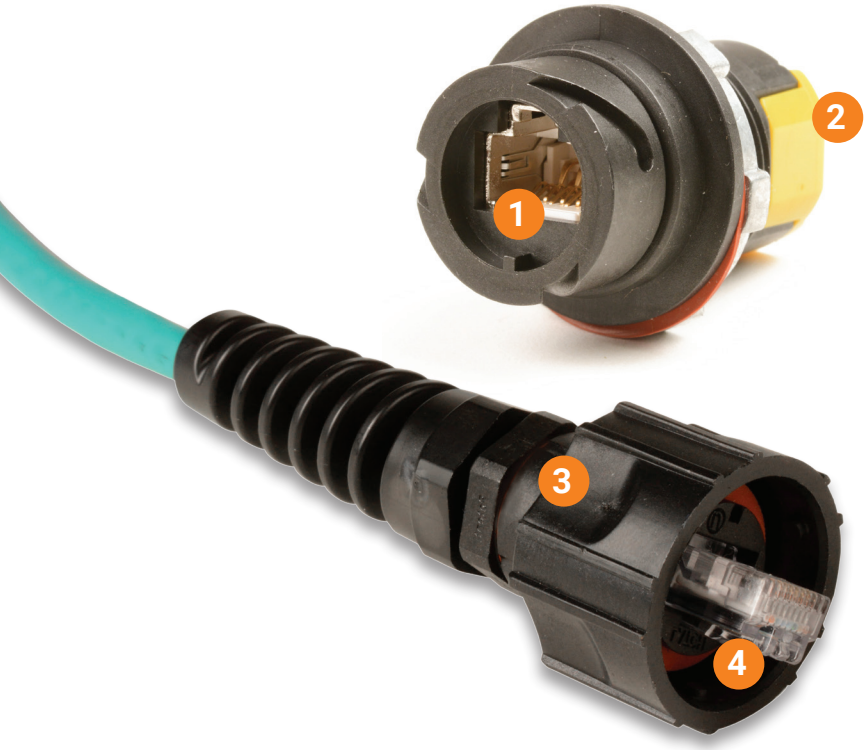
RUGGEDIZED COPPER CONNECTIVITY

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 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.

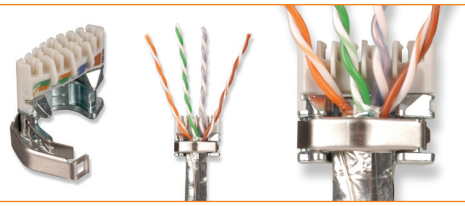


1. Standardized Interface
The Ruggedized connector has been recognized by the Open DeviceNet Vendor Association (ODVA), TIA-1005A-2020 and IEC 61076-3-106.

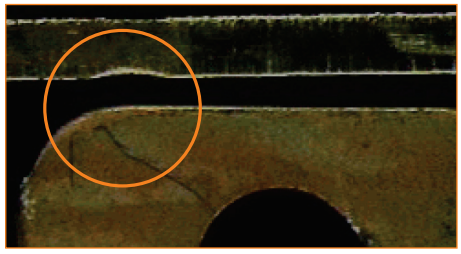
2. Easy Termination
The Ruggedized Z-MAX outlets innovative linear lacing technology and user-friendly Z-Tool enable fast terminations, while removing installation variability for consistent, repeatable performance.

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.

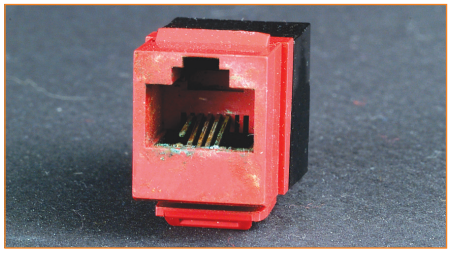


Compared to all other RJ-45 products on the market today the Z-MAX termination process embraces the principle that simpler is better. By establishing straight forward steps that eliminate potential errors, Siemon has been able to set a new benchmark for the fastest UTP and shielded category 6A outlet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



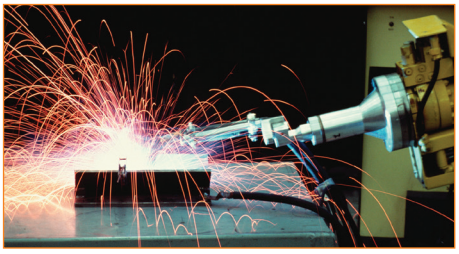
Vibration Causes Contact Damage in Typical Outlets

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.



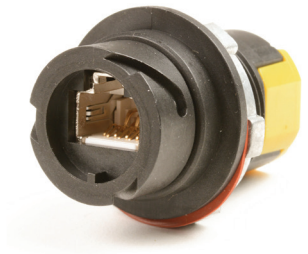
Humidity Affects Typical Outlets

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



Meets Harsh Demands of the Environment

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



Ruggedized G2 Z-MAX® Outlets

Ruggedized Bulkhead Coupler

Ruggedized Plugs

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 Number	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 BULKHEAD COUPLER

The Ruggedized Bulkhead Coupler provides back-to-back shielded category 5e outlets in a single Industrial shell to enable protected plug-to-plug connections. This robust connector is fully protected on both sides to provide a true IP 66/67 connection, surpassing typical designs where only one side is protected. The modular design allows panel feed-thru connections without the need for termination. While the Bulkhead Coupler provides sealing on both sides, it is also ideal for use on enclosures with a protected connection on the outside to a device, and standard modular patch cord on the inside to a switch or controller.

Part Number	Description
X5-X5S	Category 5e Shielded, MAX Ruggedized bulkhead coupler (outlet to outlet)

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

Product Information

Ruggedized to Ruggedized

Ruggedized to Modular

Modular to Modular

RUGGEDIZED CATEGORY 5E UTP PATCH CORDS

The Ruggedized category 5e UTP patch cords are constructed using flame-retardant thermoplastic elastomer (TPE) outer jacket. Combined with a high flex construction, oil-resistant jacket, UL/cUL CM/CMX outdoor rating, and temperature range of -40 to 75°C (167°F), they are ideal for providing end-to-end category 5e channel performance in harsh environments and easily transition from indoor to outdoor environments.

Ruggedized to Ruggedized

Part Number	Description
XC5-(XX)T	Category 5e, UTP, Patch Cord, Ruggedized Plug-to- Ruggedized Plug, Black Cable, Stranded, CM/CMX Outdoor, TPE

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.)

Ruggedized to Modular

Part Number	Description
XC5-(XX)-B05T	Category 5e, UTP, Patch Cord, Ruggedized Plug-to-Modular RJ45 Plug, Black Cable w/Yellow Boot, Stranded, CM/CMX Outdoor, TPE

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.

Modular to Modular

Part Number	Description
XC5U-SS(XXX)FT5	Category 5e, UTP, Patch Cord, Modular RJ45 Plug -to-Modular RJ45 Plug, Black Cable w/Yellow Boot, Stranded, CM/CMX Outdoor, TPE

Use (XXX) to specify length: 003 = 0.9m (3 ft.), 005 = 1.5m (5 ft.), 007 = 2.1m (7 ft.), 010 = 3.1m (10 ft.), 015 = 4.6m (15 ft.), 020 = 6.1m (20 ft.)

RUGGEDIZED CATEGORY 5E SHIELDED

The Ruggedized category 5e shielded patch cords are constructed with PVC,TPE and PUR jacket types to meet various environmental requirements. They are ideal for providing end-to-end category 5e channel performance in various environments (see table on last page for jacket comparison).

Ruggedized to Ruggedized

Part Number	Description
XC5S-(XX)	Category 5e, Shielded (F/UTP), Patch Cord, Ruggedized Plug-to- Ruggedized Plug, Teal Cable, Stranded, PVC, CMR
XC5S-(XX)T	Category 5e, Shielded (SF/UTP), Patch Cord, Ruggedized Plug-to- Ruggedized Plug, Black Cable, Stranded, CM/CMX Outdoor, TPE
XC5S-(XX)U	Category 5e, Shielded (SF/UTP), Patch Cord, Ruggedized Plug-to- Ruggedized Plug, Black Cable, Stranded, CMX, PUR-LSZH

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.)

Ruggedized to Modular

Part Number	Description
XC5S-(XX)-B05	Category 5e, Shielded (F/UTP), Patch Cord, Ruggedized Plug-to- modular RJ-45 plug, Teal Cable w/Yellow Boot, Stranded, PVC, CMR
XC5S-(XX)-B05T	Category 5e, Shielded (SF/UTP), Patch Cord, Ruggedized Plug-to- modular RJ-45 plug, Black Cable w/Yellow Boot, Stranded, CM/CMX Outdoor, TPE
XC5S-(XX)-B05U	Category 5e, Shielded (SF/UTP), Patch Cord, Ruggedized Plug-to- modular RJ-45 plug, Black Cable w/Yellow Boot, Stranded, CMX, PUR-LSZH

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.)

RUGGEDIZED CATEGORY 5E SHIELDED *(continued)*

Modular to Modular

Part Number	Description
XC5S-SS(XXX)FV	Category 5e, Shielded (F/UTP), Patch Cord, modular RJ-45 plug -to- modular RJ-45 plug, Teal Cable w/Yellow Boot, Stranded, PVC, CMR
XC5S-SS(XXX)FT	Category 5e, Shielded (SF/UTP), Patch Cord, modular RJ-45 plug -to- modular RJ-45 plug, Black Cable w/Yellow Boot, Stranded, CM/CMX Outdoor, TPE
XC5S-SS(XXX)FU	Category 5e, Shielded (SF/UTP), Patch Cord, modular RJ-45 plug -to- modular RJ-45 plug, Black Cable w/Yellow Boot, Stranded, CMX, PUR-LSZH

Use (XXX) to specify length: 003 = 0.9m (3 ft.), 005 = 1.5m (5 ft.), 007 = 2.1m (7 ft.), 010 = 3.1m (10 ft.), 015 = 4.6m (15 ft.), 020 = 6.1m (20 ft.)

RUGGEDIZED CATEGORY 6 UTP PATCH CORDS

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

Ruggedized to Ruggedized

Part Number	Description
XC6-(XX)T	Category 6, UTP, Patch Cord, Ruggedized Plug-to- Ruggedized Plug, Black Cable, Stranded, CM/CMX Outdoor, TPE

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.)

Ruggedized to Modular

Part Number	Description
XC6-(XX)-B05T	Category 6, UTP, Patch Cord, Ruggedized Plug-to-Modular RJ45 Plug, Black Cable w/Yellow Boot, Stranded, CM/CMX Outdoor, TPE

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

The CM/LSOH-1 Ruggedized category 6A S/FTP shielded patch cords are ideal for providing end-to-end category 6A shielded channel solution for indoor environments when used in conjunction with Siemon's category 6A shielded cable and category 6A compatible shielded Ruggedized outlets. The TPE Ruggedized category 6A SF/UTP shielded patch cords are constructed using flame-retardant thermoplastic elastomer (TPE) outer jacket over a polyvinyl chloride (PVC) inner jacket. Combined with a -40 to 80°C (-40 to 176°F) temperature range, high flex construction, oil resistant jacket and UL/cUL CM/CMX outdoor rating, they easily transition from indoor to outdoor environments and are ideal for providing end-to-end 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 Number	Description
XC6A-S(XX)-B05	Category 6A Patch Cord, Shielded (S/FTP), Ruggedized Plug-to-Modular RJ45 Plug, White Cable w/Yellow Boot, Indoor, Stranded CM/LSOH-1
XC6A-S(XX)-B01T	Category 6A Patch Cord, Shielded (SF/UTP), Ruggedized Plug-to-Modular RJ45 Plug, Black Cable w/Black Boot, Stranded, CMR/CMX Outdoor, TPE

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.)

Modular to Modular

Part Number	Description
XC6AS-SS(XX)F01T	Category 6A Patch Cord, Shielded (SF/UTP), Modular RJ45 Plug -to-Modular RJ45 Plug, Black Cable w/Black Boot, Stranded, CMR/CMX Outdoor, TPE

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.)

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.

Part Number	XP-CAP2	XG2P-CAP	X-CAP	XG2-CAP
Description	Ruggedized plug dust cap with metal retention tether	Ruggedized G2 plug dust cap with nylon retention tether	Ruggedized MAX outlet dust cap with metal retention tether	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. Contact Technical Support for punch tool to create Ruggedized knockouts for custom mounting.

Part Number	X-IBOX-01	X-IBOX-02	X-IBOX-03	X-IBOX-04
Description	Ruggedized surface mount box, 1-port, supplied with 1 cable entry compression fitting	Ruggedized surface mount box, 2-port, supplied with 2 cable entry compression fittings	Ruggedized surface mount box, 3-port, supplied with 3 cable entry compression fittings	Ruggedized surface mount box, 4-port, supplied with 4 cable entry compression fittings

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. Faceplates include mounting screws with sealed screw head.

Part Number	XFP-S-01-SS	XFP-S-02-SS	XFP-D-03-SS	XFP-D-04-SS
Description	Single gang faceplate, 1-port, stainless steel	Single gang faceplate, 2-port, stainless steel	Double gang faceplate, 3-port, stainless steel	Double gang faceplate, 4-port, stainless steel

Patch Cord Comparison

Performance Criteria	PVC	TPE		PUR
Cable Type	F/UTP	UTP	SF/UTP	SF/UTP
Conductors	Conductors 24 AWG Tinned Cu	24 AWG Tinned Cu	26 AWG Tinned Cu	26 AWG Tinned Cu
Conductor Insulation Material	Polyolefin	High-Density Polyethylene	Polyolefin	High-Density Polyethylene
Jacket Construction	Double Jacket	Single Jacket		Single Jacket
Jacket Material (Outer)	Polyvinyl Chloride	Thermoplastic		Polyurethane
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	0.315”	0.227”	0.245”	0.244”
RoHS Compliant and Lead Free	Yes	Yes		Yes
Dielectric Strength and Electrical Performance	Good	Good		Fair
Low Temperature Flexibility and Brittle Point	Fair	Excellent		Excellent
Tear Resistance	Fair	Excellent		Excellent
Abrasion and Scuff Resistance	Good	Good		Excellent
Flexibility 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	Plug/Outlet	IP66/67 minimum and NEMA 6 **Temperature:** -25°C (-13°F) to 85°C (185°F)
Shell Material	Plug/Outlet	PBT - Polybutylene Terephthalate (Valox®), UL94V-0
Collar Nut Material	Plug/Outlet	Acetal, Acetal/Elastomer alloy (Delrin®) — Bulkhead Coupler: Zinc
Gasket Material	Plug/Outlet	Silicone
Contact Material	Plug/Outlet	Copper alloy
Contact Plating	Plug/Outlet	50 microinch minimum hard gold over nickel
Mechanical Durability	Plug/Outlet	750 cycles minimum
Chemical Resistance	Plug/Outlet	Materials have been selected to provide the widest range of protection from most solvents and common industrial chemicals. (Details available upon request)
Bulkhead Thickness	Outlet	0.762mm to 3.175mm (0.030 in. to 0.125 in.)
Electrical Rating — Plug	Plug	**Voltage:** 150 volts AC **Current:** 175 mA **Dielectric Withstanding Voltage:** 1000 VAC contact-to-contact; 1500 VAC contact-to-ground
Electrical Rating — Outlet	Outlet	**Voltage:** 150 volts AC maximum @ 25° C **Current:** 1.5 amp max. @ 25 C **Dielectric Withstanding Voltage:** 1000 VAC, RMS 60 Hz, 1 minute **Surge Test:** to 1000 volts
Electrical Resistance	Outlet	**Insulation:** 50 MΩ minimum **Contact:** 20 MΩ maximum

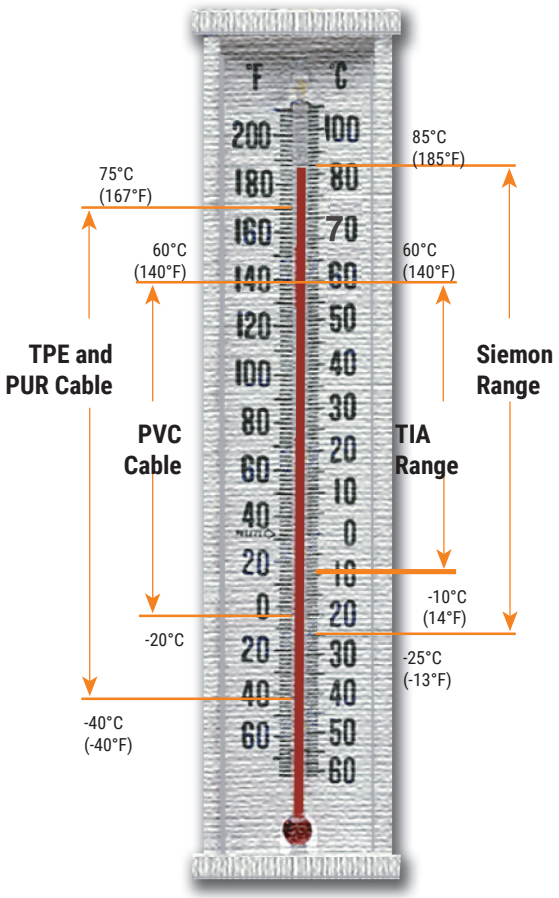
IP CODE TABLE

Index Figure	Degree of Protection	
0	No Protection	No protection against accidental contact, no protection against foreign bodies
1	Protection against large foreign bodies	Protection against contact with a large area by hand and against large solid bodies Ø> 50mm
2	Protection against medium sized foreign bodies	Protection against contact with fingers, protection against small foreign solid bodies with Ø>12mm
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
4	Protection against grain shaped foreign bodies	Protection against foreign bodies with Ø>1mm
5	Protection against deposits of dust	Full protection against contact. Protection against interior equipment damage due to dust deposits
6	Protection against ingress of dust	Total protection against contact and protection against penetration of dust.

Degree of Protection		Index Figure
No Protection against water	No Protection	0
Protection against Vertical water drips	Drip-Proof	1
Protection against water drips (up to a 15° angle)	Drip-Proof	2
Protection against water drips (up to a 60° angle)	Spray-Proof	3
Protection against splashed water from all directions	Spray-Proof	4
Protection against splashed water (out of a nozzle) from all directions	Hose-Proof	5
Protection against temporary flooding	Protected against flooding	6
Protected against temporary immersion	Protected against immersion	7
Protected against water pressure	Water-tight	8

TEMPERATURE RANGE

Slemon vs. TIA



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