / wire-screen	2.5k Vdc
Maximum conductor DC-resistance @ 20˚C	57.1 Ω/km
Transfer impedance @ 10MHz	< 10m Ohm/m
Nom. velocity of propagation	66 %
Delay	< 5.3 ns/m
Impedance @ 1 – 100 MHz	100 +/- 15 Ω

Frequency (MHz)	Max Attenuation (dB/100m)	Min NEXT (dB)	Min ELFEXT (dB/100m)	Min Return Loss (dB)
1	2.1	65.3	64	
4	4.1	56.3	52	23
10	6.5	50	43.8	25
16	8.3	47	40	25
31.25	11.7	42.9	33.9	23.6
62.5	17.0	38.4	28	21.5
100	22.0	35.3	24	20.1

Mechanical, Physical and/or Environmental Characteristics

Fire Protection Railway Vehicles	DIN 5510-2	Protection level 1 to 4
Flame Resistance	TS 45545	IEC 60332-2-1, EN50305 & IEC 60332-3-25 Cat D
Oil Resistance	IEC 60811-2-1	
Resistance against Mineral Oil	EN 50306 par 4.8	1.5kV / 1min
Resistance against Fuel	EN 50306 par 4.9	1.5kV / 1min
Resistance against Acid and Alkali	EN 50306 par 4.10	1.5kV / 1min
Halogen Content	IEC 60754-1, EN 50267-1-2	HCL < 0.4%
Corrosivity of Fire Gases	IEC 60754-2, EN 50267-2-2	Conductivity ≤ 10 us/mm pH value ≥ 3.4
Temperature Range - Installing	- 5 to + 50 ˚C	
Temperature Range - Operating	- 40 to + 90 ˚C	
Temperature Range - Storage	- 40 to + 90 ˚C	
Bending Radius / Setting radius	10 x Diameter / 5 x Diameter	

Belden declares this product to be in compliance with the environmental regulations EU RoHS (Directive 2002/95/EC, 27 January 2003); this is valid for all material produced after the RoHS compliant date for this product.

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