



SPECIFICATION CONTROL DRAWING

TECC0052C5-XL

Issue 4  
16-Jun-22  
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COMMUNICATION CABLE - 4 x 24AWG QUAD CABLE LSZH - EM104 RADIATION CROSS-LINKED

The complete requirements for procuring the wire described herein shall consist of this document and the issue in effect of the referenced specifications. This document takes precedence over documents referenced herein.

PRODUCT DETAILS

DESCRIPTION	PHYSICAL CHARACTERISTICS																	
Application: Profinet, IEEE 802.3bt Type 1, Type 2	<b>Structure</b>	Construction QUAD																
Rated temperature: 80°C		Number of Conductors 4																
Reference Standard: IEC 61156-5 & ISO/IEC 11801, EN 50264, EN 45545-2	<b>Conductor</b>	AWG / mm <sup>2</sup> 24 AWG																
Flammability Rating: IEC 60332-3-25, IEC 60332-1		Conductor material Solid Bare Copper																
Solid Bare Copper Conductor		Conductor dimension(mm) 0.52 ± 0.02 mm																
Colour-coded PE Insulation	<b>Insulation</b>	Insulation material PE																
XL-LSZH Jacket		Insulation dimension (mm) 1.10 ± 0.05 mm																
Test Standard: EN 50264, EN 45545-2		Insulation Colour (Pure Colour)																
Packaging: Per customer request		1.White 2.Yellow 3.Blue 4.Orange																
<p><u>CROSS SECTION</u></p> <table border="1" data-bbox="135 1406 638 1971"> <tr><td>1</td><td>Outer Jacket</td></tr> <tr><td>2</td><td>Tape</td></tr> <tr><td>3</td><td>Braid</td></tr> <tr><td>4</td><td>AL/Polyester</td></tr> <tr><td>5</td><td>Bedding</td></tr> <tr><td>6</td><td>Filler</td></tr> <tr><td>7</td><td>Insulation</td></tr> <tr><td>8</td><td>Conductor</td></tr> </table>	1	Outer Jacket	2	Tape	3	Braid	4	AL/Polyester	5	Bedding	6	Filler	7	Insulation	8	Conductor	<b>Cabling</b>	Cabling Lay Length ≤ 100mm
	1	Outer Jacket																
	2	Tape																
	3	Braid																
	4	AL/Polyester																
	5	Bedding																
	6	Filler																
	7	Insulation																
	8	Conductor																
		<b>Filler</b>	Filler Yes															
	<b>Bedding</b>	Bedding Material LSZH																
		Colour White																
		Outer Diameter 3.10 ± 0.30mm																
	<b>Shield</b>	Primary shield & material AL/Polyester																
		Secondary shield & material Tinned Copper Wire																
		Shield nom. Coverage ≥ 80%																
		Tape Yes																
	<b>Outer Jacket</b>	Outer Jacket material XL-LSZH																
		Jacket Nominal Thickness 0.70 mm																
		Overall Nom Dimension (mm) 5.20 ± 0.30																
		Outer Jacket Colour Blue*																
		*Other colours available on request																
	<b>Mechanical Characteristics</b>	Operating Temp Range -40°C to +80°C																
		Bulk Cable weight N/A																
		Max. Pulling Tension 80N																
		Min. Bend Radius (Install) 8 x OD																
		Outer Jacket Tensile Strength ≥ 10 Mpa (EN 60811-1-1 9.2)																
		Outer Jacket Elongation ≥ 125%																
		Outer Jacket Ageing 240h @ 120°C																
		Tensile Strength Variation ≤ ± 30% of Unaging																
		Elongation Variation ≤ ± 30% of Unaging																
	<b>Electrical Characteristics</b>	Nom. Mutual Capacitance ≤ 5.6 nF/100m (@ 1kHz)																
		Pair-Ground Capacitance Unbalance ≤ 120 pF/100m																
		Nominal Propagation Velocity 66%																
		Max. Delay Skew 45 ns/100m																
		Max. DC Conductor Resistance 95 Ω/km (@20°C)																
		Max Conductor Resistance unbalance 2% (@20°C)																
		Min. Insulation Resistance 5000 MΩ.km																
		Max. Operating Voltage 300 V																
<b>JACKET MARK</b>																		
"TE CONNECTIVITY - TECC0052C5-XL - 4 X 24AWG S/FTQ CAT 5E CABLE EM104 - YEAR OF MANUFACTURE - BATCH NUMBER - METRE MARK"																		

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TE Connectivity is a trading name of Tyco Electronics UK Ltd, Which is registered in England and Wales, number 550926. Registered office: Faraday Road, Dorcan, Swindon, SN3 5HH Website: [www.te.com](http://www.te.com)

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### ELECTRICAL CHARACTERISTICS CONTINUED

Frequency	Input Impedance	ATT	RL	NEXT	ELFEXT	Delay	TLC	ELTCTL
(MHz)	(Ω)	(dB/100m)	(dB Min)	(dB Min)	(dB Min)	(ns/100m Max.)	(dB Min)	(dB Min)
1	100 ± 15	-	20.0	65.3	64.0	570.0	40.0	35.0
4	100 ± 15	4.1	23.0	56.3	52.0	552.0	34.0	23.0
8	100 ± 15	5.8	24.5	51.8	45.9	546.7	31.0	16.9
10	100 ± 15	6.5	25.0	50.3	44.0	545.4	30.0	15.0
16	100 ± 15	8.3	25.0	47.2	39.9	543.0	28.0	10.9
20	100 ± 15	9.3	25.0	45.8	38.0	542.0	27.0	9.0
25	100 ± 15	10.4	24.2	44.3	36.0	541.2	26.0	7.0
31.25	100 ± 15	11.7	23.3	42.9	34.1	540.4	25.1	5.1
62.5	100 ± 15	17.0	20.7	38.4	28.1	538.6	22.0	
100	100 ± 15	22.0	19.0	35.3	24.0	537.6	20.0	

Note; Cable that meet the requirements of the template are not required to be measured for return loss; alternately cables that meet the return loss requirements are not required to be measured for characteristic impedance.

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MECHANICAL CHARACTERISTICS

**Mechanical performance Requirements for the tests for outer jacket.**

Test	Type of compound		test method
Hot set test	(200±3) °C/15Min/20N/cm <sup>2</sup>	elongation under load ≤100%	EN 60811-2-1 9
		elongation after unloading ≤25%	
<b>Ozone resistance</b>			
Method A	(0.025-0.03%)(25±2)°C/24h	No Crack	EN50305 7.4.2
Method B	(0.00015-0.00025%)(40±-2)°C/72h	No Crack	
Mineral oil resistance	IRM902/(100±2)°C/72h	Tensile strength Variation ≤±30%.	EN 60811-2-1 10
		Elongation at break Variation ≤±40%.	
Fuel resistance	IRM903/(70±2)°C/168h	Tensile strength Variation ≤±30%.	
		Elongation at break Variation ≤±40%.	
Acid resistance	N oxalic acid solution/(23±2)°C/168h	Tensile strength Variation ≤±30%.	
		Elongation at break Variation ≥100%.	
alkaline resistance	N-sodium-hydroxide solution/(23±2)°C/168h	Tensile strength Variation ≤±30%.	
		Elongation at break Variation ≥100%.	
Hot pressure	(125±2)°C/4h,	tear strength ≤50%	EN 60811-1-3 9.2
Cold bend	- (40±2) °C,8D	No Crack	EN 60811-1-4 8.1
Impact test	- (25±2) °C	No Crack	EN 50305 5.1
Assessment of halogens	HCl and HBr	≤0.5%	EN50267-2-1
	HF	≤0.1%	EN 60684-2
	pH	≥4.3	EN50267-2-2
	Conductivity	≤10µS/mm	
Reaction to fire	Single vertical flame	IEC 60332-1-2	IEC 60332-1-2
	Bunched cable flame	IEC 60332-3-25	IEC 60332-3-25
	Smoke emission	>=70%	EN 61034-2
	Toxicity index	ITC ≤=3	EN 50305 9.2
Water absorption	70±2 °C x 168hrs	Weight increase ≤=15mg/cm <sup>2</sup>	EN 60811-1-3

Approval

Electronic sign off - no signatures will appear.

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