

TIA-1005-A M.I.C.E Rated Product Selection Guide



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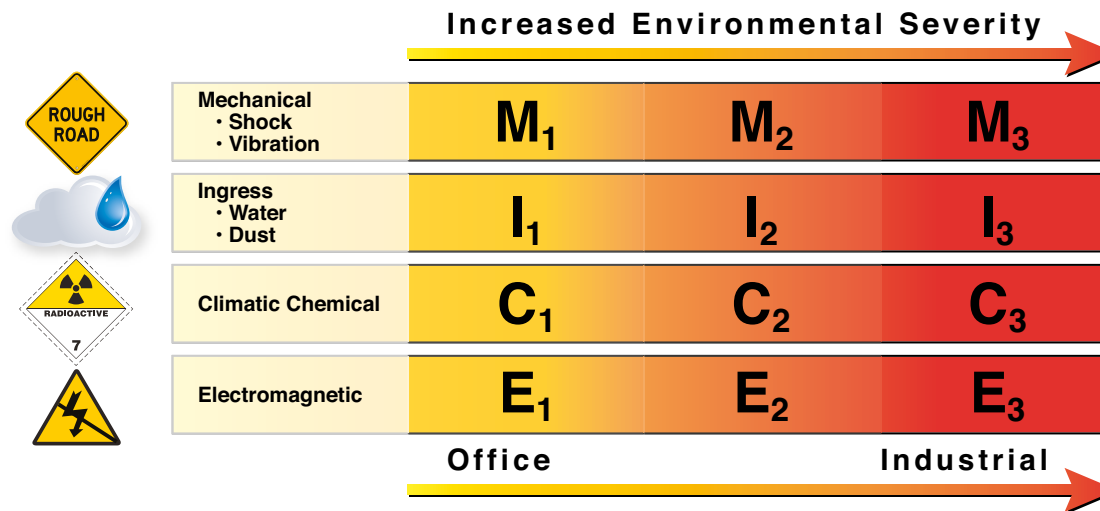
When designing the physical infrastructure to support network communications in a manufacturing location, TIA-1005-A is a standard that must be considered.

According to the TIA-1005-A standard, there are three basic types of industrial areas:

- Factory Floor
- Work Area
- Automation Island

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 categorizing 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 TIA-1005-A 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, visit panduit.com/networkpartsamerica or the online catalog at panduit.com.

For additional information on M.I.C.E ratings contact our technical support team at techsupport@panduit.com or call 800-777-3300.

For more information about the TIA-1005-A standard, visit tiaonline.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			
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		
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/m ²	< 500 ppm				
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, 1640 ft./500m reel.																										
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, 1640 ft./500m reel.																										
PSM7004BU-KEM	Copper cable, Category 7, 4-pair, 23 AWG, S/FTP, LSZH, Blue, Euro pallet, 3280 ft./1000m reel.																										
Category 6A																											
ISX6X04A*-LED	Copper cable, industrial, Category 6A 4-pair, 24/7 AWG stranded, S/FTP, PUR, 1640 ft./500m reel.																										
ISFCH6X04A*-UG	Copper cable, industrial, 600V, Category 6A, High Flex, 4-pair, 24/7 AWG stranded, SF/UTP, CM, 1000 ft./305m reel.																										
ISFCH6X04B*-UG	Copper cable, industrial, 600V, Category 6A, High Flex, 4-pair, 26/7 AWG stranded, SF/UTP, CM, 1000 ft./305m reel.																										
PUP6AV04*-G	Copper cable, Category 6A, 4-pair, 23 AWG stranded, UTP, CMP, 1,000 ft./305m reel.																										
Category 6																											
ISX6004A*-LED	Copper cable, industrial, Category 6, 4-pair, 24/7 AWG stranded, S/FTP, PUR, 1640 ft./500m reel.																										
IFRH6C04*-UG	Copper cable, industrial, 600V, Category 6, 4-pair, 23/1 AWG, F/UTP, CMR, Black, 1000 f.t./305m reel.																										
IUC6C04A*-CEG	Copper cable, industrial, Category 6, 4-pair, 24/7 AWG stranded, U/UTP, CM, 1000 ft./305m reel.																										
Category 5e																											
ISFCH5C02A*-XG	Copper cable, industrial 600V, Category 5e, High Flex, 2-pair, 24/7 AWG stranded, SF/UTP, CM, 1000 ft./305m reel.																										
ISFCH5C04A*-XG	Copper cable, industrial 600V, Category 5e, High Flex, 4-pair, 24/7 AWG stranded, SF/UTP, CM, 1000 ft./305m reel.																										
ISFX5502A*-LED	Copper cable, industrial, Category 5e, 2-pair, 24/7 AWG stranded, SF/UTP, PUR, 1640 ft./500m reel.																										
IFC5C04B*-CEG	Copper cable, industrial, Category 5e, 4-pair, 26/7 AWG stranded, F/UTP, CM, 1000 ft./305m reel.																										
IFRH5C02*-UG	Copper cable, industrial, 600V, Category 5e, 2-pair, 24/1 AWG solid, F/UTP, CMR, 1000 ft./305m reel.																										
IFRH5C04*-UG	Copper cable, industrial, 600V, Category 5e, 4-pair, 24/1 AWG solid, F/UTP, CMR, 1000 ft./305m reel.																										
IURHT5C04*-UG	Copper cable, industrial 600V PLTC, Category 5e, 4-pair, 22/1 AWG, U/UTP, CMR, 1000 ft./305m reel.																										
IUC5C04A*-CEG	Copper cable, industrial, Category 5e, 4-pair, 24/7 AWG stranded, U/UTP, CM, 1000 ft./305m reel.																										

*Available in multiple colors.

		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									
LEGEND:		NOTE:		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			
● = Acceptable for use in Environment		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.		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/m ²	< 500 ppm					
x = Not Acceptable for use in Environment		*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.																														
– = Not Applicable																																
c = Contact Tech Support																																
Part Number	Product Description	M	I	C	E																											
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
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																																
ISTPH6X0.3TL	IndustrialNet™, Category 6A Shielded, 600V, Patch Cord. Additional lengths available, replace 0.3 with 0.6, 1M, 1.5M, 2M, 2.5M, 3M, 3.5M, 4M, 4.5M, 5M, 7M, or 10M.	1	1	1	2	•	•	–	x	x	•							x		x	x	x	x	x	x							•
ISTP6X**	IndustrialNet™, Category 6A, Shielded, Patch Cord with Caps.	3	3	2	2							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				•
ISTP6X**R	IndustrialNet™, Category 6A, Shielded, Patch Cord Hybrid with Caps.	3	3	2	2							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				•
UTP6A***	Category 6A, UTP patch cord.	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																																
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	1							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				x
IUTPSPNC**	IndustrialNet™, Category 6, UTP, Stranded Patch Cord.	3	3	2	1							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				x
Category 5e																																
ISTPCH**Y	IndustrialNet™, Category 5e, Shielded, Stranded Patch Cord with Caps.	3	3	2	2							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				•
ISTPCHNC**Y	IndustrialNet™, Category 5e, Shielded, Stranded Patch Cord.	3	3	2	2							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				•
IUTPCH**Y	IndustrialNet™, Category 5e, UTP, Stranded Patch Cord with Caps.	3	3	2	1							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				x
IUTPCHNC**Y	IndustrialNet™, Category 5e, UTP, Stranded Patch Cord.	3	3	2	1							•	•	–	•	•	•	•	•	–20	•		•	c	c			•				x
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 multiple colors and fiber counts. ^Available in multiple configurations and lengths.

		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				
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		
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/m ²	< 500 ppm				
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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	–																●
CADIN1*	1-port, DIN rail mount adapter with label.	–	1	–	–	–	–	–	–	–	–																–
CDPP8RG	IndustrialNet™ 8-Port DIN Rail Mount Copper Patch Panel, RG.	–	–	1	1	x	x	–	x	x	–																x
IAEFKSC	Industrial Ethernet enclosure fiber uplink kit – SC to MT/RJ.	–	2	1	–	–	–	–	–	–	–																–
IAEFKSP	Industrial Ethernet enclosure fiber uplink splice kit – MT-RJ or SC.	–	2	1	–	–	–	–	–	–	–																– ●
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	–																–
IAPHF2MWH-X	Mini-Com®, 2-Position 1/3-Size Insert for use with IndustrialNet™ Data Access Port.	–	–	–	–	–	–	–	–	–	–																–
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
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
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
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
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 0.115-0.250" (2.92mm-6.4mm).	–	2	–	–	–	–	–	–	–	–																–
PZNF2	Zone cabling compression fitting, NEMA 6P cable diameter 0.230-0.395" (6.4mm-10mm).	–	2	–	–	–	–	–	–	–	–																–
PZNF3	Zone cabling compression fitting, NEMA 6P cable diameter 0.170-0.450" (4.3mm-11.4mm).	–	2	–	–	–	–	–	–	–	–																–

*Available in multiple colors.



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