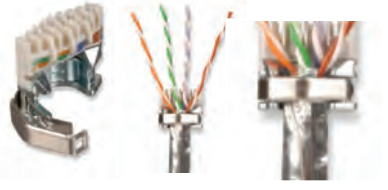
Ruggedized Copper Connectivity

Siemon is well-known for its industry leading high performance connectivity. The same high performance copper and fiber products are available with our patented Ruggedized MAX® & Z-MAX® housings. Ruggedized outlets and modular patch cords provide an IP66/IP67-rated seal, protecting plug and outlet contacts from dust, moisture, vibration, and common cleaning chemicals. These solutions are ideal for protecting valuable connections in laboratory environments, hospitals, food processing plants and other harsh environments.



Compared to all other RJ-45 products on the market today the Z-MAX termination process embraces the principle that simpler is better. By establishing straight forward steps that eliminate potential errors, Siemon has been able to set a new benchmark for the fastest UTP and shielded category 6A outlet termination speed.

1. **Standardized Interface —** The Ruggedized connector has been recognized by the Open DeviceNet Vendor Association (ODVA), TIA-1005-2009 and IEC 61076-3-106
2. **Easy Termination —** The Ruggedized MAX outlets utilize a standard 110 tool for quick and easy punch-down termination while Z-MAX outlets feature an innovative record-setting termination method
3. **Gripping Ribs —** Plug housing and dust caps feature ribs to provide additional gripping for mating and unmating
4. **Ensures Proper Seal —** Quarter-turn bayonet-style mating ensures proper plug depth into the outlet and an IP66/IP67 rated seal

Meets Harsh Demands of the Environment

Specially designed Ruggedized connectors can withstand humidity, dust and vibration.

Vibration Causes Contact Damage In Typical Outlets

Seen under a microscope after exposure to extreme vibration, contact between a typical modular plug and outlet can pit the contact pins, causing intermittent transmission problems.

Humidity Affects Typical Outlets

Humidity corrodes contact pins inside typical outlets. Repeated exposure can eventually destroy the contact pins, rendering the outlet unusable.
The Ruggedized MAX outlet s special housing prevents this corrosion.

RUGGEDIZED G2 Z-MAX® OUTLETS

The Ruggedized G2 Z-MAX Outlets feature Siemon's high performance Z-MAX Outlets with innovative and fastest termination method in the industry. The combination of premium connectivity and Ruggedized housing with quarter-turn bayonet-style mating design provides a high performance solution for harsh environments.

Part #	Description
XG2-Z5S	Category 5e Shielded Ruggedized G2 Z-MAX outlet, T568A/B
XG2-Z6	Category 6 UTP Ruggedized G2 Z-MAX outlet, T568A/B
XG2-Z6A	Category 6A UTP Ruggedized G2 Z-MAX outlet, T568A/B
XG2-Z6AS	Category 6A Shielded Ruggedized G2 Z-MAX outlet, T568A/B

RUGGEDIZED MAX® OUTLETS

The Ruggedized MAX outlet features a MAX module housed in a protective shell. The outlet's outer housing is made of durable, chemical-resistant, Ruggedized-grade thermoplastic and features Siemon's patented quarter-turn bayonet-style mating design. Guaranteed category 5e and 6 performance to 160 MHz even in the most punishing environments.

Part #	Description
X5	Category 5e UTP, MAX Ruggedized outlet, T568A/B
X5-X5S	Category 5e Shielded, MAX Ruggedized bulkhead coupler (outlet to outlet)
X6	Category 6 UTP, MAX Ruggedized outlet, T568A/B

RUGGEDIZED PLUGS

The Ruggedized Plug features a category 5e modular plug contained in Siemon's Ruggedized-grade housing with patented quarter-turn bayonet-style mating design. The plug can be terminated in the field, allowing custom lengths to be assembled quickly on site in the event a cable is cut or damaged. It terminates to twisted-pair cable with 22 – 26 AWG (0.64 – 0.40mm) solid or 7-strand conductors with an insulated conductor diameter of 0.86 – 0.99mm.

Part #	Description
XP85	Category 5e UTP, Ruggedized plug, 8-position, 8-contacts
XP85S	Category 5e Shielded, Ruggedized plug, 8-position, 8-contacts

RUGGEDIZED CATEGORY 6 UTP PATCH CORDS

Siemon's Ruggedized category 6 UTP patch cords are constructed using flame-retardant thermoplastic elastomer (TPE) outer jacket outer jacket over a polyvinyl chloride (PVC) inner jacket. Combined with a -40 to 75°C (-40 to 167°F) temperature range, high flex construction, oil resistant jacket and UL/cUL CM/CMX outdoor rating, they are ideal for use in providing end-to-end category 6 channel performance in harsh environments.

Ruggedized to Ruggedized

Part #	Description
XC6-(XX)T	Category 6 UTP, Ruggedized Plug-to-Ruggedized Plug, TPE, Black Jacket

Ruggedized to Modular

Part #	Description
XC6-(XX)-B05T	Category 6 UTP, Ruggedized Plug-to-Modular RJ-45 Plug w/Yellow Boot, TPE, Black Jacket

Use (XX) to specify length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.)

RUGGEDIZED CATEGORY 6A SHIELDED PATCH CORDS

These cable assemblies provide the final component necessary to contruct a category 6A shielded channel solution for harsh environments when used in conjunction with Siemon's category 6A shielded cable and category 6A compatible shielded Ruggedized outlets.

Ruggedized to Modular

Part #	Description
XC6A-S(XX)-B05	Category 6A Patch Cord, Shielded (S/FTP), Ruggedized-to-Modular, Ivory w/Yellow boot, CM/LSOH

Use (XX) to specify length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.), 20 = 6.1m (20ft)

RUGGEDIZED CATEGORY 5E UTP PATCH CORDS

Designed to withstand the rigors of harsh environments Siemon's Ruggedized category 5e stranded cordage is petroleum and UV resistant, is not effected by common chemicals and water, operates in a wider temperature range and provides a longer flex life. Available in two jacket types to meet various environmental requirements (see table on last page for jacket comparison)

Ruggedized to Ruggedized

Part #	Description
XC5-(XX)	Category 5e UTP, Ruggedized plug-to-Ruggedized plug, PVC jacket
XC5-(XX)T	Category 5e UTP, Ruggedized plug-to-Ruggedized plug, TPE jacket

Ruggedized to Modular

Part #	Description
XC5-(XX)-B05	Category 5e UTP, Ruggedized plug-to-modular RJ-45 plug, yellow boot, PVC jacket
XC5-(XX)-B05T	Category 5e UTP, Ruggedized plug-to-modular RJ-45 plug, yellow boot, TPE jacket

Modular to Modular

Part #	Description
XC5NS-(XX)-B05T	Category 5e UTP, modular RJ-45 plug -to-modular RJ-45 plug, yellow boot, TPE jacket

PVC = Polyvinyl Chloride, TPE =Thermoplastic Elastomer

Use (XX) to specify length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

PVC jacket color is teal. TPE jacket color is black.

RUGGEDIZED CATEGORY 5E SHIELDED

Designed to withstand the rigors of harsh environments, Siemon's Ruggedized category 5e stranded cordage is petroleum and UV resistant, is not effected by common chemicals and water, operates in a wider temperature range and provides a longer flex life. Available in three Ruggedized jacket types to meet various environmental requirements (see table on last page for jacket comparison)

Ruggedized to Ruggedized

Part #	Description
XC5S-(XX)	Category 5e Shielded (SF/UTP) Ruggedized plug-to-Ruggedized plug, PVC jacket
XC5S-(XX)T	Category 5e Shielded (SF/UTP) Ruggedized plug-to-Ruggedized plug, TPE jacket
XC5S-(XX)U	Category 5e Shielded (SF/UTP) Ruggedized plug-to-Ruggedized plug, PUR jacket

Ruggedized to Modular

Part #	Description
XC5S-(XX)-B05	Category 5e Shielded (SF/UTP) Ruggedized plug-to-modular RJ-45 plug, yellow boot, PVC jacket
XC5S-(XX)-B05T	Category 5e Shielded (SF/UTP) Ruggedized plug-to-modular RJ-45 plug, yellow boot, TPE jacket
XC5S-(XX)-B05U	Category 5e Shielded (SF/UTP) Ruggedized plug-to-modular RJ-45 plug, yellow boot, PUR jacket

Modular to Modular

Part #	Description
XC5SNS-(XX)-B05T	Category 5e Shielded (SF/UTP) modular RJ-45 plug-to-modular RJ-45 plug, yellow boot, TPE jacket
XC5SNS-(XX)-B05U	Category 5e Shielded (SF/UTP) modular RJ-45 plug-to-modular RJ-45 plug, yellow boot, PUR jacket

PVC = Polyvinyl Chloride, PUR = Polyurethane, TPE =Thermoplastic Elastomer

Use (XX) to specify length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

PVC and PUR jacket color is teal. TPE jacket color is black.

RUGGEDIZED DUST CAPS

The Ruggedized dust caps are the ideal way to protect your investment in your Ruggedized cabling system. Outlet dust caps can be used to protect unused outlets or to seal an outlet during wash down periods when the outlet and plug may be disconnected. Plug dust caps protect Ruggedized patch cords from exposure to elements or accidental damage when not mated to an outlet.

Dust caps are constructed of ruggedized-grade thermoplastic for superior protection and durability. Additionally, outlet and plug dust caps feature a retention tether, which prevents them from being misplaced when not in use.

XP-CAP2 . . . . . .

Ruggedized plug dust cap with metal retention tether

XG2P-CAP . . . . . .

Ruggedized G2 plug dust cap with nylon retention tether

X-CAP . . . . . .

Ruggedized MAX outlet dust cap with metal retention tether

XG2-CAP . . . . . .

Ruggedized G2 outlet dust cap with nylon retention tether

RUGGEDIZED SURFACE MOUNT BOXES

The Siemon Ruggedized MAX Surface Mount Box (IBOX) mounts either Siemon copper or fiber Ruggedized outlets. Boxes provide an IP66/IP67 (NEMA 4X) seal and can be mounted on virtually any flat surface. Available in 1, 2, 3, and 4-port versions. Compression fittings provided for cable entry.

Technical Tip!

Contact Technical Support for punch tool to create Ruggedized knockouts for custom mounting.

X-IBOX-01 . . . . . .

Ruggedized surface mount box, 1-port, supplied with 1 cable entry compression fitting

X-IBOX-02 . . . . . .

Ruggedized surface mount box, 2-port, supplied with 2 cable entry compression fittings

X-IBOX-03 . . . . . .

Ruggedized surface mount box, 3-port, supplied with 3 cable entry compression fittings

X-IBOX-04 . . . . . .

Ruggedized surface mount box, 4-port, supplied with 4 cable entry compression fittings

Note: Compression fittings accommodate cable diameters from 4.1-7.9mm (0.16-0.31 in.)

RUGGEDIZED STAINLESS STEEL FACEPLATES

Mount Siemon's Ruggedized outlets and adapters into these stainless steel faceplates for a protective seal from moisture and debris. The faceplates are available in 1-, 2- , 3- and 4-port options with a rear sealing gasket and carry an IP44 rating.

XFP-S-01-SS . . . . . .

Single gang faceplate, 1-port, stainless steel

XFP-S-02-SS . . . . . .

Single gang faceplate, 2-port, stainless steel

XFP-D-03-SS . . . . . .

Double gang faceplate, 3-port, stainless steel

XFP-D-04-SS . . . . . .

Double gang faceplate, 4-port, stainless steel

Faceplates include mounting screws with sealed screw head.

PATCH CORD COMPARISON

PERFORMANCE CRITERA	PVC		TPE		PUR
Cable Type	UTP	SF/UTP	UTP	SF/UTP	SF/UTP
Conductors	24 AWG Bare Cu	24 AWG Bare Cu	24 AWG Tinned Cu	26 AWG Tinned Cu	26 AWG Tinned Cu
Conductor Insulation Material	Polyolefin	Polyolefin	High-Density Polyethylene	Polyolefin	High-Density Polyethylene
Jacket Construction	Double Jacket		Single Jacket		Single Jacket
Shielding (SF/UTP Only)	Aluminum Tape 65% Tinned Cu Braid		Aluminum Tape 85% Tinned Cu Braid		Aluminum Tape 75% Tinned Cu Braid
Overall Cable Diameter	0.256″	0.315″	0.227″	0.237″	0.244″
RoHS Compliant and Lead Free	Yes		Yes		Yes
Dielectric Strength and Electrical Performance	Good		Good		Fair
Low Temperature Flexiblility and Brittle Point	Fair		Excellent		Excellent
Tear Resistance	Fair		Excellent		Excellent
Abrasion and Scuff Resistance	Good		Good		Excellent
Flexibilty and Flex-Life	Good		Excellent		Excellent
Tensile Strength and Toughness	Good		Good		Excellent
Resistance to Ozone	Excellent		Good		Good
Ultraviolet and Weather Resistance	Fair		Good		Good
Resistance to Acids	Fair		Excellent		Fair
Resistance to Bases	Good		Good		Good
Resistance to Moisture	Good		Excellent		Excellent
Resistance to Petrochemicals	Good		Fair		Fair
Flame and Fire Resistance	Excellent		Good		Fair
Temperature Rating	-20°C (4°F) to 60° (140°F)		-40°C (-40°F) to 75°C (167°F)		-40°C (-40°F) to 75°C (167°F)
Outdoor Use (Not for Direct Burial)	Not Recommended		UL CMX Outdoor		Not Listed
UL/ETL Listing	CMR		CM, CMX Outdoor		CMX
Low Smoke, Zero Halogen	No		No		Yes

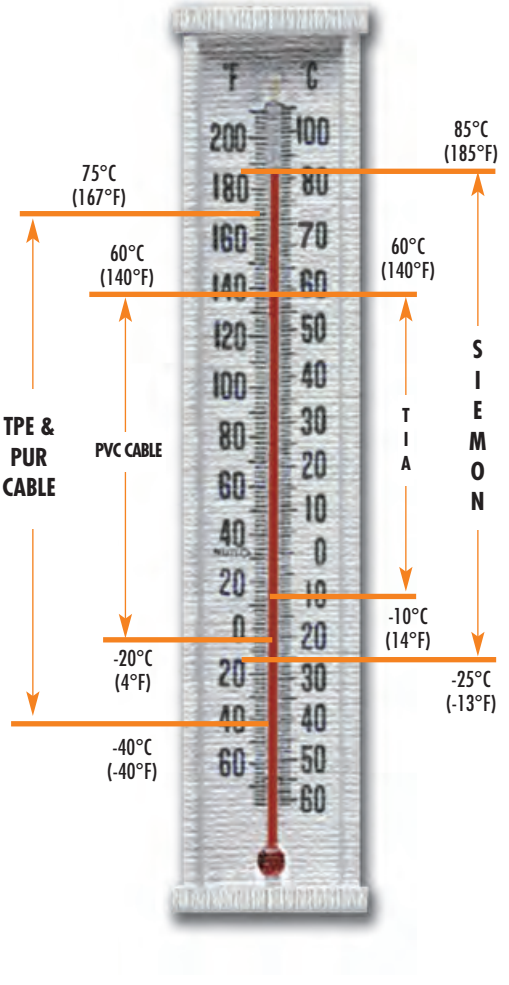
TECHNICAL INFORMATION

Ingress Protection	IP66/67 minimum and NEMA 6	**Temperature:** -25°C (-13°F) to 85°C (185°F)	**Plug/Outlet**
Shell Material	PBT - Polybutylene Terephthalate (Valox®), UL94V-0		**Plug/Outlet**
Collar Nut Material	Acetal, Acetal/Elastomer alloy (Delrin®) — Bulkhead Coupler: Zinc		**Plug/Outlet**
Gasket Material	Silicone		**Plug/Outlet**
Contact Material	Copper alloy		**Plug/Outlet**
Contact Plating	50 microinch minimum hard gold over nickel		**Plug/Outlet**
Mechanical Durability	750 cycles minimum		**Plug/Outlet**
Chemical Resistance	Materials have been selected to provide the widest range of protection from most solvents and common industrial chemicals. (Details available upon request)		**Plug/Outlet**
Bulkhead Thickness	0.762mm to 3.175mm (0.030 in. to 0.125 in.)		**Outlet**
Electrical Rating — Plug	**Voltage:** 150 volts AC	**Current:** 175 mA	**Plug**
	Dielectric Withstanding Voltage: 1000 VAC contact-to-contact; 1500 VAC contact-to-ground		
Electrical Rating — Outlet	**Voltage:** 150 volts AC maximum @ 25° C	**Current:** 1.5 amp max. @ 25 C	**Outlet**
	Dielectric Withstanding Voltage: 1000 VAC, RMS 60 Hz, 1 minute	**Surge Test:** to 1000 volts	
Electrical Resistance	**Insulation:** 50 MΩ minimum	**Contact:** 20 MΩ maximum	**Outlet**

IP CODE

INDEX FIGURE	DEGREE OF PROTECTION		DEGREE OF PROTECTION		INDEX FIGURE
0	No Protection	No protection against accidental contact, no protection against foreign bodies	No Protection against water	No Protection	0
1	Protection against large foreign bodies	Protection against contact with a large area by hand and against large solid bodies Ø> 50mm	Protection against vertical water drips	Drip-Proof	1
2	Protection against medium sized foreign bodies	Protection against contact with fingers, protection against small foreign solid bodies with Ø> 12mm	Protection against water drips (up to a 15° angle)	Drip-Proof	2
3	Protection against small solid foreign bodies	Protection against tools, wires, or similar objects with 2.5 mm protection against small foreign bodies with Ø>2.5 mm	Protection against water drips (up to a 60° angle)	Spray-Proof	3
4	Protection against grain-shaped foreign bodies	Protection against foreign bodies with Ø>1mm	Protection against splashed water from all directions	Spray-Proof	4
5	Protection against deposits of dust	Full protection against contact. Protection against interior equipment damage due to dust deposits	Protection against splashed water (out of a nozzle) from all directions	Hose-Proof	5
6	Protection against ingress of dust	Total protection against contact and protection against penetration of dust.	Protection against temporary flooding	Protected against flooding	6
			Protected against tempo-rary immersion	Protected against immersion	7
			Protected against water pressure	Water-tight	8

Temperature Range Siemon vs TIA



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