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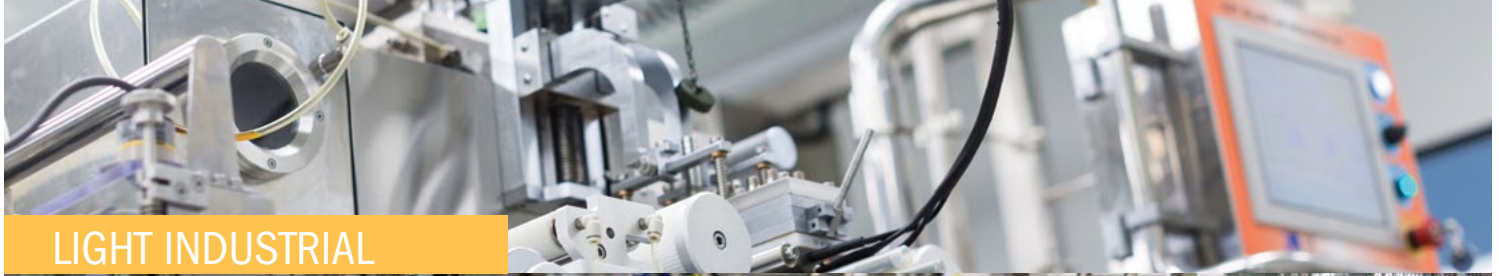
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ENVIRONMENTS
by **WireXpress**

**INDUSTRIAL
NETWORKING
PRODUCT
SELECTION GUIDE**

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Environments by WireXpress is a simple product selection guide for industrial networking. Selecting the right cabling infrastructure for an industrial environment can be very difficult for most of your customers because translating TIA-1005, the MICE tables and NEMA ratings into a bill of materials is complicated if not impossible.


Technology and environment are the two main considerations your customers take into account when designing an industrial network. When weighing factors such as redundancy, mean time to failure and network topology, new technologies allow them to create a robust and resilient industrial network infrastructure. However, industrial networks also need to be planned and built for rugged applications and environmental conditions.

Environments by WireXpress uses technology and environmental requirements to simplify product choices and deliver performance, scalability and reliability for mission-critical systems


Environments Defined



Office
Office is a controlled area located inside an industrial facility where cabling components are secured from physical damage and protected from harsh or industrial environments.
This environment is typically located inside a climate-controlled area where the connecting and reconnecting of cables and patch cords is infrequent. These areas can include industrial offices, control rooms and environmentally controlled enclosures.



Light Industrial
Light industrial is located inside an industrial facility where cabling and components are subjected to more extreme ambient temperatures, humidity and potential damage.
This environment is typically located inside a light industrial facility where machines and devices require occasional connection and reconnection for maintenance and movement. These areas could include assembly, dry packaging, warehouses and enclosed cabinets.



Harsh Industrial
Harsh industrial is located in a harsh industrial area where cabling and components are exposed to oil, solvents, cleaning agents, lubricants, water, wide varying temperatures, humidity and dust.
This environment can be subject to wash downs, heavy vibrations and occasional forces of shock. Machine operators frequently connect and reconnect plugs and receptacles to move, clean or maintain equipment. These areas could include automation islands, robotics, welding, heavy machining, industrial equipment and exposed environments.

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ENVIRONMENTS: INDUSTRIAL ETHERNET CABLE

Use the chart below to find the right industrial Ethernet cable for your environment. Locate the cable type, desired color and whether you want a plenum or nonplenum cable. Then, choose the appropriate level for your environment. For more information on how the Environments are determined, see the "Industrial Ethernet Cables Applicable Selection Criteria" page in the back of this catalog.



Cable Type	Color	Plenum or Nonplenum	Office	Light industrial	Harsh industrial	Solid or Stranded	Unshielded or Shielded
Cat 5e 10/100	Blue	Nonplenum	L1-5E-SOL-UTP-06	---	---	Solid	Unshielded
		Plenum	---	---	---	Solid	Unshielded
	White	Nonplenum	L1-5E-SOL-UTP-01	---	---	Solid	Unshielded
		Plenum	L1-5E-SOL-UTP-P-01	---	---	Solid	Unshielded
	Black	Nonplenum	---	L2-5E-SOL-UTP-02	L3-5E-SOL-UTP-02	Solid	Unshielded
Modifiers to Cat 5e							
EMI (Shielded)	Blue	Nonplenum	L1-5E-SOL-SHLD-06	---	---	Solid	Unshielded
		Plenum	L1-5E-SOL-HLD-P-06	---	---	Solid	Unshielded
	Black	Nonplenum	---	L2-5E-SOL-SHLD-02	L3-5E-SOL-SHLD-02	Solid	Shielded
Flexibility (Stranded)	Black	Nonplenum	---	L2-5E-STR-UTP-02	L3-5E-STR-UTP-02	Stranded	Unshielded
EMI & Flexibility (Shielded & Stranded)	Black	Nonplenum	---	L2-5E-STR-SHLD-02	L3-5E-STR-SHLD-02	Stranded	Shielded

Cable Type	Color	Plenum or Nonplenum	Office	Light industrial	Harsh industrial	Solid or Stranded	Unshielded or Shielded
Cat 6 Gigabit	Blue	Nonplenum	L1-6-SOL-UTP-06	---	---	Solid	Unshielded
		Plenum	L1-6-SOL-UTP-P-06	---	---	Solid	Unshielded
	Black	Nonplenum	---	L2-6-SOL-UTP-02	L3-6-SOL-UTP-02	Solid	Unshielded
Modifiers to Cat 6							
EMI (Shielded)	Blue	Nonplenum	L1-6-SOL-SHLD-06	---	---	Solid	Shielded
		Plenum	L1-6-SOL-SHLD-P-06	---	---	Solid	Shielded
	Black	Nonplenum	---	L2-6-SOL-SHLD-02	L3-6-SOL-SHLD-02	Solid	Shielded

ENVIRONMENTS: INDUSTRIAL ETHERNET PATCH CORDS

Use the chart below to find the right patch cord for your environment. Locate the cable type and length, then choose the appropriate level for your environment and click the part number to view the product details. For more information on how the Environments are determined, see the “Industrial Patch Cords Applicable Selection Criteria” page in the back of this catalog.

						
Cable Type	Length (Meter)	Office M to M RJ45 Connectors	Light industrial M to M Ruggedized RJ45	Harsh industrial M to M M12 Connectors	Solid or Stranded	Unshielded or Shielded
Cat 5e 10/100	1	All Office Patch Cords Come Stranded	L2-1M-CAT5	All Harsh industrial Patch Cords Come Stranded	Solid	Unshielded
	2	All Office Patch Cords Come Stranded	L2-2M-CAT5	All Harsh industrial Patch Cords Come Stranded	Solid	Unshielded
	3	All Office Patch Cords Come Stranded	L2-3M-CAT5	All Harsh industrial Patch Cords Come Stranded	Solid	Unshielded
	5	All Office Patch Cords Come Stranded	L2-5M-CAT5	All Harsh industrial Patch Cords Come Stranded	Solid	Unshielded
Modifiers to Cat 5e						
EMI (Shielded)	1	-	L2-1M-CAT5-SHLD	-	Solid	Shielded
	2	-	L2-2M-CAT5-SHLD	-	Solid	Shielded
	3	-	L2-3M-CAT5-SHLD	-	Solid	Shielded
	5	-	L2-5M-CAT5-SHLD	-	Solid	Shielded
Flexibility (Stranded)	1	L1-1M-CAT5-STR	L2-1M-CAT5-STR	-	Stranded	Unshielded
	2	L1-2M-CAT5-STR	L2-2M-CAT5-STR	L3-2M-CAT5-STR	Stranded	Unshielded
	3	L1-3M-CAT5-STR	L2-3M-CAT5-STR	-	Stranded	Unshielded
	5	L1-5M-CAT5-STR	L2-5M-CAT5-STR	L3-5M-CAT5-STR	Stranded	Unshielded
	10	-	-	L3-10M-CAT5-STR	Stranded	Unshielded
EMI and Flexibility (Shielded and Stranded)	1	-	L2-1M-CAT5-STR-SHLD	-	Stranded	Shielded
	2	-	L2-2M-CAT5-STR-SHLD	L3-2M-CAT5-STR-SHLD	Stranded	Shielded
	3	-	L2-3M-CAT5-STR-SHLD	-	Stranded	Shielded
	5	-	L2-5M-CAT5-STR-SHLD	L3-5M-CAT5-STR-SHLD	Stranded	Shielded
	10	-	-	L3-10M-CAT5-STR-SHLD	Stranded	Shielded

Cable Type	Length (Meters)	Office	Light industrial	Harsh industrial	Solid or Stranded	Unshielded or Shielded
Cat 6 Gigabit	1	L1-1M-CAT6	L2-1M-CAT6	---	Solid	Unshielded
	2	L1-2M-CAT6	L2-2M-CAT6	---	Solid	Unshielded
	3	L1-3M-CAT6	L2-3M-CAT6	---	Solid	Unshielded
	5	L1-5M-CAT6	L2-5M-CAT6	---	Solid	Unshielded
Modifiers to Cat 6						
EMI (Shielded)	1	L1-1M-CAT6-SHLD	L2-1M-CAT6-SHLD	---	Solid	Shielded
	2	L1-2M-CAT6-SHLD	L2-2M-CAT6-SHLD	L3-2M-CAT6-SHLD	Solid	Shielded
	3	L1-3M-CAT6-SHLD	L2-3M-CAT6-SHLD	---	Solid	Shielded
	5	L1-5M-CAT6-SHLD	L2-5M-CAT6-SHLD	L3-5M-CAT6-SHLD	Solid	Shielded
	10	---	---	L3-10M-CAT6-SHLD	Solid	Shielded

ENVIRONMENTS: FIBER OPTIC PATCH CORDS

Given the countless combinations, fiber patch cords are built to order and are shipped within 10 days. To build an ordering part number, select your distance in feet and use the Environments cable for the harshest Level it will span to or through. For more information on how the Environments are determined, see the "Fiber Optic Patch Cords Applicable Selection Criteria" page in the back of this catalog.



L-	2-	OM1-	08-	LC-	LC-	X Feet (length of patch cord)
LEVEL	Fibers	Fiber Type	Color	Connector 1	Connector 2	Footage
1	1	OM1	08 (ORG)	LC (L1 & 2)	LC (L1 & 2)	Any Footage
2	2	OM3	16 (AQUA)	ST (L1& 2)	ST (L1& 2)	
3		OS1	05 (YEL)	LCV1 (L3)	LCV1 (L3)	



Connector		Patch Cord Part numbers with applicable Cable Levels			Use	Color	Construction	
1	2	Office	Light industrial	Harsh industrial				
Length (Feet)								
62.5 OM1, 2 Fiber Patch Cord								
X	LC	LC	L1-2-OM1-08-LC-LC-X	L2-2-OM1-08-LC-LC-X	---	Riser	Orange	Tight Buffer
X	ST	ST	L1-2-OM1-08-ST-ST-X	L2-2-OM1-08-ST-ST-X	---	Riser	Orange	Tight Buffer
X	LC V1	LC V1	---	---	L3-2-OM1-08-LCV1-LCV1-X	Riser	Orange	Tight Buffer
X	LC V1	LC	---	---	L3-2-OM1-08-LCV1-LC-X	Riser	Orange	Tight Buffer
X	LC V1	ST	---	---	L3-2-OM1-08-LCV1-ST-X	Riser	Orange	Tight Buffer
X	ST	ST	---	---	L3-2-OM1-08-ST-ST-X	Riser	Orange	Tight Buffer
X	LC	ST	---	---	L3-2-OM1-08-LC-LC-X	Riser	Orange	Tight Buffer
50.0 OM3, 2 Fiber Patch Cord								
X	LC	LC	L1-2-OM3-16-LC-LC-X	L2-2-OM3-16-LC-LC-X	---	Riser	Aqua	Tight Buffer
X	ST	ST	L1-2-OM3-16-ST-ST-X	L2-2-OM3-16-ST-ST-X	---	Riser	Aqua	Tight Buffer
X	LC V1	LC V1	---	---	L3-2-OM3-16-LCV1-LCV1-X	Riser	Aqua	Tight Buffer
X	LC V1	LC	---	---	L3-2-OM3-16-LCV1-LC-X	Riser	Aqua	Tight Buffer
X	LC V1	ST	---	---	L3-2-OM3-16-LCV1-ST-X	Riser	Aqua	Tight Buffer
X	ST	ST	---	---	L3-2-OM3-16-ST-ST-X	Riser	Aqua	Tight Buffer
X	LC	ST	---	---	L3-2-OM3-16-LC-LC-X	Riser	Aqua	Tight Buffer
009 OS1, 2 Fiber Patch Cord								
X	LC	LC	L1-2-OS1-05-LC-LC-X	L2-2-OS1-05-LC-LC-X	---	Riser	Yellow	Tight Buffer
X	ST	ST	L1-2-OS1-05-ST-ST-X	L2-2-OS1-05-ST-ST-X	---	Riser	Yellow	Tight Buffer
X	LC V1	LC V1	---	---	L3-2-OS1-05-LCV1-LCV1-X	Riser	Yellow	Tight Buffer
X	LC V1	LC	---	---	L3-2-OS1-05-LCV1-LC-X	Riser	Yellow	Tight Buffer
X	LC V1	ST	---	---	L3-2-OS1-05-LCV1-ST-X	Riser	Yellow	Tight Buffer
X	ST	ST	---	---	L3-2-OS1-05-ST-ST-X	Riser	Yellow	Tight Buffer
X	LC	ST	---	---	L3-2-OS1-05-LC-LC-X	Riser	Yellow	Tight Buffer

ENVIRONMENTS: FIBER OPTIC CONNECTORS

Use the chart below to find the right connector for your environment. Locate the fiber type and connector type, then choose the appropriate level for your environment and click the part number to view the product details. For more information on how the environments are determined, see the "Fiber Optic Connectors Applicable Selection Criteria" page in the back of this catalog.

					
			Office and Light industrial		Harsh industrial
Core	Connector Type	Color	Connector (Each)	Connector (Pack of 25)	Connector (Each)
62.5 OM1	LC	Beige	L2-OM1-LC-UNICAM	L2-OM1-LC-25-UNICAM	---
	SC	Beige	L2-OM1-SC-UNICAM	L2-OM1-SC-25-UNICAM	---
	ST	Beige	L2-OM1-ST-UNICAM	L2-OM1-ST-25-UNICAM	---
	LC Variant 1	Metallic	---	---	L3-OM1-LCV1
50.0 OM3	LC	Aqua	L2-OM3-LC-UNICAM	L2-OM3-LC-25-UNICAM	---
	SC	Aqua	L2-OM3-SC-UNICAM	L2-OM3-SC-25-UNICAM	---
	ST	Aqua	L2-OM3-ST-UNICAM	L2-OM3-ST-25-UNICAM	---
	LC Variant 1	Metallic	---	---	L3-OM3-LCV1
009 OS1	LC	Blue	L2-OS2-LC-UNICAM	L2-OS2-LC-25-UNICAM	---
	SC	Blue	L2-OS2-SC-UNICAM	L2-OS2-SC-25-UNICAM	---
	ST	Blue	L2-OS2-ST-UNICAM	L2-OS2-ST-25-UNICAM	---
	LC Variant 1	Metallic	---	---	L3-OS2-LCV1

NOTE: Tooling can be relatively expensive and require craftsmanship to terminate fiber connectors. Pre-terminated patch cords may possibly be a more practical solution. See Fiber Optic Patch Cords for available products.

Tool Kit for Office & 2 Connectors	
UniCam Tool Kit for Office/Light industrial	347845




Fan Out Kits for Loose Tube Fibers	
6 Fiber Fan Out Kit	152285
12 Fiber Fan Out Kit	152286

Tool Kit for Harsh industrial Connectors	
Metz Fiber Optic Tool Kit (Requires Addition of LC Die)	617747
Metz LC Die Set	617748

Replacement Crimp Pliers	617749
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ENVIRONMENTS: INDUSTRIAL ETHERNET CONNECTORS

Use the chart below to find the right connector for your environment. Locate the cable type, and modifier if applicable, then choose the appropriate level for your environment and click the part number to view the product details. For more information on how the Environments are determined, see “Industrial Ethernet Connectors Applicable Selection Criteria” in the back of this catalog.

					
Cable Type	Office	Light industrial	Harsh industrial	Solid or Stranded	Unshielded or Shielded
Cat 5e 10/100	L1-M-5E-RJ45	L2-M-5E-RJ45	L3-M-5E-M12-SHD-STR Fits solid and stranded, unshielded and shielded	Solid	Unshielded
Modifiers to Cat 5e					
EMI (Shielded)	L1-M-5E-RJ45-SHD	L2-M-5E-RJ45-SHD-STR Fits solid and stranded, unshielded and shielded		Solid	Shielded
Flexibility (Stranded)				Stranded	Unshielded
EMI and Flexibility (Shielded and Stranded)			Stranded	Shielded	

	Office	Light industrial	Harsh industrial		
Cable Type	Office	Light industrial	Harsh industrial	Solid or Stranded	Unshielded or Shielded
Cat 6 Gigabit	L1-M-6-RJ45-SOL-STR Fits Solid or Stranded	L2-M-6-RJ45-SHD-STR Fits solid and stranded, unshielded and shielded	L3-M-6-M12-SHD-STR Fits solid and stranded, unshielded and shielded	Solid and Stranded	Unshielded
Modifiers to Cat 6					
EMI (Shielded)	L1-M-6-RJ45-SHD-STR Fits shielded, stranded or solid			Solid and Stranded	Shielded

ENVIRONMENTS: INDUSTRIAL POWER SUPPLIES

Use the chart below to find your output voltage, input voltage (phase), output amperage, then select your appropriate level. For more information on how the Environments are determined, see the “Industrial Power Supplies Applicable Criteria” page in the back of the catalog.

						
Output Voltage	Input Voltage	Phase	Output Amps	Office	Light industrial	Harsh industrial
24	110V	Single	2.5	L1-24V-2.5A-1P-DIN	---	---
24	110 V	Single	3.8	---	---	L3-24V-3.8A-1P
24	110 V	Single	5	L1-24V-5A-1P-DIN	L2-24V-5A-1P	---
24	110 V	Single	10	L1-24V-10A-1P-DIN	L2-24V-10A-1P	---
24	110 V	Single	20	L1-24V-20A-1P-DIN	L2-24V-20A-1P	---
24	110 V	Single	40	---	L2-24V-40A-1P	---
24	380–480 V	Three	10	L1-24V-10A-3P-DIN	L2-24V-10A-3P	---
24	380–480 V	Three	20	L1-24V-20A-3P-DIN	L2-24V-20A-3P	---
24	380–480 V	Three	40	L1-24V-40A-3P-DIN	L2-24V-40A-3P	---
48	110 V	Single	5	L1-48V-5A-1P-DIN	---	---
48	110 V	Single	10	L1-48V-10A-1P-DIN	---	---
48	380–480 V	Three	10	L1-48V-10A-3P-DIN	---	---
48	380–480 V	Three	20	L1-48V-20A-3P-DIN	---	---

ENVIRONMENTS: INDUSTRIAL FIBER OPTIC CABLE

Use the chart below to find the right fiber optic cable for your environment. Locate the fiber type, fiber count and construction and whether you want a plenum or riser cable. For more information on how the Environments are determined, see the “Fiber Optic Cables Applicable Selection Criteria” page in the back of the catalog.

Office: Loose tube construction in riser and plenum, enclosure needed for connectorization.

Light industrial: Loose tube and tight buffer construction, enclosure needed for connectorization.

Harsh industrial: Tight buffer with additional jacket on individual fibers for secure connectorization



Core	Fiber Count	Use	Color	Construction	Office	Light industrial	Harsh industrial
62.5 OM1	2	Riser	Orange	Loose Tube	L1-02-FLT-OM1-08	L2-02-FLT-OM1-08	---
		Riser	Orange	Tight Buffer	---	L2-02-FTB-OM1-08	L3-02-FTB-OM1-08
		Plenum	Orange	Loose Tube	L1-02-FLT-OM1-08P	---	---
62.5 OM1	6	Riser	Orange	Loose Tube	L1-06-FLT-OM1-08	L2-06-FLT-OM1-08	---
		Riser	Orange	Tight Buffer	---	L2-06-FTB-OM1-08	L3-06-FTB-OM1-08
		Plenum	Orange	Loose Tube	L1-06-FLT-OM1-08P	---	---
62.5 OM1	12	Riser	Orange	Loose Tube	L1-12-FLT-OM1-08	L2-12-FLT-OM1-08	---
		Riser	Orange	Tight Buffer	---	L2-12-FTB-OM1-08	---
		Plenum	Orange	Loose Tube	L1-12-FLT-OM1-08P	---	---
62.5 OM1	24	Riser	Orange	Loose Tube	L1-24-FLT-OM1-08	L2-24-FLT-OM1-08	---
		Riser	Orange	Tight Buffer	---	L2-24-FTB-OM1-08	---
		Plenum	Orange	Loose Tube	L1-24-FLT-OM1-08P	---	---
50 OM3	2	Riser	Aqua	Loose Tube	L1-02-FLT-OM3-16	L2-02-FLT-OM3-16	---
		Riser	Aqua	Tight Buffer	---	L2-02-FTB-OM3-16	L3-02-FTB-OM3-16
		Plenum	Aqua	Loose Tube	L1-02-FLT-OM3-16P	---	---
50 OM3	6	Riser	Aqua	Loose Tube	L1-06-FLT-OM3-16	L2-06-FLT-OM3-16	---
		Riser	Aqua	Tight Buffer	---	L2-06-FTB-OM3-16	L3-06-FTB-OM3-16
		Plenum	Aqua	Loose Tube	L1-06-FLT-OM3-16P	---	---
50 OM3	12	Riser	Aqua	Loose Tube	L1-12-FLT-OM3-16	L2-12-FLT-OM3-16	---
		Riser	Aqua	Tight Buffer	---	L2-12-FTB-OM3-16	---
		Plenum	Aqua	Loose Tube	L1-12-FLT-OM3-16P	---	---
50 OM3	24	Riser	Aqua	Loose Tube	L1-24-FLT-OM3-16	L2-24-FLT-OM3-16	---
		Riser	Aqua	Tight Buffer	---	L2-24-FTB-OM3-16	---
		Plenum	Aqua	Loose Tube	L1-24-FLT-OM3-16P	---	---
9 OS1	2	Riser	Yellow	Loose Tube	L1-02-FLT-OS1-05	L2-02-FLT-OS1-05	---
		Riser	Yellow	Tight Buffer	---	L2-02-FTB-OS1-05	L3-02-FTB-OS1-05
		Plenum	Yellow	Loose Tube	L1-02-FLT-OS1-05P	---	---
9 OS1	6	Riser	Yellow	Loose Tube	L1-06-FLT-OS1-05	L2-06-FLT-OS1-05	---
		Riser	Yellow	Tight Buffer	---	L2-06-FTB-OS1-05	L3-06-FTB-OS1-05
		Plenum	Yellow	Loose Tube	L1-06-FLT-OS1-05P	---	---
9 OS1	12	Riser	Yellow	Loose Tube	L1-12-FLT-OS1-05	L2-12-FLT-OS1-05	---
		Riser	Yellow	Tight Buffer	---	L2-12-FTB-OS1-05	---
		Plenum	Yellow	Loose Tube	L1-12-FLT-OS1-05P	---	---
9 OS1	24	Riser	Yellow	Loose Tube	L1-24-FLT-OS1-05	L2-24-FLT-OS1-05	---
		Riser	Yellow	Tight Buffer	---	L2-24-FTB-OS1-05	---
		Plenum	Yellow	Loose Tube	L1-24-FLT-OS1-05P	---	---


ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES

Industrial Ethernet switches for harsh environments not only have to meet all the network performance requirements but also have to meet all the environmental conditions such as operating temperature, humidity, shock, vibration, ingress and ultraviolet light.

The Environments program makes selecting Ethernet switches easy. Our selection guide walks you through choosing managed or unmanaged, speed and port type (copper or fiber).

As Ethernet switch operability can be very manufacturer specific due to software, interoperability and proprietary features, we have specifically added the Belden Hirschmann switches to our selection guide. Belden has the widest range of switches that can meet your performance requirements as well as your environmental conditions.

On the following pages we have added selection guides for the various capabilities, port types and density.

	Copper Ports	Copper and Fiber Ports	
Unmanaged	10/100 Mb (Fast Ethernet)	10/100 Mb (Fast Ethernet)	
	1,000 Mb (Gigabit)	1,000 Mb (Gigabit)	
Managed	10/100 Mb (Fast Ethernet)	10/100 Mb (Fast Ethernet)	
	1,000 Mb (Gigabit)	1,000 Mb (Gigabit)	

ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES – UNMANAGED

Unmanaged: 10/100, Copper Ports

Series	Office Spider <=8p Rs20	Light industrial Spider EEC <=8p Spider II 8TX RS20 T	Harsh industrial Octopus	Total CU Ports	Power over Ethernet	
					Non PoE	PoE
Belden PN WXP PN	943 824-002 373182	943 824-002 373182	943 892-001 458964	5	5	---
Belden PN WXP PN	943 957-001 390438	943-958-001 943-958-001	---	8	8	---
Belden PN WXP PN	---	942 008-001 414192	---	8	4	4
Belden PN WXP PN	---	---	942 025-001 458965	10	10	---
Belden PN WXP PN	---	---	942 025-003 608002	10	8	2
Belden PN WXP PN	943 434-047 368997	942 120-001 550407	---	16	16	---

Unmanaged: 10/100 & Gigabit, Copper Ports




Series	Office Spider <=8p Rs20	Light industrial Spider EEC <=8p	Harsh industrial Octopus	Total CU Ports	Power over Ethernet		Power Supply	Special 1
					Non PoE	PoE		
Belden PN WXP PN	---	943 962-002 414188	---	5	5	---	9.6 - 32 VDC	

Unmanaged: 10/100 & Gigabit, Copper & Fiber Ports

Series	Office Spider <=8p Rs20	Light industrial Spider EEC <=8p	Harsh industrial Octopus	Total CU Ports	Power over Ethernet		SFP* Pockets	Special 1
					Non POE	POE		
Belden PN WXP PN	---	943 963-002 429214	---	5	5	---	2	Utilizes SFP Modules
Belden PN WXP PN	---	942-121-001 550408	---	16	16	---	2	Utilizes SFP Modules




ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES – MANAGED

Managed: 10/100 Copper Ports

					Power over Ethernet	
Series	Office RS20 S RS22S	Light industrial RS20 T, RS22 T	Harsh industrial Octopus	Total CU Ports	Non PoE	PoE
Belden PN	943 434-021	RS20-0800T1T1DAE	943 988-001	8	8	---
WXP PN	328105PS	---	458975			
Belden PN	---	---	943 967-101	8	2	6
WXP PN	---	---	458972			
Belden PN	943-434-068	RS22-0900T1T1PAE	---	8	4	4
WXP PN	458889	---	---			
Belden PN	---	---	943 967-001	8	---	8
WXP PN	---	---	45897			
Belden PN	---	---	942 025-005	9	9	---
WXP PN	---	---	599092			
Belden PN	---	---	942 025-007	9	1	8
WXP PN	---	---	609979			
Belden PN	943-434-023	RS20-1600T1T1DAE	943 984-001	16	16	---
WXP PN	368985	---	458983			
Belden PN	RS22-1600T1T1SPAЕ	RS22-1600T1T1PAE	---	16	12	4
WXP PN	---	---	---			
Belden PN	---	---	943 960-001	16	8	8
WXP PN	---	---	458973			
Belden PN	043-434-041	RS20-2400T1T1DAE	943 923-001	24	24	---
WXP PN	368986	---	943923001			
Belden PN	RS22-2400T1T1SPAЕ	RS22-2400T1T1PAE	---	24	20	4
WXP PN	---	---	---			
Belden PN	---	---	942 063-00	24	16	8
WXP PN	---	---	609990			



ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES – MANAGED

Managed: 10/100 and Gigabit Copper Ports

							
						Power over Ethernet	
Series	Office RS20 S RS22S	Light industrial RS20 T	Harsh industrial Octopus	Total CU Ports	Gigabit Ports	Non PoE	PoE
Belden PN WXP PN	943 434-029 458875	RS30-0802T1T1TDAE ---	--- ---	10	2	10	---
Belden PN WXP PN	--- ---	--- -	--- ---	10	2	---	4
Belden PN WXP PN	--- ---	--- ---	942 069-002 609999	10	2	---	8
Belden PN WXP PN	--- ---	--- ---	--- ---	18	2	12	4
Belden PN WXP PN	--- ---	--- ---	942 069-001 610002	18	8	---	8
Belden PN WXP PN	943 434-033 458877	RS30-1602T1T1TDAE ---	--- ---	18	2	16	---
Belden PN WXP PN	943 434-037 458879	RS30-2402T1T1TDAE ---	--- ---	26	2	24	---

ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES – MANAGED

Managed: 10/100 Copper and Fiber Ports

					Power over Ethernet		Fiber Ports	
Series	Office RS20 S	Light industrial RS20 T	Harsh industrial Octopus	Total CU Ports	Non PoE	PoE	Fiber Ports	Fiber Connector
Belden PN WXP PN	--- ---	--- ---	943 988-001 458975	8	8	---	2 MM	IEC 63076-3-106 V1
Belden PN WXP PN	--- ---	--- ---	943 988-002 458976	8	8	---	2 SM	IEC 63076-3-106 V1
Belden PN WXP PN	943 434-003 368991	RS20-0800M2M2TDAE ---	--- ---	6	6	---	2 MM	SC
Belden PN WXP PN	943 464-017 599419	RS20-0800M4M4TDAE ---	--- ---	6	6	---	2 MM	ST
Belden PN WXP PN	943 434-019 357655	RS20-0800S2S2TDAE ---	--- ---	6	6	---	2 SM	ST
Belden PN WXP PN	RS20-0800S4S4SDAE ---	RS20-0800S4S4TDAE ---	--- ---	6	6	---	2 SM	ST
Belden PN WXP PN	943 340-069 458890	RS2200800M2M2TPAE ---	--- ---	6	2	4	2 MM	SC
Belden PN WXP PN	RS22-0800M4M4SPA ---	RS22-0800M4M4TPAE ---	--- ---	6	2	4	2 MM	SC
Belden PN WXP PN	943 434-070 458891	RS22-0800S2S2TPAE ---	--- ---	6	2	4	2 SM	SC
Belden PN WXP PN	RS22-0800S4S4SPA ---	RS22-0800S4S4TPAE ---	--- ---	6	2	4	2 SM	ST
Belden PN WXP PN	943 434-005 368984	RS20-1600M2M2TDAE ---	--- ---	14	14	---	2 MM	SC
Belden PN WXP PN	RS20-1600M4M4SDAE -----	RS20-1600M4M4TDAE -----	--- ---	14	14	---	2 MM	ST
Belden PN WXP PN	943 434-027 458871	RS20-1600S2S2TDAE ---	--- ---	14	14	---	2 SM	SC
Belden PN WXP PN	RS20-1600S4S4SDAE ---	RS20-1600S4S4TDAE ---	--- ---	14	14	---	2 SM	ST




Managed: 10/100 Copper and Fiber Ports (Continued)

ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES – MANAGED

					Power over Ethernet		Fiber Ports	
Series	Office	Light industrial	Harsh industrial	Total CU Ports	Non PoE	PoE	Fiber Ports	Fiber Connector
Belden PN WXP PN	RS22-1600M2M2SPA ---	RS22-1600M2M2TPAE ---	---	14	10	4	2 MM	SC
Belden PN WXP PN	RS22-1600M4M4SPA ---	RS22-1600M4M4TPAE ---	---	14	10	4	2 MM	ST
Belden PN WXP PN	RS22-1600S2S2SPA ---	RS22-1600S2S2TPAE ---	---	14	10	4	2 SM	SC
Belden PN WXP PN	RS22-1600S4S4SPA ---	RS22-1600S4S4TPAE ---	---	14	10	4	2 SM	ST
Belden PN WXP PN	943434-043 458847	RS20-2400M2M2TDAE ---	---	22	22	---	2 MM	SC
Belden PN WXP PN	RS20-2400M4M4SDAE ---	RS20-2400M4M4TDAE ---	---	22	22	---	2 MM	ST
Belden PN WXP PN	943 434-045 458873	RS20-2400S2S2TDAE ---	---	22	22	---	2 SM	SC
Belden PN WXP PN	RS20-2400S4S4SDAE ---	RS20-2400S4S4TDAE ---	---	22	22	---	2 SM	ST
Belden PN WXP PN	RS22-2400M2M2SPA ---	RS22-2400M2M2TPAE ---	---	22	18	4	2 MM	SC
Belden PN WXP PN	RS22-2400M4M4SPA ---	RS20-2400M4M4TPAE ---	---	22	18	4	2 MM	ST
Belden PN WXP PN	RS22-2400S2S2SPA ---	RS20-2400S2S2TPAE ---	---	22	18	4	2 SM	SC
Belden PN WXP PN	RS22-2400S4S4SPA ---	RS20-2400S4S4TPAE ---	---	22	18	4	2 SM	ST




ENVIRONMENTS: INDUSTRIAL ETHERNET SWITCHES – MANAGED




Managed: 10/100 and Gigabit, Copper and Fiber Ports

Series				Total CU Ports	Gigabit Ports	Power over Ethernet		Gigabit Fiber Ports	Fiber Ports		Special 1
						Non PoE	PoE		Fiber Conn.	SFP* Sockets	
	Office RS20 S RS22S	Light industrial RS20 T	Harsh industrial Octopus								
Belden PN	---	943 988-005	---	8	---	8	---	2 MM	IEC 63076-3- 106 V1	---	Utilizes SFP Modules
WXP PN	---	458978	---								
Belden PN	---	943 988-006	---	8	---	8	---	2 SM	IEC 63076-3- 106 V1	---	Utilizes SFP Modules
WXP PN	---	458979	---								
Belden PN	RS30-08020606SDAE	RS30-08020606TDAE	---	8	---	8	---	2	---	2	Utilizes SFP Modules
WXP PN	---	---	---								
Belden PN	RS32-08020606SPAE	---	---	8	---	4	4	2	---	2	Utilizes SFP Modules
WXP PN	---	---	---								
Belden PN	---	---	942 069-004	8	---	---	8	---	---	2	Utilizes SFP Modules
WXP PN	---	---	610004								
Belden PN	---	---	942 069-003	16	---	8	8	---	---	2	Utilizes SFP Modules
WXP PN	---	---	610005								
Belden PN	RS30--16020606SDAE	RS30-16020606TDAE	---	16	---	16	---	2	---	2	Utilizes SFP Modules
WXP PN	---	---	---								
Belden PN	RS32-16020606SPAE	---	---	16	---	12	4	2	---	2	Utilizes SFP Modules
WXP PN	---	---	---								
Belden PN	RS30--24020606SDAE	RS30-24020606TDAE	---	24	---	24	---	2	---	2	Utilizes SFP Modules
WXP PN	---	---	---								
Belden PN	RS32-24020606SPAE	---	---	24	---	20	4	2	---	2	Utilizes SFP Modules
WXP PN	---	---	---								
Belden PN	---	---	---	16		16	---			2	Utilizes SFP Modules
WXP PN	---	---	---								

* SFP sockets accept SPF Modules that come in a multitude of configurations. Configuration options for: distance of transmission, type of fiber optic cable and Gigabit speed.




APPLICABLE SELECTION CRITERIA

Industrial Ethernet Cables Applicable Selection Criteria				
				
	Criteria	Office	Light industrial	Harsh industrial
Mechanical	Pull tension	20 lb.	40 lb.	40 lb.
	Abrasion	N/A	45 cycles tested per UL 2556	75 cycles tested per UL 2556
	Shock	N/A	N/A	N/A
	Vibration	N/A	N/A	N/A
Climate	UV	N/A	UL 444 Section 7.22 tested per UL 2556	UL 444 Section 7.22 tested per UL 2556
	Install temperature	N/A	-10°C to 60°C	-20°C to 60°C
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C
	Humidity	N/A	N/A	N/A
	Oil resistance	N/A	UL 1581 Table 50.182 Seven days at 60°C	UL 1581 Table 50.182 Seven days at 60°C
Ingress	Ingress protection	N/A	N/A	N/A




Industrial Ethernet Patch Cords Applicable Selection Criteria				
				
	Criteria	Office	Light industrial	Harsh industrial
Mechanical	Pull tension	20 lb.	40 lb.	40 lb.
	Abrasion	N/A	45 cycles tested per UL 2556	75 cycles tested per UL 2556
	Shock	N/A	N/A	N/A
	Vibration	N/A	N/A	N/A
Climate	UV	N/A	UL 444 Section 7.22 tested per UL 2556	UL 444 Section 7.22 tested per UL 2556
	Install temperature	N/A	-10°C to 60°C	-20°C to 60°C
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C
	Humidity	N/A	N/A	N/A
	Oil resistance	N/A	UL 1581 Table 50.182 Seven days at 60°C	UL 1581 Table 50.182 Seven days at 60°C
Ingress	Ingress protection	N/A	IP20	IP67

APPLICABLE SELECTION CRITERIA

Fiber Optic Patch Cords Applicable Selection Criteria




					
		Office	Light industrial	Harsh industrial	
Criteria	Criteria	Office	Light industrial	Harsh industrial	
	Mechanical	Pull tension	20 lb.	40 lb.	40 lb.
		Abrasion	N/A	45 cycles tested per UL 2556	75 cycles tested per UL 2556
		Shock	N/A	N/A	N/A
		Vibration	N/A	N/A	N/A
Climate	UV	N/A	UL 444 Section 7.22 tested per UL 2556	UL 444 Section 7.22 tested per UL 2556	
	Install temperature	N/A	-10°C to 60°C	-20°C to 60°C	
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C	
	Humidity	N/A	N/A	N/A	
	Oil resistance	N/A	UL 1581 Table 50.182 Seven days at 60°C	UL 1581 Table 50.182 Seven days at 60°C	
Ingress	Ingress protection	N/A	IP20	IP67	

Fiber Optic Connectors Applicable Selection Criteria




					
		Office	Light industrial	Harsh industrial	
Criteria	Criteria	Office	Light industrial	Harsh industrial	
	Mechanical	Pull tension	N/A	N/A	N/A
		Abrasion	N/A	N/A	N/A
		Shock	N/A	N/A	N/A
		Vibration	N/A	N/A	N/A
Climate	UV	N/A	N/A	N/A	
	Install temperature	N/A	-10°C to 60°C	-20°C to 60°C	
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C	
	Humidity	N/A	N/A	N/A	
	Oil resistance	N/A	N/A	N/A	
Ingress	Ingress protection	N/A	IP20	IP67	

APPLICABLE SELECTION CRITERIA

Industrial Ethernet Connectors Applicable Selection Criteria




				
	Criteria	Office	Light industrial	Harsh industrial
Mechanical	Pull tension	N/A.	N/A	N/A
	Abrasion	N/A	N/A	N/A
	Shock	N/A	N/A	N/A
	Vibration	N/A	N/A	N/A
Climate	UV	N/A	N/A	N/A
	Install temperature	N/A	-10°C to 60°C	-20°C to 60°C
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C
	Humidity	N/A	N/A	N/A
	Oil resistance	N/A	N/A	N/A
Ingress	Ingress protection	N/A	IP20	IP67

Industrial Power Supplies Applicable Selection Criteria




				
	Criteria	Office	Light industrial	Harsh industrial
Mechanical	Pull tension	N/A.	N/A	N/A
	Abrasion	N/A	N/A	N/A
	Shock	N/A	3(G) peak, 11 MS, 18 shocks	4(G) peak, 22 MS, 18 shocks
	Vibration	N/A	1G, 10–150 Hz	1G, 10–150 Hz
Climate	UV	N/A	N/A	N/A
	Install temperature	N/A	N/A	N/A
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C
	Humidity	N/A	10–90% noncondensing	10–100% noncondensing
	Oil resistance	N/A	N/A	N/A
Ingress	Ingress protection	N/A	IP20	IP67

APPLICABLE SELECTION CRITERIA

Industrial Ethernet Switches Applicable Selection Criteria

				
		Office	Light industrial	Harsh industrial
Mechanical	Criteria			
	Pull tension	N/A	N/A	N/A
	Abrasion	N/A	N/A	N/A
	Shock	N/A	3(G) peak, 11 MS, 18 shocks	4(G) peak, 22 MS, 18 shocks
	Vibration	N/A	1G, 10–150 Hz	1G, 10–150 Hz
Climate	UV	N/A	UL 444 Section 7.22 tested per UL 2556	UL 444 Section 7.22 tested per UL 2556
	Install temperature	N/A	N/A	N/A
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C
	Humidity	N/A	10–90% noncondensing	10–100% noncondensing
	Oil resistance	N/A	N/A	N/A
Ingress	Ingress protection	N/A	IP20	IP67

Industrial Fiber Optic Cables Applicable Selection Criteria

				
		Office	Light industrial	Harsh industrial
Mechanical	Criteria			
	Pull tension	20 lb.	40 lb.	40 lb.
	Abrasion	N/A	45 cycles tested per UL 2556	75 cycles tested per UL 2556
	Shock	N/A	N/A	N/A
	Vibration	N/A	N/A	N/A
Climate	UV	N/A	UL 444 Section 7.22 tested per UL 2556	UL 444 Section 7.22 tested per UL 2556
	Install temperature	N/A	-10°C to 60°C	-20°C to 60°C
	Operating temperature	-0°C to 60°C	-10°C to 60°C	-40°C to 70°C
	Humidity	N/A	N/A	N/A
	Oil resistance	N/A	UL 1581 Table 50.182 Seven days at 60°C	UL 1581 Table 50.182 Seven days at 60°C
Ingress	Ingress protection	N/A	N/A	N/A

ENVIRONMENTS: FEATURED SUPPLIERS

Belden

Belden and WireXpress partnered worldwide to provide best-in-class product and supply chain services. Belden is a brand leader in cable, connectivity and networking products. Matched with WireXpress's technical and supply chain expertise, we create a partnership that will exceed all your cable and infrastructure needs. Belden designs, manufactures and sells a comprehensive portfolio of cable, connectivity and networking products for the transmission of signals for data, sound and video applications.

Belden's brands include: Belden, Hirschman & Lumberg Automation

Belden's Environments products include:

- Copper cables and connectors
- Copper patch cords
- Ethernet switches



OCC

OPTICAL CABLE CORPORATION (OCC) has earned a reputation as an industry leader, an innovator and a designer of some of the highest-performing cabling and connectivity products available. For years, OCC has been internationally recognized for pioneering the design and production of fiber optic cables. Today, OCC is internationally recognized as a leader in engineering and manufacturing a complete line of top-tier cabling and connectivity solutions, including products and solutions suitable for the most demanding applications

OCC's Environments products include:

- Industrial fiber optic cables
- Fiber optic patch cords
- Copper and fiber patch panels



Sola

SolaHD, a member of Emerson Industrial Automation, specializes in identifying and providing industrial power quality solutions including power supplies, transformers and uninterruptible power systems. From the service entrance to the most sensitive control systems, SolaHD offers industrial grade power conversion and power quality products to ensure reliable operation in the most demanding production environments.



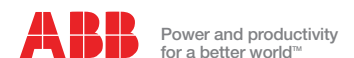
Wago

WAGO is the leader in spring pressure connection technology that eliminates loose wires resulting from vibration and temperature cycling, while providing highly reliable, corrosion-resistant and maintenance-free connections. WAGO's products include DIN-rail, PCB and chassis mount terminal blocks; signal conditioners; the WAGO-I/O-SYSTEM and more.



ABB

ABB is a leader in power and automation technologies that enable utility, industry, and transport and infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 140,000 people.



NOTES

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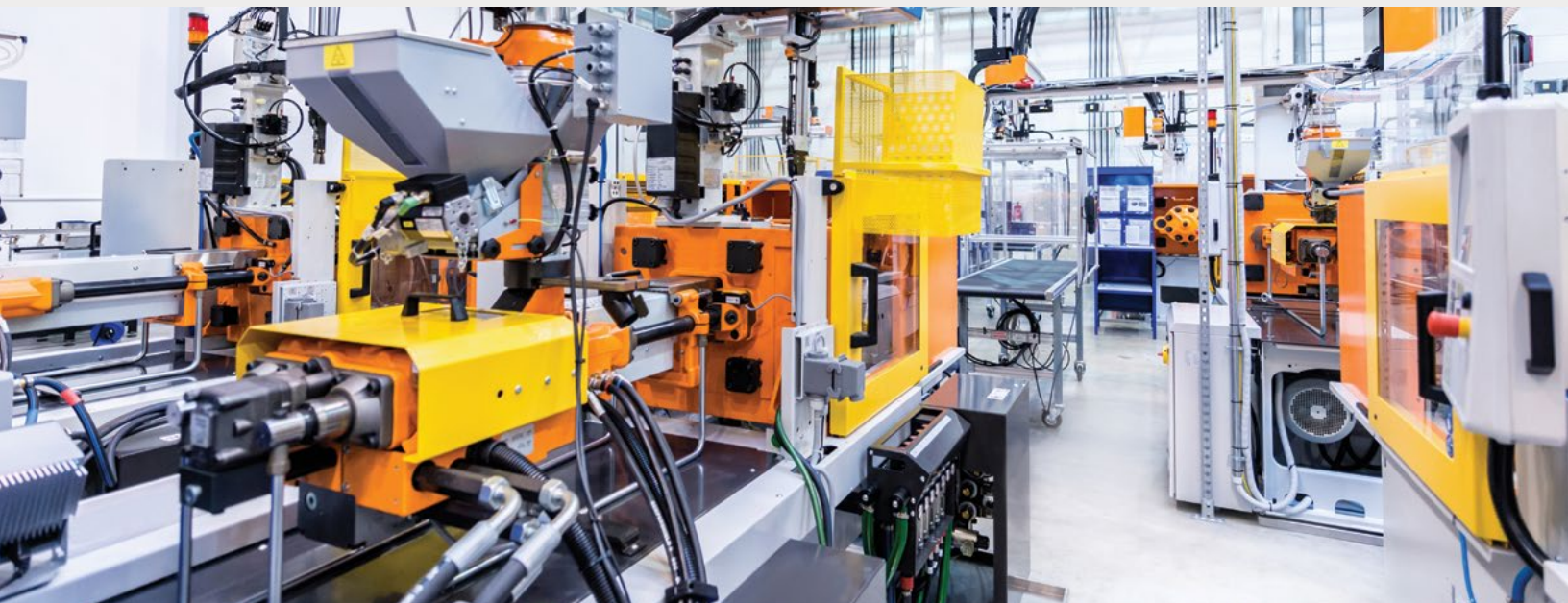
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