ISO/IEC 11801-3 M.I.C.E Rated Product Selection Guide

PANDUIT™

infrastructure for a connected world

ISO/IEC 11801-3 M.I.C.E Rated Product Selection Guide

When designing the physical infrastructure to support network communications in a manufacturing location, IEC 11801-3:2017 is a standard that must be considered.

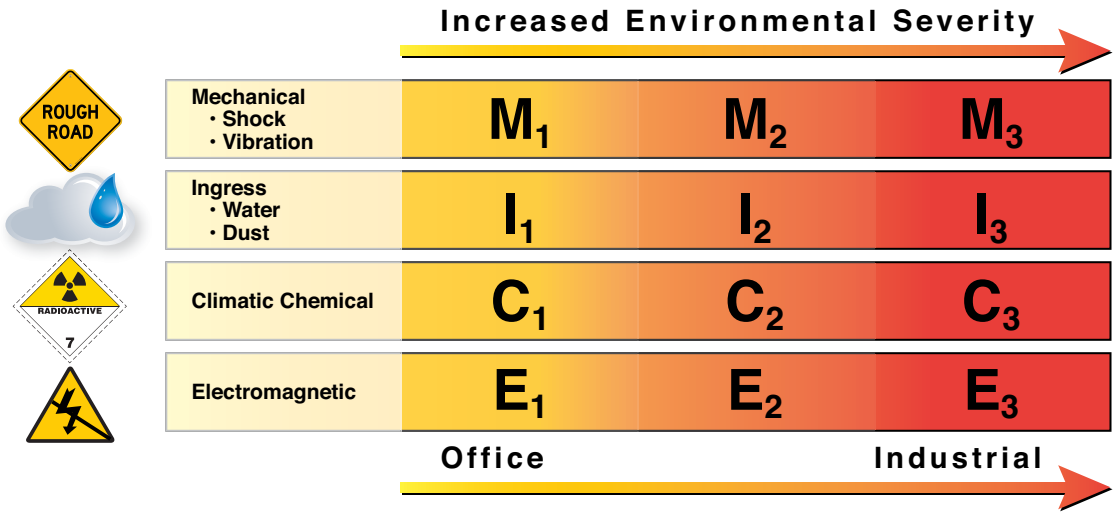
According to the IEC 11801-3:2017 standard, there are three basic types of industrial channel environments that may be classified by using any combination of the M.I.C.E scheme, for example $M_1I_2C_3E_1$. Care should be taken to accurately classify the channel environment in such a way as to allow the selection of suitable components.

For the purposes of this standard:

- $M_1I_1C_1E_1$ describes a typical environment such as that assumed within ISO/IEC 11801-1
- $M_2I_2C_2E_2$ describes a worst case light industrial environment
- $M_3I_3C_3E_3$ describes a worst case industrial environment as defined by this standard

Designing for the manufacturing environment requires an intimate knowledge of these areas to ensure the infrastructure supports the different environments found on the plant floor. Considerations such as shock and vibration, handling of water or dust, temperature, washdown areas, exposure to acids or oil mixtures and electromagnetic noise must be taken into account when selecting solutions to support these harsh environments.

Environmental classifications and ratings based on Mechanical, Ingress, Climatic/Chemical, Electro Magnetic (M.I.C.E) attributes provide a method of categorising the environmental classes required for each of the industrial areas and are rated as 1 = low, 2 = medium, and 3 = high.



Whether you are designing for the factory floor, work area or automation island, Panduit offers solutions that meet the ISO/IEC 11801-3 M.I.C.E guidelines. This selection guide provides the industrial physical infrastructure designer with detailed M.I.C.E information about each of Panduit's network products typically considered in industrial environments. For an expanded offering of level 1 parts that may be used in your industrial network, and part number specifications visit panduit.com.

For additional information on M.I.C.E ratings contact our technical support team at techsupportemea@panduit.com or call 0044-(0)208-6017219.

For more information about the ISO/IEC 11801-3 standard, visit iso.org.

LEGEND:
- **• = Acceptable for use in Environment**
- **x = Not Acceptable for use in Environment**
- **— = Not Applicable**
- **c = Contact Tech Support**

NOTE:
In the case a lower MICE rated part is needed to be used in a higher MICE rated environment please contact Tech Support for further guidance on the application.

*Tensile Connected: This aspect of environmental classification is installation specific and should be considered in association with IEC 61918 and the appropriate component specification. The 300 and 500 N numbers were used as a reference to differentiate the levels.

		MICE (Final Rating)				Detailed MICE Rating																											
						Mechanical												Ingress		Climatic/Chemical												EMI	
						M_2						M_3						I_2	I_3	C_2						C_3						E_2	E_3
						100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J				-25°C to +70°C	1, 0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm				
		M	I	C	E	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	IP 54/65	IP 67	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents		
Part Number	**Product Description**																																
Copper Cable Category 7																																	
PSMD7004WG-LED	Copper cable, MUD-resistant, Category 7, 4-pair, 22 AWG stranded, S/FTP, LSZH (IEC 60332-3), SHF2, Window Gray, Euro pallet, 500m/1640 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
PSDMA7004WG-LED	Copper cable, armored, MUD-resistant, Category 7, 4-pair, 22 AWG stranded, S/FTP, LSZH (IEC 60332-3), SHF2, Window Gray, Euro pallet, 500m/1640 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
PSM7004BU-KEM	Copper cable, Category 7, 4-pair, 23 AWG stranded, S/FTP, LSZH, Blue, Euro pallet, 1000m/3280 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
Copper Cable Category 6A																																	
ISX6X04A*-LED	Copper cable, industrial, Category 6A 4-pair, 24/7 AWG stranded, S/FTP, PUR, Euroclass Eac, 500m/1640 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
ISFCH6X04A*-UG	Copper cable, industrial, 600V, Category 6A, 4-pair, 24/7 AWG stranded, SF/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
ISFCH6X04B*-UG	Copper cable, industrial, 600V, Category 6A, 4-pair, 26/7 AWG stranded, SF/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
PUL6AV04*-EG	Copper Cable, Category 6A, Vari-MaTriX, 4-Pair, 23 AWG, U/UTP, LSZH, Euroclass Eca, White, 305m/1000 ft.	1	—	1	1	x	x	—	x	x	x							—		x	x	x	x	x	x							x	
PUY6AM04*-EG	Copper Cable, Category 6A, Vari-MaTriX, 4-Pair, 23 AWG, U/UTP, LSZH, Euroclass Cca-s1b, d1, a1, White, 305m/1000 ft.	1	—	1	1	x	x	—	x	x	x							—		x	x	x	x	x	x							x	
PUW6AV04*-EG	Copper Cable, Category 6A, Vari-MaTriX, 4-Pair, 23 AWG, U/UTP, LSZH, Euroclass B2ca-s1a, d1, a1, White, 305m/1000 ft.	1	—	1	1	x	x	—	x	x	x							—		x	x	x	x	x	x							x	
PUL6A04WH-KEG	Copper Cable, Category 6A, 4-Pair, 23 AWG, U/UTP, LSZH (IEC 60332-1), Euroclass Eca, 305m/1000 ft.	1	—	1	1	x	x	—	x	x	x							—		x	x	x	x	x	x							x	
Copper Cable Category 6																																	
ISX6004A*-LED	Copper cable, industrial, Category 6, 4-pair, 24/7 AWG stranded, S/FTP, PUR, Euroclass Eca, 500m/1640 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
IFRH6C04*-UG	Copper cable, industrial, 600V, Category 6, 4-pair, 23/1 AWG, F/UTP, CMR, Black, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
IFC6C04BBL-CEG	Copper cable, industrial, Category 6, 4-pair, 26/7 AWG, F/UTP, CM, Black, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
IUC6C04A*-CEG	Copper cable, industrial, Category 6, 4-pair, 24/7 AWG stranded, U/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
Copper Cable Category 5e																																	
ISFCH5C02A*-XG	Copper cable, industrial, Category 5e, 2-pair, 24/7 AWG stranded, SF/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
ISFCH5C04A*-XG	Copper cable, industrial, Category 5e, 4-pair, 24/7 AWG stranded, SF/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
ISFX5502A*-LED	Copper cable, industrial, Category 5e, 2-pair, 24/7 AWG stranded, SF/UTP, PUR, Euroclass Eca, 500m/1640 ft. reel.	2	—	2	2	•	•	—	•	•	•							—			•		•	c	c	•		•				•	
IFC5C04B*-CEG	Copper cable, industrial, Category 5e, 4-pair, 26/7 AWG stranded, F/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
IFRH5C02*-UG	Copper cable, industrial, 600V, Category 5e, 2-pair, 24/1 AWG solid, F/UTP, CMR, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
IFRH5C04*-UG	Copper cable, industrial, 600V, Category 5e, 4-pair, 24/1 AWG solid, F/UTP, CMR, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
IURHT5C04*-UG	Copper cable, industrial 600V PLTC, Category 5e, 4-pair, 22/1 AWG, U/UTP, CMR, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	
IUC5C04A*-CEG	Copper cable, industrial, Category 5e, 4-pair, 24/7 AWG stranded, U/UTP, CM, Euroclass Fca, 305m/1000 ft. reel.	2	—	2	2	•	•	—	•	•	•							—		-20	•		•	c	c			•				•	

* Available in multiple colors.

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		MICE (Final Rating)				Detailed MICE Rating																													
						Mechanical												Ingress		Climatic/Chemical												EMI	
						M_2						M_3						I_2	I_3	C_2						C_3						E_2	E_3		
						100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J				-25°C to +70°C	1,0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm								
		M	I	C	E	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	IP 54/65	IP 67	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents					
Part Number	**Product Description**																																		
Copper Connectivity																																			
Category 6A																																			
IAEBH6XS	IndustrialNet™, Category 6A, Shielded Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
IAEBH6X	IndustrialNet™, Category 6A, UTP Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
CJSM6X88TG	Category 6A, RJ45, 8-position, 8-wire, marine universal module.	2	1	1	2	•	•	—	x	x	—							x		x	x	x	x	x	x							•			
CJS6X88TG*Y	Category 6A, RJ45, 8-position, 8-wire, shielded, universal module.	2	1	1	2	•	•	—	x	x	—							x		x	x	x	x	x	x							•			
CJ6X88TG*	Category 6A, RJ45, 8-position, 8-wire, universal module.	1	1	1	1	x	x	x	x	x	x							x		x	x	x	x	x	x							x			
ISPS688FA	IndustrialNet™, Category 6A, 8-Position, Shielded, Field Terminable, RJ45 Modular Plug (conductor diameter 1.0 – 1.6mm).	1	1	1	2	•	•	—	x	x	—							x			x		x	x	x	•						•			
ISPS688FAS	IndustrialNet™, Category 6A, 8-Position, Shielded, Field Terminable, RJ45 Modular Plug (conductor diameter 0.85 – 1.0mm).	1	1	1	2	•	•	—	x	x	—							x			x		x	x	x	•						•			
ISPS6A88MFA	IndustrialNet™, Category 6A, Field Terminable, M12 X-Code Plug.	3	3	1	2							•	•	—	•	•	—		•	•							•	•	•	•	c	•			
IAEBHV56XS	Industrial variant 5 STP category 6A bulkhead connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
MPSIV56XT	Industrial variant 5 STP category 6A RJ45 modular plug.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
Category 6																																			
IAEBH6S	IndustrialNet™, Category 6, Shielded Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
IAEBH6	IndustrialNet™, Category 6, UTP Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
CJSM688TG	Category 6, RJ45, 8-position, 8-wire, marine universal module.	2	1	1	2	•	•	—	x	x	—							x		x	x	x	x	x	x							•			
ISJ688TG	IndustrialNet™, Category 6, Shielded Connector, for use in bulkhead assembly IAEBH6S.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
IJ688TG	IndustrialNet™, Category 6, UTP Connector, for use in bulkhead assembly IAEBH6.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
IAEBHC6	IndustrialNet™, Category 6, UTP Coupler Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
IAEBHUSBAA	IndustrialNet™, USB 2.0 Female A to Female A Coupler Module.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•				•			
Category 5e																																			
IAEBH5ES	IndustrialNet™, Category 5e, Shielded Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•							
IAEBH5E	IndustrialNet™, Category 5e, UTP Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•							
IAEBHC5E	IndustrialNet™, Category 5e, UTP Coupler Connector.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•							
MPSI588T	Category 5e, 24 AWG, shielded modular plug with bulkhead.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•							
MPI588T	Category 5e, 24 AWG, shielded modular plug with bulkhead.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•							
ISPS5E44MFA	IndustrialNet™, Category 5e, M12 D-Code, Field Terminable Modular Plug.	3	3	1	2							•	•	—	•	•	—		•	•							•	•	•	•	c	•			

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(continued)

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		MICE (Final Rating)				Detailed MICE Rating																									
						Mechanical												Ingress		Climatic/Chemical										EMI	
						M_2						M_3						I_2	I_3	C_2						C_3					
						100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J				-25°C to +70°C	1,0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm			E_2	E_3
		M	I	C	E	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	IP 54/65	IP 67	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents		
Part Number	**Product Description**																														
Copper Connectivity (continued)																															
USB																															
IAPCMUSBAA*	Industrial Mini-Com™ USB 2.0 Female A/Female A Coupler.	1	1	1	1	x	x	—	x	x	—							x		x	x	x	x	x	x						x	
M12 Adapters																															
ICAM12DRJS	IndustrialNet™, M12 D-Code Female to RJ45 Jack, Panel Mount Adapter.	1	1	1	2	•	•	—	x	x	—							x	x	•	•	x	•	c	c						•	
ICAM12XRJS	IndustrialNet™, M12 X-Code Female to RJ45 Jack, Panel Mount Adapter	1	1	1	2	•	•	—	x	x	—							x	x	•	•	x	•	c	c						•	
ICAM12X90RJS	IndustrialNet™, M12 X-Code, Female to 90° RJ45 Jack, Panel Mount Adapter.	1	1	1	2	•	•	—	x	x	—							x	x	•	•	x	•	c	c						•	
Connectivity Accessories																															
ISPS688FAS-WM	Category 6A replacement wire managers for RJ45 plug for use with ISPS688FAS.	—	—	—	—	—	—	—	—	—	—							—		—	—	—	—	—	—						—	
ISPS688FA-WM	Category 6A replacement wire managers for RJ45 plug for use with ISPS688FA.	—	—	—	—	—	—	—	—	—	—							—		—	—	—	—	—	—						—	
IAEBHV5C	Industrial variant 5 bulkhead connector cap.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
MPIV5C	Industrial variant 5 bulkhead modular plug cap.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
Copper Patch Cords																															
Category 6A																															
ISTP6X**	IndustrialNet™, Category 6A, Shielded, Patch Cord with Caps.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
ISTP6XR**	IndustrialNet™, Category 6A, Shielded, Patch Cord Hybrid with Cap.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
UTP6AL***	Category 6A, 10 Gb/s, UTP, LSZH patch cord with TX6A™ 10Gig™ Modular Plugs on each end.	1	1	1	1	x	x	x	x	x	x							x		x	x	x	x	x	x						x	
UTP28X***	Category 6A Performance, 28AWG, UTP CM/LSZH patch cord with modular plugs on each end.	1	1	1	1	x	x	x	x	x	x							x		x	x	x	x	x	x						x	
ICX^	IndustrialNet™, Category 6A, M12 X-Code, Overmolded Cordsets.	3	3	2	2							•	•	—	•	•	•		•		•		•	c	c	•		•			•	
Category 6																															
ISTPSP**	IndustrialNet™, Category 6, Shielded, Stranded Patch Cord with Caps.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
ISTPSPNC**	IndustrialNet™, Category 6, Shielded, Stranded Patch Cord.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
IUTPSP**	IndustrialNet™, Category 6, UTP, Stranded Patch Cord with Caps.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
IUTPSPNC**	IndustrialNet™, Category 6, UTP, Stranded Patch Cord.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
Category 5e																															
ISTPCHY**	IndustrialNet™, Category 5e, Shielded, Stranded Patch Cord with Caps.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
ISTPCHNCY**	IndustrialNet™, Category 5e, Shielded, Stranded Patch Cord.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
ISTPHCH**	IndustrialNet™, Category 5e, Shielded, 600V, Patch Cord.	1	1	1	2	•	•	—	x	x	•							x		-20	x	x	x	x	x						•	
IUTPCHY**	IndustrialNet™, Category 5e, UTP, Stranded Patch Cord with Caps.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
IUTPCHNCY**	IndustrialNet™, Category 5e, UTP, Stranded Patch Cord.	3	3	2	2							•	•	—	•	•	•		•	-20	•		•	c	c			•			•	
ICD^	IndustrialNet™, Category 5e, M12 D-Code, Overmolded Cordsets.	3	3	2	2							•	•	—	•	•	•		•		•		•	c	c	•		•			•	

* Available in multiple colors. ** Available in multiple lengths. *** Available in multiple colors and lengths. **** Available in muliple colors and fiber counts. ^Available in multiple configurations and lengths.

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						Mechanical												Ingress		Climatic/Chemical												EMI	
						M_2						M_3						I_2	I_3	C_2						C_3						E_2	E_3
		M	I	C	E	100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J		IP 54/65	IP 67	-25°C to +70°C	1,0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm				
						shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion			operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents		
Fiber Distribution Cable																																	
FSAD9* **	Fiber indoor DCF cable, riser (OFNR), LSZH-3 (60332-3), EuroClass Fca, 9µm singlemode OS2.	1	—	1	3	•	•	•		x	•				•			—		x	•		•	c	c			•					•
FOADZ* **	Fiber indoor DCF cable, riser (OFNR), LSZH-3 (60332-3), EuroClass Fca, 50µm multimode OM4.	1	—	1	3	•	•	•		x	•				•			—		x	•		•	c	c			•					•
FSAD9* **	Fiber indoor DCF cable, riser (OFNR), LSZH-3 (60332-3), EuroClass Fca, 9µm singlemode OS2.	1	—	1	3	•	•	•		x	•				•			—		x	•		•	c	c			•					•
FADC5*-37**	Fiber indoor distribution cable, riser (OFNR), EuroClass Dca-s2,d2,a1, 50µm singlemode OM2.	1	—	2	3	•	•	•		x	•				•			—		-20	•		•	c	c			•					•
FAGC50*-40**	Fiber indoor-outdoor armored central tube cable, EuroClass Eca, 50µm OM2 250µm fibres.	2	—	2	3	•	•			x	•			•	•			—			•		•	c	c	•		•					•
FAGC60*-40**	Fiber indoor-outdoor armored central tube cable, EuroClass Eca, 62.5µm OM1 250µm fibres.	1	—	2	3	•	•			x	•			•	•			—			•		•	c	c	•		•					•
FAGC90*-40**	Fiber indoor-outdoor armored central tube cable, EuroClass Eca, 9µm OM2 250µm fibres.	1	—	2	3	•	•			x	•			•	•			—			•		•	c	c	•		•					•
FAGCX0*-40**	Fiber indoor-outdoor armored central tube cable, EuroClass Eca, 50µm OM3 250µm fibres.	1	—	2	3	•	•			x	•			•	•			—			•		•	c	c	•		•					•
FAGCZ0*-40**	Fiber indoor-outdoor armored central tube cable, EuroClass Eca, 50µm OM4 250µm fibres.	1	—	2	3	•	•			x	•			•	•			—			•		•	c	c	•		•					•
FCCSR10BL	DCF (Dielectric Conduited Fiber) cable strain relief.	—	—	—	—	—	—	—	—	—	—							—		—	—	—	—	—	—			•				—	
Fiber Connectivity																																	
IAEF7JMA	IndustrialNet™ LC Duplex Fiber Optic Bulkhead Adapter.	—	3	2	3							•	•	—	•	•	•		•	-20	•		•	c	c								•
CMSAQSCBL	Module supplied with one SC OM3/OM4 simplex multimode Fiber Optic Adapter (AQ) with phosphor bronze split sleeve.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
CMSBUSCZBU	Module supplied with one SC simplex singlemode fiber optic adapter (BU) with zirconia ceramic split sleeve.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
CMDSBLLCBL	Duplex LC Fiber Adapter (BL) with Module (BL) phosphor bronze split sleeve.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
CMDSAQLCBL	Duplex LC Fiber Adapter (AQ) with Module (BL) phosphor bronze split sleeve.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
CMDSLCZBU	Duplex LC Fiber Adapter (BU) with Module (BU) zirconia ceramic split sleeve.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
FSCMC5BL	SC 50/125µm multimode simplex connector for 900µm tight-buffered fiber installation.	1	1	1	3	x	x	x	—	—	—							x		x	x	x	x	x	x								•
FLCSMC5BLY	Pre-Polished LC Simplex OptiCam™ Style OM2 Connector, Natural housing with 900µm Black boot.	1	1	1	3	x	x	x	—	—	—							x		x	x	x	x	x	x								•
FLCDMCXAQY	LC OptiCam™ OM3/OM4 10Gig™ 50/125µm multimode duplex fiber optic connector, intended for 900-micron tight-buffered fiber installations, Aqua.	1	1	1	3	x	x	x	—	—	—							x		x	x	x	x	x	x								•
FSCDMCXAQ	SC multimode duplex fiber optic connector for 900µm tight buffered cable installation, Aqua.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
FSCSCBU	SC 9/125µm singlemode simplex connector for 900µm tight-buffered fiber installation.	1	1	1	3	x	x	x	—	—	—								x	x	x	x	x	x	x								•
FLCDM900BLY	Field polish LC duplex pot and polish style OM2/OM3/OM4 connector, Black housing with 900µm Black boot.	1	1	1	3	x	x	x	x	x	x								x	x	x	x	x	x	x								•

* Available in multiple colors. ** Available in multiple lengths. *** Available in multiple colors and lengths. **** Available in multiple colors and fiber counts.

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		MICE (Final Rating)				Detailed MICE Rating																											
						Mechanical												Ingress		Climatic/Chemical												EMI	
						M_2						M_3						I_2	I_3	C_2						C_3						E_2	E_3
		M	I	C	E	100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J		IP 54/65	IP 67	-25°C to +70°C	1,0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm				
						shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion			operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents		
Part Number	**Product Description**																																
Fiber Patch Cords and Pigtails																																	
IAEF617P-7PM**	Industrial LC to LC multimode duplex patch cord – 62.5/125µm.	3	3	2	3							•	•	—	•	•	•		•	-20	•		•	c	c			•				•
IAEF617P-NM**	Industrial LC to pigtail multimode duplex pigtail – 62.5/125µm.	3	3	2	3							•	•	—	•	•	•		•	-20	•		•	c	c			•				•
F52ERLNSNSNM***	OM2, 2 fiber, 16mm jacket, patch cord, Riser (OFNR) rated, LC duplex to SC duplex, Std. IL.	1	1	1	3	x	x	x	x	x	x							x		-20	x	x	x	x	x							•	
FX2ELLNLNSNM***	OM3, 2 fiber, 16mm jacket patch cord, low smoke zero halogen (LSZH) rated, LC duplex to LC duplex, Std. IL, 2 meters.	1	1	1	3	x	x	x	x	x	x							x		x	x	x	x	x	x							•	
F523LSNSNSNM***	OM2, 2 fiber, 3mm jacket, patch cord, low smoke zero halogen (LSZH) rated, SC duplex to SC duplex, Std. IL.	1	1	1	3	x	x	x	x	x	x							x		x	x	x	x	x	x							•	
FX23LSNSNSNM***	OM3, 2 fiber, SC duplex to SC duplex patch cord, 3mm jacket, low smoke zero halogen (LSZH) rated, Std. IL.	1	1	1	3	x	x	x	x	x	x							x		x	x	x	x	x	x							•	
F51BN3NNNSNM***	OM2, 1 fiber, SC to pigtail, 900µm buffered fiber, patch cord, no jacket, (one SC connector on one end and open on the other end) Std. IL, 1 meter.	1	1	1	3	x	x	x	x	x	x							x		-20	x	x	x	x	x							•	
FX1BN3NNNSNM***	OM3, 1 fiber, SC to pigtail, 900µm buffered fiber, patch cord, no jacket, (one SC connector on one end and open on the other end) Std. IL, Aqua, 1 meter.	1	1	1	3	x	x	x	x	x	x							x		-20	x	x	x	x	x							•	
F51BN1NNNSNM***	OM2, 1 fiber, 900µm buffered fiber, LC to pigtail multimode simplex pigtail, (one LC connector on one end and open on the other end) 1 meter.	1	1	1	3	x	x	x	x	x	x							x		-20	x	x	x	x	x							•	
FX1BN1NNNSNM***	OM3, 1 fiber, 900µm buffered fiber, LC to pigtail multimode simplex pigtail, (one LC connector on one end and open on the other end) 1 meter.	1	1	1	3	x	x	x	x	x	x							x		-20	x	x	x	x	x							•	
Pre-Configured Micro Data Center																																	
MDC48D	Pre-configured micro data center, 24 RU, includes two side panels, network cabling, patch panels, cable management, grounding, casters, shock pallet and ramp.	1	1	c	2	x	x	—	—	x	—							x		x	x	x	x	x	x							•	
MDC79	Pre-configured micro data center, 42 RU, includes two side panels, network cabling, patch panels, cable management, grounding, and casters.	1	1	c	2	x	x	—	—	x	—							x		x	x	x	x	x	x							•	
MDC79D	Pre-configured micro data center, 42 RU, includes two side panels, network cabling, patch panels, cable management, grounding, casters, shock pallet and ramp.	1	1	c	2	x	x	—	—	x	—							x		x	x	x	x	x	x							•	
Pre-Configured Industrial Distribution Frames																																	
ZDF242430	Pre-configured industrial distribution frame enclosure, 12U, ready for two access or two distribution switches.	1	2	c	—	x	x	—	—	x	—							•		x	•	•	•	•	•							—	
ZDF242430-6	Pre-configured industrial distribution frame enclosure, 12U, 316 stainless steel, ready for two access or two distribution switches.	1	2	c	—	x	x	—	—	x	—							•		x	•	•	•	•	•							—	
ZDF48-EA	Pre-configured industrial distribution frame enclosure ready for two access and two distribution switches.	1	2	c	—	x	x	—	—	x	—							•		x	•	•	•	•	•							—	
ZDF48-6EA	Pre-configured industrial distribution frame enclosure, 316 stainless steel, ready for two access and two distribution switches.	1	2	c	—	x	x	—	—	x	—							•		x	•	•	•	•	•							—	
Network Zone System																																	
610mm x 610mm (24" x 24") Enclosures – Category 6A Connectivity and Fiber Uplink Patch Cords and Adaptors																																	
Z22C-S^^S	Pre-configured network zone system, 610mm x 610mm (24" x 24") enclosure, for two industrial switches, includes (8) Category 6A STP copper patch cords and jacks, (2) MM LC fiber patch cords with (6) LC adaptors, backplane and cable management.	1	2	1	2	x	x	—	—	x	—							•		x	•	•	•	•	•							•	
Z22U-S^^14S	Universal network zone system, 610mm x 610mm (24" x 24") enclosure, for one industrial switch, includes (8) Category 6A STP copper patch cords and jacks, (2) MM LC fiber uplink patch cords with (6) adaptors and redundant power supplies.	1	2	c	2	x	x	—	—	x	—							•		x	•	•	•	•	•							•	
Z22U-S^^15S	Universal network zone system, 610mm x 610mm (24" x 24") enclosure, for one industrial switch, includes (8) Category 6A STP copper patch cords and jacks, (2) MM LC fiber uplink patch cords with (6) adaptors, redundant power supplies and maintenance-free UPS.	1	2	c	2	x	x	—	—	x	—							•		x	•	•	•	•	•							•	

***Available in multiple colors and fiber counts. ^^ Enclosures available in mild steel, stainless steel or sloped versions. Replace ^^ in part number with S for mild steel, 6 for stainless steel and F for sloped top versions.

(continued)

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		MICE (Final Rating)				Detailed MICE Rating																											
						Mechanical												Ingress		Climatic/Chemical												EMI	
						M_2						M_3						I_2	I_3	C_2						C_3						E_2	E_3
						100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J				-25°C to +70°C	1,0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm				
		M	I	C	E	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion	IP 54/65	IP 67	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents		
Part Number	**Product Description**																																
Network Zone System (continued)																																	
610mm x 610mm (24" x 24") Enclosures – Category 6 Connectivity and Fiber Uplink Patch Cords and Adaptors																																	
Z22C-S^^	Pre-configured network zone system, 610mm x 610mm (24" x 24") steel enclosure, for two industrial switches, includes (8) Category 6 UTP copper patch cords and jacks, (2) MM LC fiber patch cords with (6) LC adaptors, backplane and cable management.	1	2	1	1	x	x	—	—	x	—							•		x	•	•	•	•	•							x	
Z22U-S^^14	Universal network zone system, 610mm x 610mm (24" x 24") steel enclosure, for one industrial switch, includes (8) Category 6 UTP copper patch cords and jacks, (2) MM LC fiber uplink patch cords with (6) adaptors and redundant power supplies.	1	2	c	1	x	x	—	—	x	—							•		x	•	•	•	•	•							x	
Z22U-S^^15	Universal network zone system, 610mm x 610mm (24" x 24") steel enclosure, for one industrial switch, includes (8) Category 6 UTP copper patch cords and jacks, (2) MM LC fiber uplink patch cords with (6) adaptors, redundant power supplies and maintenance-free UPS.	1	2	c	1	x	x	—	—	x	—							•		x	•	•	•	•	•							x	
610mm x 914mm (24" x 36") Enclosures – Category 6A Connectivity and Fiber Uplink Patch Cords and Adaptors																																	
Z23U-S^^24S	Universal network zone system, 610mm x 914mm (24" x 36") steel enclosure, for two industrial switches, includes (16) Category 6A STP copper patch cords and jacks, (4) MM LC fiber uplink patch cords with (6) adaptors and redundant power supplies.	1	2	c	2	x	x	—	—	x	—							•		x	•	•	•	•	•							•	
Z23U-S^^25S	Universal network zone system, 610mm x 914mm (24" x 36") steel enclosure, for two industrial switches, includes (16) Category 6A STP copper patch cords and jacks, (4) MM LC fiber uplink patch cords with (6) adaptors, redundant power supplies and (2) maintenance-free UPS.	1	2	c	2	x	x	—	—	x	—							•		x	•	•	•	•	•							•	
610mm x 914mm (24" x 36") Enclosures – Category 6 Connectivity and Fiber Uplink Patch Cords and Adaptors																																	
Z23C-S^^	Pre-configured network zone system, 610mm x 914mm (24" x 36") steel enclosure, for two industrial switches, includes (16) Category 6 UTP copper patch cords and jacks, (4) MM LC fiber patch cords with (6) adaptors, backplane and cable management.	1	2	1	1	x	x	—	—	x	—							•		x	•	•	•	•	•							x	
Z23C-S^^S	Pre-configured network zone system, 610mm x 914mm (24" x 36") steel enclosure, for two industrial switches, includes (16) Category 6A STP copper patch cords, (4) MM LC fiber patch cords with (6) adaptors, backplane and cable management.	1	2	1	2	x	x	—	—	x	—							•		x	•	•	•	•	•							•	
Z23U-S^^24	Universal network zone system, 610mm x 914mm (24" x 36") enclosure, for two industrial switches, includes (16) Category 6 UTP copper patch cords and jacks, (4) MM LC fiber uplink patch cords with (6) adaptors and redundant power supplies.	1	2	c	1	x	x	—	—	x	—							•		x	•	•	•	•	•							x	
Z23U-S^^25	Universal network zone system, 610mm x 914mm (24" x 36") enclosure, for two industrial switches, includes (16) Category 6 UTP copper patch cords and jacks, (4) MM LC fiber uplink patch cords with (6) adaptors, redundant power supplies and (2) maintenance-free UPS.	1	2	c	1	x	x	—	—	x	—							•		x	•	•	•	•	•							x	
Wireless Access Point Enclosures																																	
PZNWE12S	Wireless enclosure designed for Power over Ethernet applications. Includes shielded connectivity kit. External dimensions: 344.4mm H x 342.1mm W x 166.6mm D. Internal dimensions: 297.2mm H x 297.2mm W x 159.8mm D.	1	2	1	2	x	x	—	—	x	—							•		x	x	x	x	x	x							•	
PZNWE14S	Wireless enclosure designed for traditional AC power applications. Includes shielded connectivity kit. External dimensions: 393.7mm H x 342.9mm W x 158.8mm D. Internal dimensions: 343.7mm H x 293.4mm W x 150.9mm D.	1	2	1	2	x	x	—	—	x	—							•		x	x	x	x	x	x							•	

^^ Enclosures available in mild steel, stainless steel or sloped versions. Replace ^^ in part number with S for mild steel, 6 for stainless steel and F for sloped top versions.

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		MICE (Final Rating)				Detailed MICE Rating																											
						Mechanical												Ingress		Climatic/Chemical												EMI	
						M_2						M_3						I_2	I_3	C_2						C_3						E_2	E_3
		M	I	C	E	100 ms-1	7mm/20ms-1	300N	1100N/150mm	10J		250 ms-1	15mm/50 ms-1	2	2200N/150mm	30J		IP 54/65	IP 67	-25°C to +70°C	1,0 °C/min	See C3	< 5,0 ppm			-40°C to +70°C	3,0 °C/min	1120 W/m²	< 500 ppm				
						shock	vibration	*Tensile Connected	compression	impact resistance	torsion	shock	vibration	*Tensile Connected	compression	impact resistance	torsion			operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents	operation temp.	temp. change	sun radiation	oil resistance	res. liquid chemicals	res. gaseous agents		
Part Number	**Product Description**																																
DIN Rail Mount and Fiber Uplink Kits																																	
FDME8RG	IndustrialNet™, 8-port, DIN Rail Fiber Optic Enclosure.	1	1	1	3	—	x	—	x	x	—							x		x	x	x	x	x	x								•
CADIN1*	1-port, DIN rail mount adapter with label.	—	1	—	—	—	—	—	—	—	—							x		—	—	—	—	—	—							—	
CDPP8RG	IndustrialNet™ 8-port DIN Rail Mount Copper Patch Panel, RG.	—	—	1	1	x	x	—	x	x	—							—		x	x	x	x	x	x							x	
IAEFKSC	Industrial Ethernet enclosure fiber uplink kit – SC to MT/RJ.	—	2	1	—	—	—	—	—	—	—							•		x	—	—	—	—	—							—	
IAEFKSP	Industrial Ethernet enclosure fiber uplink splice kit – MT-RJ or SC.	—	2	1	—	—	—	—	—	—	—							•		x	—	—	—	—	—							—	•
Uninterruptible Power Supply																																	
UPS00100DC	Uninterruptible Power Supply (UPS), 100 Watts, 24-48 VDC in/out, DIN rail mount.	1	1	1	—	—	—	—	—	—	—							—		—	—	—	—	—	—							—	
UPS003LSM	UPS load sense module.	1	1	1	—	—	—	—	—	—	—							—		—	—	—	—	—	—							—	
Data Access Port and Accessories																																	
IAPNG5EWH	Category 5e, IndustrialNet™ Data Access Port.	—	2	1	—	x	x	—	x	x	—							x		x	x	x	x	x	x							—	
IAPHF2MWH-X	Mini-Com™, 2-Position 1/3-Size Insert.	—	—	—	—	—	—	—	—	—	—							—		—	—	—	—	—	—							—	
IAPCMBWH-X	Mini-Com™, 1-port, Blank Module Insert for use with IndustrialNet™ Data Access Port.	—	—	—	—	—	—	—	—	—	—							—		—	—	—	—	—	—							—	
IAPHB2MWH-X	Mini-Com™, 1/3-size, Flat Insert, for use with IndustrialNet™ Data Access Port.	1	1	1	1	x	x	—	x	x	—							x		x	x	x	x	x	x							x	
IAPHD15HDCWH	15-pin, high-density female/female D-subminiature coupler, 1/3-size insert, for use with IndustrialNet™ Data Access Port.	1	1	1	1	x	x	—	x	x	—							x		x	x	x	x	x	x							x	
IAPHD15HDSCWH	15-pin, high-density, field terminated, D-subminiature Coupler in 1/3-size insert, for use with IndustrialNet™ Data Access Port.	1	1	1	1	x	x	—	x	x	—							x		x	x	x	x	x	x							x	
IAPHD9CWH	9-pin, female/female, D-subminiature coupler in 1/3-size insert, for use with IndustrialNet™ Data Access Port.	1	1	1	1	x	x	—	x	x	—							x		x	x	x	x	x	x							x	
Faceplates																																	
IAEFP1	Vertical, stainless steel, single gang faceplate accepts one IndustrialNet™ Bulkhead Connector or Adapter.	—	3	—	—	—	—	—	—	—	—								•	—	—	—	—	—	—							—	
IAEFP2-2G	Vertical, stainless steel, double gang faceplate accepts two IndustrialNet™ Bulkhead Connectors or Adapters.	—	3	—	—	—	—	—	—	—	—								•	—	—	—	—	—	—							—	
Zone Cabling Accessories																																	
PZNDVK	Zone cabling drain and vent kit, NEMA 4X rating.	—	3	—	—	—	—	—	—	—	—								•	—	—	—	—	—	—							—	
PZNF1	Zone cabling compression fitting, NEMA 6P cable diameter 2.92mm – 6.4mm (0.115-0.250").	—	2	—	—	—	—	—	—	—	—							•		—	—	—	—	—	—							—	
PZNF2	Zone cabling compression fitting, NEMA 6P cable diameter 6.4mm – 10mm (0.230-0.395").	—	2	—	—	—	—	—	—	—	—							•		—	—	—	—	—	—							—	
PZNF3	Zone cabling compression fitting, NEMA 6P cable diameter 4.3mm – 11.4mm (0.170-0.450").	—	2	—	—	—	—	—	—	—	—							•		—	—	—	—	—	—							—	

* Available in multiple colors.

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