Installation Instructions

Original Instructions

SafeZone 3 Safety Laser Scanner Mounting

Catalog Numbers 442L-SZNMZCP, 442L-SZNCPMOD

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Added Declaration of Conformity	3

About This Document

This document applies to the SafeZone™ 3 Safety Laser Scanner and the associated system plug with catalog numbers 442L-SZNMZCP and 442L-SZNCPMOD.

Safety Information

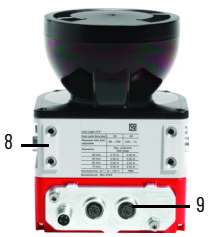
ATTENTION: Hazard due to lack of effectiveness of the SafeZone 3 safety laser scanner. If non-compliant, it is possible that the dangerous state of the machine does not stop or not stop in a timely manner.
Observe the safety information provided.

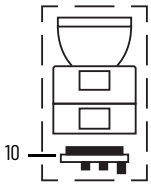
The safety laser scanner is not suitable for the following applications, among others:

- Outdoors
- Underwater
- Explosive environments

For detailed information on the application and configuration of the SafeZone 3 safety laser scanner, see publication 442L-UM008.

Device Overview





Item	Description
1	Optics cover
2	Display
3	Keypad
4	USB port (disabled)
5	Status indicators

Item	Description
6	Additional indicators
7	Network indicators
8	Four M5 mounting inserts
9	System plug (mounted in the back)
10	System plug (mounted on the bottom)

IMPORTANT Perform all changes/modifications to the SafeZone 3 safety laser scanner and/or system plug that are described in this document only after you remove power to the devices.

Install the System Plug

The SafeZone 3 safety laser scanner and the system plug are sold separately and require the system plug to be installed on the SafeZone 3 safety laser scanner.

The SafeZone 3 safety laser scanner has a protective cover over both the back and bottom mounting slots. When you install a system plug on the safety laser scanner, the environment must be clean and free of fog, moisture, and dust. Follow these steps to install the system plug:

1. Determine how the SafeZone 3 safety laser scanner must mount in the application.
2. Determine the best location to mount the system plug, either in the back or bottom of the scanner.
3. Remove the protective cover from the chosen mounting slot with a T20 torx driver.
4. Carefully insert the system plug into the opening and tighten the two screws with a T20 torx driver to secure the module. Torque to 2.25...2.75 N•m (19.9...24.3 lb•in).

See Change System Plug Location if the installed system plug must relocate from one mounting slot to the other.

Change System Plug Location

This process requires a TX20 torx driver.

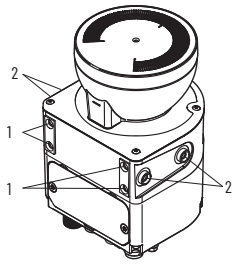
1. Loosen the screws of the system plug.
2. Remove the system plug from the safety laser scanner slot.
3. Loosen the cover plate screws.
4. Remove the cover plate from the new mounting slot of the safety laser scanner.
5. Carefully insert the system plug into the opening and tighten the two screws with a T20 torx driver to secure the module. Torque to 2.25...2.75 N•m (19.9...24.3 lb•in).
6. Attach the cover plate to the open slot of the safety laser scanner and tighten the screws. Torque to 2.25...2.75 N•m (19.9...24.3 lb•in).

See Table 2 on page 2 for XD1 pin assignment and Table 3 on page 2 for XF1 and XF2 connections.

Direct Mounting

The safety laser scanner has four M5 threaded inserts on the back. If you can drill through the mounting surface from the rear, you can mount the safety laser scanner directly with these threaded holes.

- Use either the M5 threaded holes at the back (1) or the M5 threaded holes at the side (2) for direct mounting.



- Use all four M5 threaded holes at the back or all four M5 threaded holes at the side for direct mounting, so that the values given in the data sheet for vibration and shock resistance are achieved.
- Maximum depth of thread engagement is 7.5 mm (0.29 in.).
- Torque to 4.5...5.0 N•m (39.8...44.2 lb•in).

Connection Overview

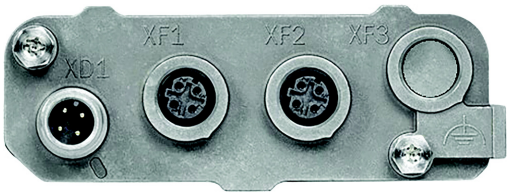


Table 1 - Connection Cables

Description	Cat. No.
Power Connection Cable	
4-pin, straight M12 QD concave with flying leads, yellow PVC jacket, 22 AWG, 250V, 4 A	889D-F4AC-x (1)
4-pin, right M12 QD concave with flying leads, yellow PVC jacket, 22 AWG, 250V, 4 A	889D-R4AC-x (1)
Ethernet Cabling	
M12 to flying leads 1585 Ethernet cables, 4 conductors, M12, straight convex, standard, flying leads, teal PUR, shielded, 100BASE-TX, 100 Mbit/s, high flex, PUR, halogen-free, 10 million cycles	1585D-M4UB-x (2)
M12 to M12 1585 Ethernet cables, 4 conductors, M12, straight convex, standard, M12, teal PUR, shielded, 100BASE-TX, 100 Mbit/s, high flex, PUR, halogen-free, 10 million cycles	1585D-M4UBDM-x (2)
M12 to M12 1585 Ethernet cables, 4 conductors, M12, straight convex, standard, M12, right-angle convex, teal PUR, shielded, 100BASE-TX, 100 Mbit/s, high flex, PUR, halogen-free, 10 million cycles	1585D-M4UBDW-x (2)
M12 to RJ45 1585 Ethernet cables, 4 conductors, M12, straight convex, standard, RJ45, straight convex, teal PUR, shielded, 100BASE-TX, 100 Mbit/s, high flex, PUR, halogen-free, 10 million cycles	1585D-M4UBJM-x (2)

(1) Replace the x with a 2 [2 m (6.56 ft)], 5 [5 m (16.4 ft)], or 10 [10 m (32.81 ft)] for standard cable lengths. See rockwellautomation.com/en-us/products/hardware/allen-bradley/connection-devices/cables-and-cordsets/dc-micro--m12-/dc-micro-cordsets-and-patchcords.html for additional information.
(2) Replace the x with a 2 [2 m (6.56 ft)], 5 [5 m (16.4 ft)], or 10 [10 m (32.81 ft)] for standard cable lengths. See rockwellautomation.com/en-us/products/hardware/allen-bradley/connection-devices/network-media/ethernet/1585-m12-and-variant-1.html for additional information.

Pin Assignment

Voltage Supply (Pwr) – XD1

Figure 1 - M12 Convex, 4-pin, A-coded

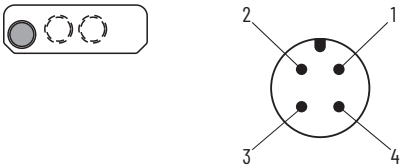


Table 2 - Voltage Supply Pin Assignment

Pin	Designation	Function	Wire Color (1)
1	+24V DC	Supply voltage +24V DC	Brown
2	NC	Not connected	White
3	0V DC	Supply voltage 0V DC	Blue
4	FE	Functional earth/shield	Black

(1) Applies to the recommended connection cables (see Table 1).

EtherNet/IP Connection (E/IP) – XF1 and XF2

Figure 2 - M12 Concave, 4-pin, D-coded

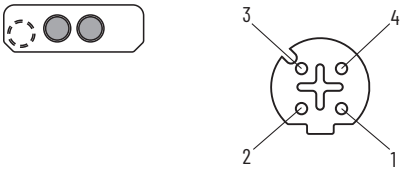
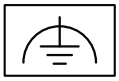


Table 3 - EtherNet/IP Pin Assignment

Pin	Designation	Function	Wire Color (1)
1	TX+	Send data +	White/orange
2	RX+	Receive data +	White/green
3	TX-	Send data -	Green
4	RX-	Receive data -	Orange

(1) Applies to the recommended connection cables (see Table 1).

Alternative FE Connection



Screw the connection of the alternate FE connection:

- Screw: M5 x 12
- Torque: 3.5...5 N•m

Suitable cable lugs:

- Forked cable lug or ring cable lug
- Width: ≤ 10 mm (0.4 in.)
- Hole diameter for screw: typically 5.2 mm (0.2 in.)

The functional earth must connect via one, and only one, of the available FE connections:

- Pin on the M12 plug connector
- Thread on the M12 plug connector
- Alternative FE connection

The functional earth must connect in a low-inductance manner and with an adequate cross-section while keeping the cable length as short as possible. Functional earth and protection earth must be isolated.

Replace the Safety Laser Scanner

If the safety laser scanner is damaged or does not function properly, you must replace the scanner.

This process requires a TX20 torx driver.

ATTENTION: Hazard due to lack of effectiveness of the protective device.
Persons and parts of the body to be protected are not recognized if not observed.

If an unsuitable configuration is saved in the system plug, the dangerous state does not end or does not end in time.

After replacement:

- Verify that you use the same system plug or a system plug with the same configuration.
- Confirm that the safety laser scanner aligns correctly.

IMPORTANT The IP65 enclosure rating only applies if the safety laser scanner is closed and the system plug is mounted.

- Mount the system plug and cover plate.
- Close each M12 connector on the safety laser scanner with a convex cable connector or a protective cap.
  - Torque for connection: 0.4...0.6 N•m (3.54...5.31 lb•in)
  - Torque for protective caps: 0.6...0.7 N•m (5.31...6.19 lb•in)
- Mount the optics cover.

IMPORTANT Carefully plug in the system plug. Do not force it. The contacts can break off or bend if too much force is used.

Replace the Safety Laser Scanner Without System Plug

1. Verify that the environment is clean and clear of fog, moisture, and dust.
2. Unscrew the system plug screws and remove the system plug from the non-functioning safety laser scanner.
3. Unscrew the mounting screws and remove the non-functioning safety laser scanner.
4. Mount the system plug on the new safety laser scanner, see Replace the System Plug.
5. Mount the new safety laser scanner, see Direct Mounting on page 2.
6. Check the effectiveness of the SafeZone 3 safety laser scanner. For more information, see publication 442L-UM008.

Replace the Total Safety Laser Scanner

1. Disconnect the connecting cables from the system plug.
2. Unscrew the mounting screws and remove the non-functioning safety laser scanner.
3. Mount the new safety laser scanner, see Direct Mounting on page 2.
4. Reconnect the connecting cables to the system plug.
5. Configure the safety laser scanner.
6. Perform commissioning again. Conduct all thorough checks as described. For more information, see publication 442L-UM008.

Replace the System Plug

This process requires a TX20 torx driver.

IMPORTANT The IP65 enclosure rating only applies if the safety laser scanner is closed and the system plug is mounted.

- Mount the system plug and cover plate.
- Close each M12 connector on the safety laser scanner with a convex cable connector or a protective cap.
  - Torque for connection: 0.4...0.6 N•m (3.54...5.31 lb•in)
  - Torque for protective caps: 0.6...0.7 N•m (5.31...6.19 lb•in)
- Mount the optics cover.

IMPORTANT Carefully plug in the system plug. Do not force it. The contacts can break off or bend if too much force is used.

1. Verify that the environment is clean and clear of fog, moisture, and dust.
2. Disconnect the connecting cables from the system plug.
3. If necessary, move the safety laser scanner to a clean location.
4. Unscrew the system plug screws from the non-functioning and remove the system plug from the safety laser scanner.
5. Carefully insert the new system plug into the appropriate mounting slot of the safety laser scanner.
6. Screw in the system plug with the captive screws. Torque to 2.25...2.75 N•m (19.9...24.3 lb•in).
7. Reconnect the connecting cables to the system plug.
8. Perform commissioning again. Conduct all thorough checks as described. For more information, see publication 442L-UM008.

Declaration of Conformity

CE Conformity

Rockwell Automation declares that the products that are shown in this document conform with the Essential Health and Safety Requirements (EHSRs) of the European Machinery Directive (2006/42/EC) and the EMC Directive (2014/30/EU).

For a comprehensive CE certificate visit: rok.auto/certifications.

UKCA Conformity

Rockwell Automation declares that the products that are shown in this document are in compliance with the Supply of Machinery (Safety) Regulations (2008 No. 1597) and the Electromagnetic Compatibility Regulations (2016 No. 1091).

For a comprehensive UKCA certificate visit: rok.auto/certifications.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

Documentation Feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

Waste Electrical and Electronic Equipment (WEEE)

At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.
For technical support, visit rok.auto/support.

Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

Connect with us.

rockwellautomation.com — expanding **human possibility**®

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846
UNITED KINGDOM: Rockwell Automation Ltd. Pitfield, Kiln Farm Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800, Fax: (44)(1908) 261-917

Publication 442L-IN006D-EN-P - November 2022 | Supersedes Publication 442L-IN006C-EN-P-February 2021
8020211
10002383263 Ver 01