SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD Product Manual

Original Instructions
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Chapter 1 About This Document

1.1 Important... Read this before proceeding!

The user is responsible for satisfying all local, state, and national laws, rules, codes, and regulations relating to the use of this product and its application. Banner Engineering Corp. has made every effort to provide complete application, installation, operation, and maintenance instructions. Please contact a Banner Applications Engineer with any questions regarding this product.

The user is responsible for making sure that all machine operators, maintenance personnel, electricians, and supervisors are thoroughly familiar with and understand all instructions regarding the installation, maintenance, and use of this product, and with the machinery it controls. The user and any personnel involved with the installation and use of this product must be thoroughly familiar with all applicable standards, some of which are listed within the specifications. Banner Engineering Corp. makes no claim regarding a specific recommendation of any organization, the accuracy or effectiveness of any information provided, or the appropriateness of the provided information for a specific application.

WARNING:

- **Not a safeguarding device**
- Failure to follow these instructions could result in serious injury or death.
- This device is not considered a safeguarding device because it requires an overt action by an individual to stop machine motion or hazards. A safeguarding device limits or eliminates an individual's exposure to a hazard without action by the individual or others. This device cannot be substituted for required safeguarding. Refer to the applicable standards to determine those requirements.

1.2 Use of Warnings and Cautions

The precautions and statements used throughout this document are indicated by alert symbols and must be followed for the safe use of the SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD. Failure to follow all precautions and alerts may result in unsafe use or operation. The following signal words and alert symbols are defined as follows:

Signal Word and Symbol	Definition
WARNING:	**Warnings** refer to potentially hazardous situations which, if not avoided, could result in serious injury or death.
CAUTION:	**Cautions** refer to potentially hazardous situations which, if not avoided, could result in minor or moderate injury.

These statements are intended to inform the machine designer and manufacturer, the end user, and maintenance personnel, how to avoid misapplication and effectively apply the SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD to meet the various safeguarding application requirements. These individuals are responsible to read and abide by these statements.

1.3 EU Declaration of Conformity (DoC)

Banner Engineering Corp. herewith declares that these products are in conformity with the provisions of the listed directives and all essential health and safety requirements have been met. For the complete DoC, please go to www.bannerengineering.com.

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Product	Directive
SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD	EU: Machinery Directive 2006/42/EC

Representative in EU: Spiros Lachandidis, Managing Director, Banner Engineering BV | Park Lane | Culliganlaan 2F bus 3 | 1831 Diegem, BELGIUM

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Chapter 2 Product Description



- Rugged IP69 rated design; easy installation with no assembly or individual wiring required
- Compact 50 mm body with 30 mm mounting and 30 mm “mushroom style” push button
- Push-to-stop, twist-to-release, or pull-to-release operation per EN 60947-5-5
- Two, solid-state, PNP current sourcing OSSD outputs
- In-Series Diagnostic (ISD) for button health and status information when used with a compatible Banner Safety Controller
- Standard or made-to-order RGB LED indication configurations for armed, actuated, and waiting for reset states
- Flexible Status Indication allows for a standard or made-to-order state such as solid red or blue when provided a PNP signal
- Models with the FDA-grade washdown cover are push-to-stop and pull-to release operation per EN 60947-5-5
- Latching design complies with ISO 13850; direct (positive) opening operation per EN 60947-5-1
- Compliant with ANSI B11.19, NFPA 79, and IEC/EN 60204-1 Emergency Stop requirements
- 5-pin and 8-pin M12 quick disconnect
- Emergency stop yellow background label included
- Optional field Installable protective shroud accessory designed in accordance with ISO 13850 and ANSI B11.19

2.1 Models

Model	Reset Function	Flexible Status Indicator	Illumination Color			
			Armed	Actuated (Flashing)	Reset	Override
SSA-ECLGR1-0DQ8RB	Yes	No	Green	Red	Blue	None
SSA-ECLGR1-0DQ8FR	No	Yes	Green	Red	None	Red
SSA-ECLYR1-0DQ8FR			Yellow			
SSA-ECLXR1-0DQ8FR			None			
SSA-ECLGR1-0DQ5FR			Green			
SSA-ECLYR1-0DQ5FR			Yellow			
SSA-ECLXR1-0DQ5FR			None			

To order a model with the washdown cover installed, add "**-WC**" to the model number. For example, **SSA-EC...-WC**.

Contact Banner for alternate colors, color combinations, or -WC washdown models that are not currently available.

2.2 Emergency Stop Considerations

NFPA 79, ANSI B11.19, IEC/EN 60204-1, and ISO 13850 specify emergency stop requirements, including the following:

- Emergency-stop push buttons shall be located at each operator control station and at other operating stations where emergency shutdown is required.
- Stop and emergency-stop push buttons shall be continuously operable and readily accessible from all control and operating stations where located. Do not mute or bypass E-stop buttons.
- Actuators of emergency-stop devices shall be colored red. The background immediately around the device actuator shall be colored yellow (where possible). The actuator of a push-button-operated device shall be of the palm or mushroom-head type.

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- The emergency-stop actuator shall be a self-latching type.

WARNING:

- **Do not mute or bypass any emergency stop device**
- Muting or bypassing the safety outputs renders the emergency stop function ineffective.
- ANSI B11.19, NFPA 79 and IEC/EN 60204-1 require that the emergency stop function remains active at all times.

WARNING:

- **Connect two or more devices to the same safety module (controller) in series**
- Connecting devices in parallel defeats the switch contact monitoring ability of the module and creates an unsafe condition that could result in serious injury or death.
- Failure to test each device individually in this manner could result in undetected faults and create an unsafe condition that could result in serious injury or death.
- Connect the contacts of the corresponding pole of each switch in series. Never connect the contacts of multiple switches in parallel. Individually actuate (engage) each device, then release (or re-arm) and reset the safety module. This allows the module to check each switch and its wiring to detect faults. Perform this check during the prescribed checkouts.

2.3 Overview

The SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD is a mushroom-style electro-mechanical emergency stop push button. When the button is armed and the device input requirements are satisfied, the two solid-state PNP output signal switching devices (OSSDs) are on (conducting). When the button is pushed, the OSSDs are off (not conducting). The OSSDs remain in this condition until the push button is manually re-armed by pulling or twisting clockwise the red push button actuator.

The SSA-ECLx-0DQx series has a 30 mm mounting base for ease of mounting without requiring an additional enclosure.

The illumination provides easy identification of a pushed/actuated button. An armed button will light a steady yellow or green illumination or be OFF (depending on model). A pushed/actuated button is indicated by a red flashing illumination. Internal or external faults are indicated by a double-flashing red illumination.

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Chapter 3 Installation Instructions

3.1 Installation Requirements

The device must not be affected by environmental conditions. **Install the device so that operation is not impeded, but should be protected against inadvertent operation** (for example, accidental actuation by being bumped or leaned against). Do not operate the switch using a tool. Do not expose the switch to excessive shocks and vibrations, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.

Electrical installation must be made by a Qualified Person[1] and must comply with NEC (National Electrical Code), NFPA 79 or IEC/EN 60204-1, and all applicable local standards. It is not possible to give exact wiring instructions for a device that interfaces to a multitude of machine control configurations. The following is general in nature; it is recommended to perform a risk assessment to ensure appropriate application, interfacing/hookup, and risk reduction (see ISO 12100 or ANSI B11.0).

WARNING:

- **Risk of electric shock**
- Use extreme caution to avoid electrical shock. Serious injury or death could result.
- Always disconnect power from the safety system (for example, device, module, interfacing, etc.), guarded machine, and/or the machine being controlled before making any connections or replacing any component. Lockout/tagout procedures might be required. Refer to OSHA 29CFR1910.147, ANSI Z244-1, or the applicable standard for controlling hazardous energy.
- Make no more connections to the device or system than are described in this manual. Electrical installation and wiring must be made by a Qualified Person[2] and must comply with the applicable electrical standards and wiring codes, such as the NEC (National Electrical Code), NFPA 79, or IEC 60204-1, and all applicable local standards and codes.

3.2 Mechanical Installation

The SSA-ECLx-0DQx series is supplied with all necessary mounting hardware.

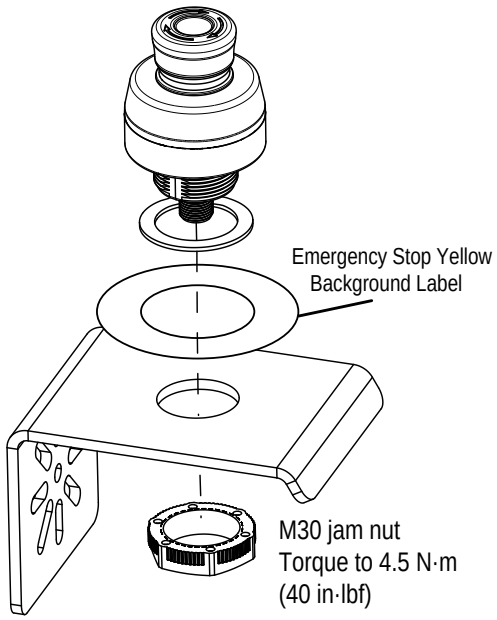
IMPORTANT: Install the emergency stop in a manner that discourages tampering or defeat. Mount emergency stops to prevent bypassing at the terminal chamber or quick disconnect (QD) connection.

The hardware supplied with the 30 mm mount SSA-ECLx-0DQx series includes a jam nut and washer. The threaded base contains external M30 threads for the supplied jam nut.

[1] A Qualified Person is a person who, by possession of a recognized degree or certificate of professional training, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work.
[2] A Qualified Person is a person who, by possession of a recognized degree or certificate of professional training, or who, by extensive knowledge, training and experience, has successfully demonstrated the ability to solve problems relating to the subject matter and work.

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Figure 1. Mount the E-Stop



3.3 Output Signal Switching Devices (OSSDs) and External Device Monitoring (EDM)

The SSA-ECLx-0DQx is able to detect faults on OSSD1 and OSSD2. These faults include short circuits to +24 V DC and 0 V, and between OSSD1 and OSSD2.

Both OSSD outputs must be connected to the machine control so that the machine's safety-related control system interrupts the circuit or power to the machine primary control element(s) (MPCE), resulting in a non-hazardous condition.

Final switching devices (FSDs) typically accomplish this when the OSSDs go to an OFF state.

Refer to the output specifications and these warnings before making OSSD output connections and interfacing the SSA-ECLx-0DQx to the machine.

WARNING:

- **Interfacing both output signal switching devices (OSSD)**
- Failure to follow these instructions could result in serious injury or death.
- Unless the same degree of safety is maintained, never wire an intermediate device(s) (PLC, PES, PC) between the safety module outputs and the master stop control element it switches such that a failure causes a loss of the safety stop command or the failure allows the safety function to be suspended, overridden, or defeated.
- Connect both OSSD outputs to the machine control so that the machine’s safety-related control system interrupts the circuit to the machine primary control element(s), resulting in a non-hazardous condition.

WARNING:

- **Interfacing OSSD Outputs to Machine Inputs**
- Failure to properly interface the OSSD Outputs to the guarded machine could result in serious injury or death.
- To ensure proper operation, the Banner device output parameters and machine input parameters must be considered when interfacing the Banner device OSSD outputs to machine inputs. Design the machine control circuitry so that the maximum load resistance value is not exceeded and the maximum specified OSSD Off-state voltage does not result in an On condition.

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External device monitoring (EDM) is a function used to monitor the state of the external, positively guided (mechanically linked) machine control contacts (Final Switching Devives (FSD) and/or MPCEs). The SSA-ECLx-0DQx does not include the EDM function. As a result, the SSA-ECLx-0DQx should be used with an external safety monitoring device that monitors the status of the two SSA-ECLx-0DQx OSSDs and is capable of providing the EDM function.

Examples of appropriate external safety monitoring devices include the Banner **SC10-2ro** or **XS26-ISDx** Safety Controller.

WARNING:
- **The SSA-ECLx-0DQx does not have external device monitoring (EDM).**
- If EDM is required for the application, it must be implemented in the external control.

3.3.1 Fault-Tolerant Output Feature

Faults that do not immediately compromise the safe operation of the SSA-ECLx-0DQx (for example safety output to external potential, crosswire short safety output) result in a delayed switch-off of the safety outputs.

The safety outputs switch off when the error warning exceeds 20 minutes. In case of error warning, the E-stop will double-flash red.

Use this fault-tolerant output feature to run down the machinery in a controlled manner. After fixing the fault, the error message is confirmed by a power cycle. The safe outputs enable and allow a restart.

Faults that directly affect the safe operation of the emergency stop device immediately cause a lockout condition and the OSSDs turn off.

3.4 Wiring for a Single E-Stop

Table 1. Single SSA-ECLx-0DQ8xx Series Lighted Emergency Stop Button with ISD with SC10-2ro

Pin	Wire Color	SSA-ECLx-0DQ8Rx	SSA-ECLx-0DQ8Fx
1	White	+24 V DC	+24 V DC
2	Brown	OSSD1	OSSD1
3	Green	0 V DC	0 V DC
4	Yellow	OSSD2	OSSD2
5	Gray	Input1	Input1
6	Pink	Input2	Input2
7	Blue	No Function	No Function
8	Red	Reset (+V in)	Button color override input (+V in)

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Figure 2. Single SSA-ECLx-0DQ8 Series Lighted Emergency Stop Button with ISD with SC10-2ro

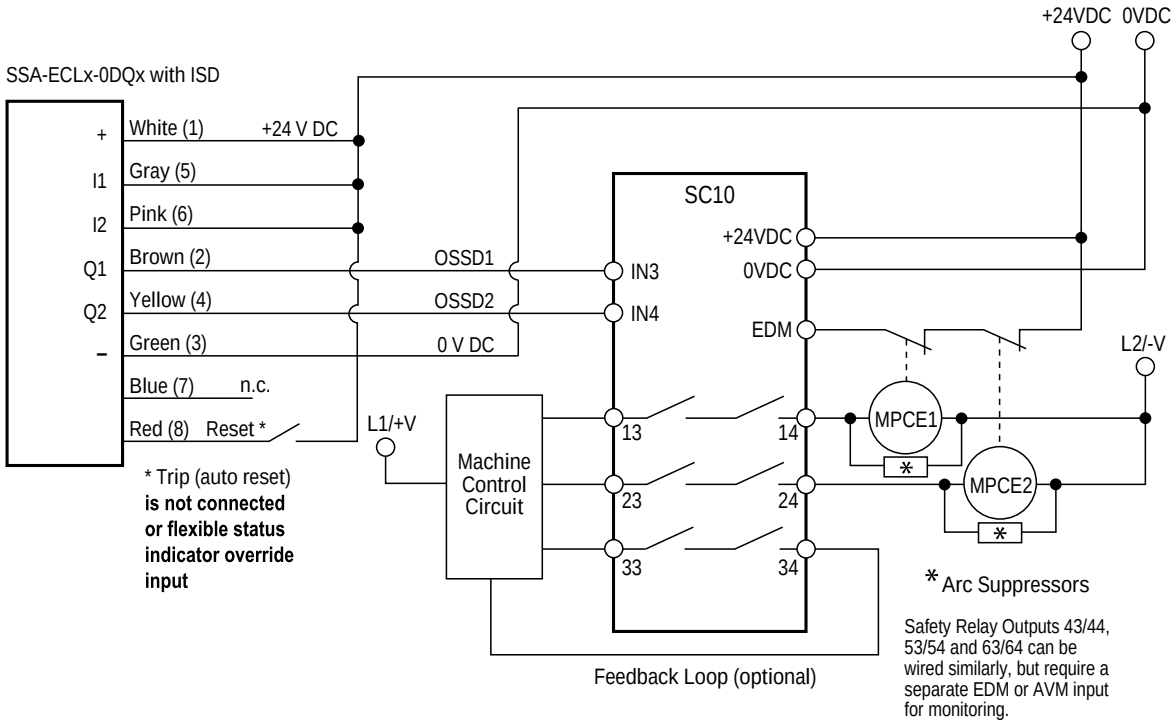
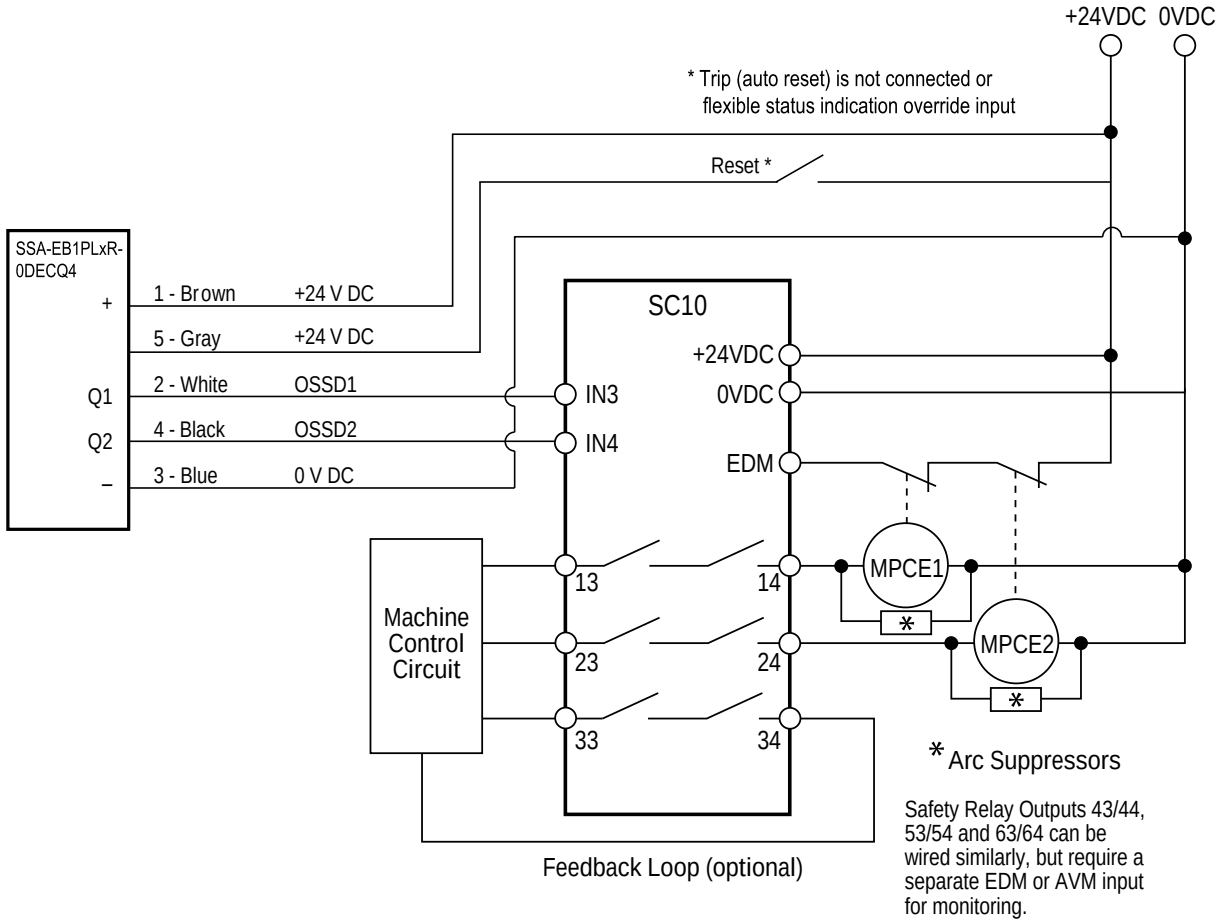


Table 2. Single SSA-ECLx-0DQ5xx Series Lighted Emergency Stop Button with ISD with SC10-2ro

Pin	Wire Color	SSA-ECLx-0DQ5Rx	SSA-ECLx-0DQ5Fx
1	Brown	+24 V DC	+24 V DC
2	White	OSSD1	OSSD1
3	Blue	0 V DC	0 V DC
4	Black	OSSD2	OSSD2
5	Gray	Reset (+V in)	Button color override input (+V in)

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Figure 3. Single SSA-ECLx-0DQ5 Series Lighted Emergency Stop Button with ISD with SC10-2ro



The SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD can be connected in series or individually to a compatible Banner XS26-2 or SC10-2ro Safety Controller. See the XS26-2/SC10 Safety Controller Instruction Manual (174868) for additional details regarding input terminal combinations compatible with ISD.

3.4.1 Wire the Device in Series

To connect two or more SSA-ECLx-0DQx buttons in series, follow these steps.

1. With the power supply off, connect power to all the emergency stop devices.
2. Connect the safety outputs of the last emergency stop device to a safety monitoring unit.
3. Connect the safety inputs of the first emergency stop device of the series to + 24 V DC.

> **NOTE:** If an SSA-ECLx-0DQ5 device is in the first position, skip this step.

4. Connect the safety outputs of the first emergency stop device to the safety inputs of the second emergency stop (and second to third, etc).
5. When all the emergency stop devices are armed, the last emergency stop device of the series connection will turn on its safety outputs.
6. If you are using an optional In-Series Diagnostic (ISD) module (SI-RFA-DM1), integrate the diagnostic module between the last emergency stop device and the safety monitoring module in the series connection.

   The status information can be retrieved from the diagnostic device.

> **IMPORTANT:** Verify the SSA-ECLx-0DQx emergency stop device and the safety monitoring module are powered from the same power supply or the commons of the separate supplies are the same.

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Figure 4. Series connection of multiple SSA-ECLx-0DQx.. without reset function wiring diagram.

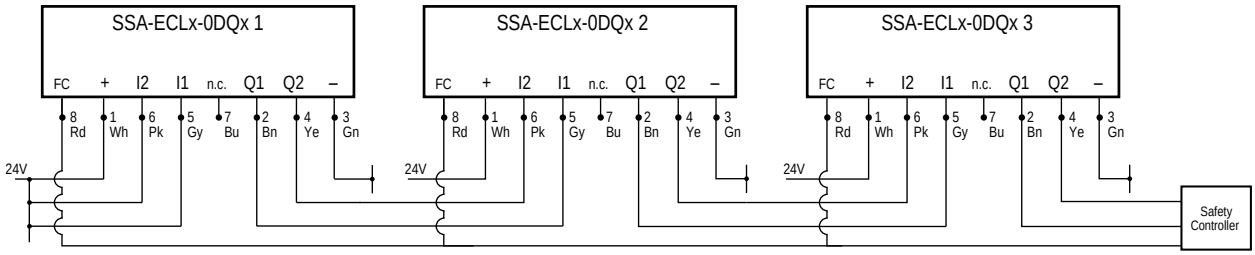


Figure 5. Series connection of SSA-ECLx-0DQ5 with multiple SSA-ECLx-0DQx.. without reset function wiring diagram

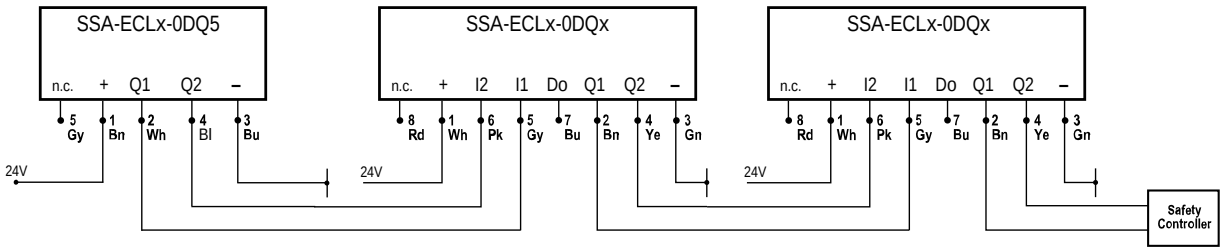
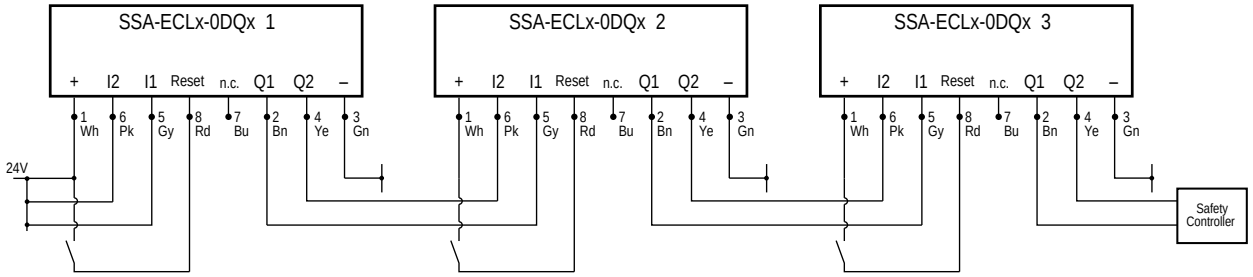


Figure 6. Series connection of multiple SSA-ECLx-0DQxRx with reset function wiring diagram.



After the emergency device is rearmed, the optional reset function requires a manual acknowledgment before the safety output of the device is switched on (only that individual emergency stop device, not the entire chain).

3.4.2 Wire the Device in Series Using the Quick Disconnect (QD)

When connecting units in series, simplify the wiring using special t-adapters and low-cost unshielded four-wire double-ended cables.

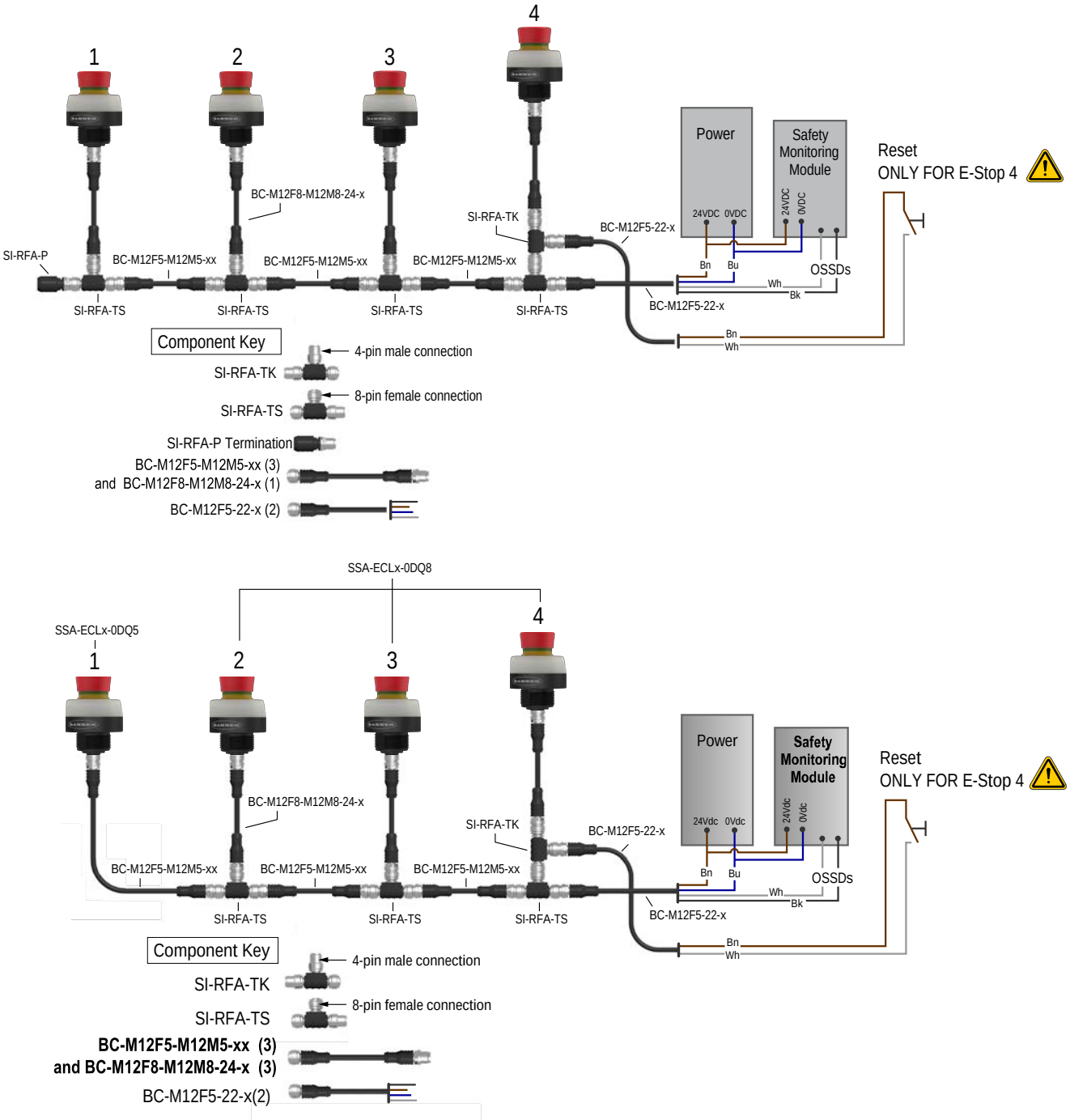
A similar configuration is shown except the connections are all made using quick disconnects. The SSA-ECLx-0DQx E-Stops, SI-RFD switches, and the SSA-ISD Connect can be combined in a single chain.

1. Connect the female 4-pin M12 cable to the male 4-pin M12 of the series connection t-adapter (**SI-RFA-TS**).
2. If a manual reset model emergency stop device is used, connect the female 8-pin M12 of the Reset T-Adapter (**SI-RFA-TK**) to the male 8-pin M12 connector of the series connection t-adapter. Connect a female 4-pin M12 cable to the male 4-pin M12 QD of the t-adapter for connecting a reset switch.
3. Connect the SSA-ECLx-0DQx to the male 8-pin M12 connector of the t-adapter. Use **BC-M12F8-M12M8-24-x** extensions cables as needed.
4. Connect the male 4-pin M12 end of a double-ended cable to the female 4-pin M12 of the t-adapter. Connect the female 4-pin M12 end of the double-ended cable to the next series connection t-adapter (**SI-RFA-TS**).
5. Properly truncate the system using the required terminating plug (**SI-RFA-P**) at the end of the line. Another option is to use an SSA-ECLx-0DQ5 model as the end unit (position 1). This unit would replace the SI-RFA-TS and SI-RFA-P.
6. Connect the wired end of the 4-pin M12 cable (from step 1) either:
    - Directly to a Safety Monitoring Module
    - Through an In-Series Diagnostic (ISD) module, then to the Safety Monitoring device

Verify that the SSA-ECLx-0DQx and the safety monitoring module are powered from the same power supply or the commons of the separate supplies are the same. Ensure that the voltage level at SSA-ECLx-0DQx #1 (furthest from the power supply) is above 19.5 V for the system to operate properly.

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Figure 7. SSA-ECLx-0DQx E-Stops with ISD Series Connection



In a long series or series with many ISD devices, the voltage at all devices must stay above 19.5 V for proper operation.

An additional power supply may be required to maintain a minimum of 19.5 V at all devices. For examples of how to properly connect a second power supply, refer to "Figure: Option 1: Use a SI-RFA-TK Reset Connector in series with ISD Device. If available, set the power supplies for parallel output." on page 14 and "Figure: Option 2: Replace the terminator with a power supply. The OSSD1 and OSSD2 wires at power supply #2 must be connected to +24 V DC. If available, set the power supplies for parallel output." on page 14.

For using ISD information to monitor the individual device voltages, see "In-Series Diagnostic (ISD) Information" on page 15.

There are two options to connect an additional power supply.

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*Figure 8. Option 1: Use a **SI-RFA-TK** Reset Connector in series with ISD Device. If available, set the power supplies for parallel output.*



Figure 9. Option 2: Replace the terminator with a power supply. The OSSD1 and OSSD2 wires at power supply #2 must be connected to +24 V DC. If available, set the power supplies for parallel output.



The SI-RFD switches and ISD Connect have similar current demands. However, when used with a number of lighted ISD emergency stop devices, the current draw of the emergency stop devices governs the cable lengths and when more power is needed. The maximum cable length between devices (including the last unit and the ISD evaluation device) is 30 meters (98.4 feet).

WARNING:

- **Safety devices with OSSDs and without ISD, such as safety light curtains, are not compatible.**
- Failure to follow these instructions could result in serious injury or death.
- Do not use safety devices with OSSDs and without ISD in a series connection of multiple ISD devices.

3.5 Checkout

At machine set up, a *Designated Person*[3] should test each safety point for proper machine shutdown response. A *Designated Person* should check the safety point for proper operation, physical damage, button looseness, and excessive environmental contamination. This should take place on a periodic schedule determined by the user, based on the severity of the operating environment and the frequency of switch actuations.

Adjust or replace components as needed. If inspection reveals contamination on the switch, thoroughly clean the switch and eliminate the cause of the contamination. Replace the switch when any parts or assemblies are damaged, broken, deformed, or badly worn; or if the electrical/mechanical specifications (for the environment and operating conditions) have been exceeded.

Always test the control system for proper functioning under machine control conditions after performing maintenance or replacing the device.

[3] A *Designated Person* is identified in writing by the employer as being appropriately trained to perform a specified checkout procedure. A Qualified Person possesses a recognized degree or certificate or has extensive knowledge, training, and experience to solve problems relating to the emergency stop installation.

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3.6 Resetting the Inputs

The reset function forces a local confirmation that the safety outputs are switched on after resetting the individual emergency stop button.

When waiting for reset, the emergency stop button may change color or animation depending on its model number. For example, an emergency stop model number ending in "RB" will change to blue when it is waiting for reset.

If an emergency stop button with a reset function is actuated and then armed/re-armed (pulled out), close and open the external reset switch within 0.25 seconds (minimum) to 1 second (maximum) to turn the e-stop buttons outputs on (assuming its inputs are satisfied).

The reset function only applies to the emergency stop button models with the reset functionality. This reset feature allows for a local reset at a given emergency stop button but does not allow for an entire safety system reset.

If a chain of ISD devices are cascaded (see "Wire the Device in Series" on page 11), the reset function only applies to the individual emergency stop button (1, 2, or 3 but not the series). If emergency stop button 2 is actuated then armed/re-armed, engaging the external reset switch of emergency stop buttons 1 or 3 will have no effect. Only engaging the external reset switch of emergency stop button 2 switches the chain's outputs on.

CAUTION: When power is switched on and the emergency stop buttons are in the on (armed) position, the safety outputs of the emergency stop buttons with the reset function will switch on without activating the reset button.

WARNING:

- Use of Auto or Manual Restart
- Failure to follow these instructions could result in series injury or death.
- Applying power to the Banner device, returning the emergency stop to the armed position, or resetting a manual restart condition MUST NOT initiate dangerous machine motion.
- Design the machine control circuitry so that one or more initiation devices must be engaged (in a conscious act) and the Banner device must be in Run mode to start the machine.

3.7 Flexible Status Indication Input

Emergency stop buttons with flexible status indication allow for overriding the armed color with another color. For example, an emergency stop button with a model number ending in "FR" overrides the armed color with a red color when active. This can be used to change the color of all E-stops in an E-stop chain to red when one has been pressed.

To activate the flexible status input color, supply +24 V to pin 5 of the -Q5 models or pin 8 of the -Q8 models. When power is supplied, any armed button turns blue, while any actuated button stays flashing red.

3.8 In-Series Diagnostic (ISD) Information

The information transmitted via the In-Series Diagnostic (ISD) interface is not safety-related. The diagnostic technology allows a wide range of device information to be loaded into the machine control system.



To interpret this information, Banner diagnostic modules are available, including the **SI-RF-DM1** and **-DM2** Diagnostic Modules and the **SC10-2roe** or **XS26-ISDx** Safety Controller or the **RSio Safety I/O Block**. Refer to the instruction manuals for detailed information on the diagnostic devices. By means of diagnostics, the following information can be transmitted, among others:

- Button Status (armed, off, faulted)
- Under-voltages in the series connection (chain)
- Attempts to remove buttons from the chain
- Wrong order of devices in the chain

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At this time this information can be refined using the following interfaces:

- USB—Displays device information on the PC (requires using an **SI-RF-DM1** Diagnostic Module or an **SC10-2roe** or **XS26-ISDx** Safety Controller)
- IO-Link—Bus independent data reading into the control system (requires using the **SI-RF-DM1** or **SI-RF-DM2** Diagnostic Modules and an IO-Link master)
- Industrial Ethernet Protocols—Bus data reading into the control system (requires using the **SC10-2roe** or **XS26-ISDx** Safety Controller or the RSio Safety I/O Block)

3.9 Install the Silicone Cover

To properly install the FDA-grade silicone cover, SSA-EC-WC, follow these instructions.

1. Turn the cover inside-out, except for the top portion the button fits into.
2. Place the cover on top of the emergency stop unit.
3. Roll the cover onto the E-stop unit.
4. Continue rolling the cover down, around the base of the E-stop unit, until the entire unit is covered.
5. Mount the E-stop unit and cover assembly to a bracket wide enough to cover the assembly base. The cover should be clamped firmly between the E-stop unit and the bracket.



NOTE: This cover is suitable for applications with pull-to-release resetting methods.

NOTE: The FDA-grade silicone cover withstands high pressure, high-temperature washdown.

NOTE: The cover is not compatible with the E-stop shroud, SSA-EC-SA.

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Chapter 4 Specifications

IMPORTANT: Connect the SSA-ECLx-0DQx Series Lighted Emergency Stop Button with ISD only to a SELV (Safety Extra-Low Voltage) for circuits without earth ground or a PELV (Protected Extra-Low Voltage) for circuits with earth ground power supply.

Rated Supply Voltage (Ue)
24 V DC + 15%, -20% (PELV/SELV power supply)

The external voltage supply must be capable of buffering brief mains interruptions of 20 ms, as specified in IEC/EN 60204-1.

Rated Isolation Voltage (Ui)
75 V DC

Rated Impulse Withstand Voltage (Uimp)
500 V

Rated Conditional Short-Circuit Current
100 A

No-load Current
80 mA typical at 24 V DC

90 mA typical at 19.2 V DC

OSSD Outputs
Two, solid-state, current sourcing PNP outputs

Switching element function: PNP, NO

Voltage level: according to Type 3 EN 61131-2

Maximum operating current: 30 mA

Leakage current: ≤ 1 mA DC

On-state voltage: ≥ Ue – 3 V

Protection: Sustained short-circuit and overload protection; thermal / digital (clocking)

Test pulse duration: 70 µs

Test pulse rate: 1 s

Reset Input (specific models)
High Signal: 10 to 30 V DC

Low Signal: 0 to 3 V DC

Power Up Delay
≤ 2 s

Response Time
40 ms maximum + (7 ms × number of following ISD devices)

Maximum Cable Length Between E-Stops
30 m

Of this 30 meters, only 10 meters can be 8-conductor cable. The capacitance between the inputs (I1 and I2) to outputs (Q1 and Q2) must be less than 500 pF.

Pollution Degree
3

EMC
According to EN 61326-1 and EN 61326-3-1

Safety Data
SIL 3 (IEC 61508)

Category 4, PL e (EN ISO 13849-1)

PFH_D: 6.9×10^{-9} 1/h according to EN 60950

Service Life: 20 years

B10d: 100,000 cycles

Vibration Resistance
Operating extremes: 10 Hz to 500 Hz, amplitude 0.35 mm acceleration 50 m/s^2

Shock Resistance
Operating extremes: 150 m/s^2 (15G)

Construction
Housing: Polycarbonate

Threaded base has M30 × 1.5 external threads; Maximum Tightening Torque: 4.5 N·m (40 in·lbf)

Connections
SSA-ECLxR1-0DQ5xx: Integral 5-pin M12 male quick-disconnect connector

SSA-ECLxR1-0DQ8xx: Integral 8-pin M12 male quick-disconnect connector

Operating Conditions
–25 °C to +50 °C (–13 °F to +122 °F)

45% to 85% relative humidity (no condensation)

Storage Temperature
–30 °C to +70 °C (–22 °F to +158 °F)

No freezing moisture

Environmental Ratings
For Indoor Use Only

IP65, IP67, IP69

UL Type 1, UL Type 4X Indoor, UL Type 13

For models with the **SSA-EC-WC** cover installed:

IP65, IP67, IP69
UL Type 1, UL Type 4X, UL Type 13

Certifications
Certifications pending

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing.

Supply wiring leads < 24 AWG shall not be spliced.

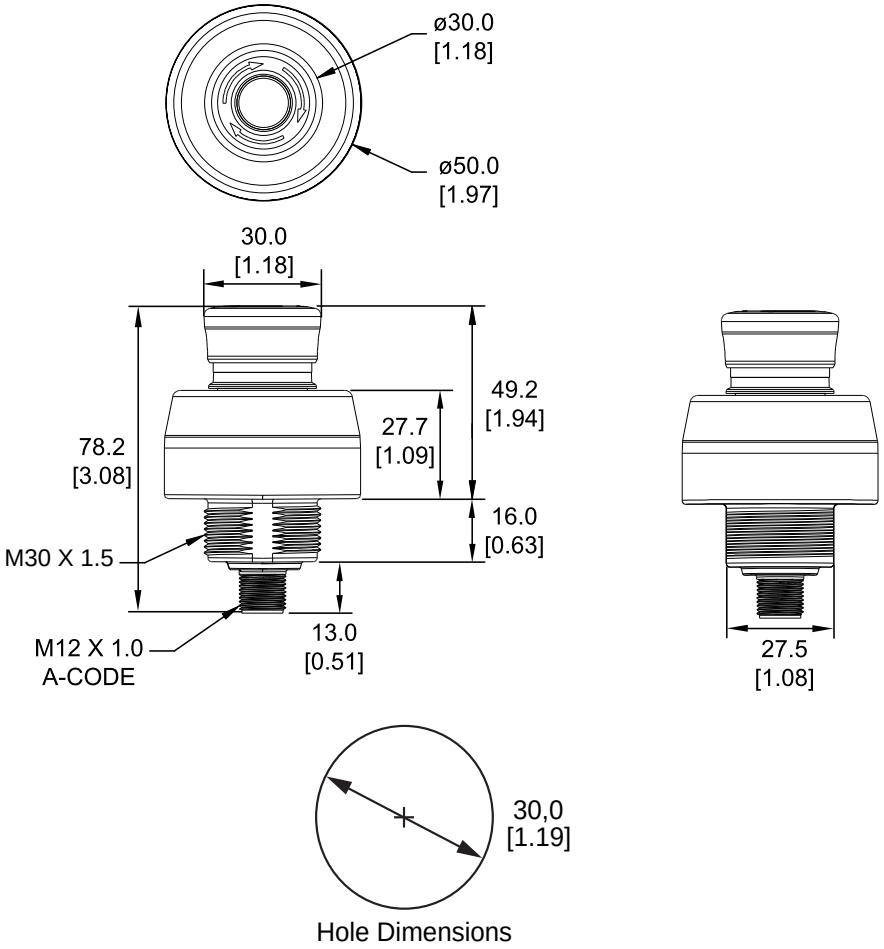
For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

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4.1 Dimensions

All measurements are listed in millimeters, unless noted otherwise. The measurements provided are subject to change.



Hole Dimensions

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Chapter 5 Status and Operating Information

5.1 Status Indicators

Status indication colors depend on model.

Operating Mode	OSSD Inputs	Indication	OSSD Outputs
Power-up	X	Armed color (yellow, green or off, depending on the model) on for 0.5 s Red on for 0.5 s Off for 0.5 s minimum	OFF
Armed (button not pressed)	ON	Color depends on the model	ON
Armed (button not pressed)	OFF	Color depends on the model	OFF
Actuated (button pressed)	X	Color depends on the model	OFF
Re-armed, reset needed (specific models)	X	Color depends on the model	OFF
Fault detected (non-critical)	X	Tripple flash red	ON
Fault detected (critical)	X	Tripple flash red	OFF

Faults that do not immediately compromise the safe operation of the emergency stop device (for example safety output to external potential, crosswire short safety output) result in a delayed switch-off of the OSSDs. The OSSDs will turn off when the error warning exceeds 20 minutes. See "Fault-Tolerant Output Feature" on page 9 for more details.

5.2 Information Available Using ISD

Obtain the following information from the ISD chain and ISD-enabled Safety Controller.

Information	Type	Data Size	Steps to Resolve
ISD chain count does not match configuration (XS26-ISD FID 5 or later (only when not using Auto Detect mode) and SC10 FID 2 or later.)	Controller Alert	1 bit	Check the number of physical units against the number configured in the chain
ISD chain order does not match configuration (XS26-ISD FID 5 or later (only when not using Auto Detect mode) and SC10 FID 2 or later.)	Controller Alert	1 bit	Check the order of the physical units against the configured order. Note the location of the terminator plug and the controller.
ISD data update pending (no data or buffered data)	Controller Alert	1 bit	Caused by non-ISD devices in chain or a buffering situation If the data is not present from power up (never present): • Verify that all devices in ISD Chain are ISD enabled devices If data was present but then lost: • Verify that the chain has not been broken • Data could be disrupted and will return in a few seconds
Invalid (non-ISD) device in ISD chain	Controller Alert	1 bit	Incorrect data types are being received • Verify that all devices in the chain are Banner ISD devices
ISD device detected but not configured (*reserved* in XS26-ISD)	Informative	1 bit	• Verify the ISD chain is wired to the correct terminals • Verify that the correct input device type (ISD) was selected for this input in the configuration.
ISD chain terminator plug missing	ISD Status	1 bit	• Verify that the terminator plug has not come loose • Verify that the chain has not been broken (loose connections)

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Continued from page 19

Information	Type	Data Size	Steps to Resolve
SI-RF high or unique sensor not taught an actuator	ISD Fault	1 bit	An SI-RF switch (-UP8 or -HP8) have not been taught • Configure the unit to its actuator per instructions in Banner datasheet p/n 208885
Wrong actuator presented to a high or unique sensor	ISD Fault	1 bit	An SI-RF switch (-UP8 or -HP8) is seeing an actuator but not the one to which it was configured. • Check for tampering (wrong actuator being used) • Teach High coded sensor (-HP8) the new actuator
Internal error on an ISD device in the chain	ISD Fault	1 bit	• Verify which device has the error, cycle power to the system • If the error persists, replace the device
ISD Output fault detected, output turn off counter started	ISD Fault	1 bit	ISD device output will turn off in 20 minutes • Verify which device has the error, check wiring for shorts • Cycle power, if issue persists, replace the device
Change in ISD chain detected (only in XS26-ISD FID 5 or later)	ISD Status	1 bit	If AutoDetect ISD is configured and an ISD chain length or order has changed, this flag will be set and must be recognized by the PLC.
ISD Count Change from Baseline Detected	ISD Status	1 bit	ISD device count has changed from the baseline count, verify the chain device count matches machine configuration.
ISD Chain output signal switching device (OSSD) status	ISD Status	1 bit	

Individual Unit Data - Flags		
Short Name	**Data Format**	**Description**
Actuator detected	1/0	Not applicable
Wrong actuator detected/Button armed	1/0	E-stop button is in the run state
Sensor not paired	1/0	Not applicable
Output 1	1/0	Output 1 is on
Output 2	1/0	Output 2 is on
Marginal range/Button armed	1/0	E-stop button is in the run state
Input 1	1/0	ISD device input 1 is on
Input 2	1/0	ISD device input 2 is on
Local reset expected	1/0	An ISD device with the latch feature requires a reset
Operating voltage warning	1/0	Voltage to the ISD device is at the limit of specifications
ISD data error	1/0	ISD error bit, corrupted data was received from the SI-RF ISD chain of switches.
Safety input fault	1/0	The system detected a fault on a safety input of an ISD device, power cycle required
Output error	1/0	ISD Device detects an output short to voltage or ground. This starts the "switch-off timer" counter.
Operating voltage error	1/0	Voltage to the ISD Device is above (over 30 V DC) or below (less than 19.2 V DC) limit of range.
Power cycle required	1/0	ISD Device detects a fault, a power cycled required.

Individual Unit Data - Configuration		
Short Name	**Data Format**	**Description**
Local reset unit	1/0	The ISD Device includes the latch feature
High coding level	1/0	Not applicable
Cascadable	1/0	The ISD Device includes the cascade feature Note: This will always be true for Emergency Stop models with ISD.
Fault tolerant outputs	1/0	Indicates that the ISD Device includes the fault tolerant output feature where output faults cause a 20 minute off delay/fault delay. Note: This will always be true for Emergency Stop models with ISD.

Individual Unit Data - Values		
Short Name	**Data Format**	**Description**
Device		Type of ISD Device
Expected code		Not applicable

Continued on page 21

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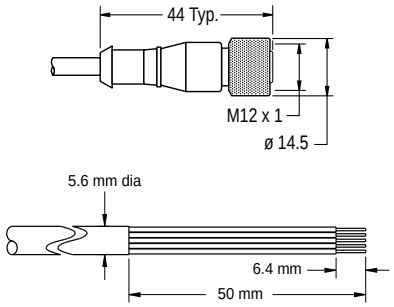
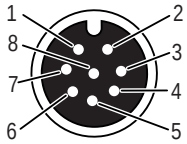
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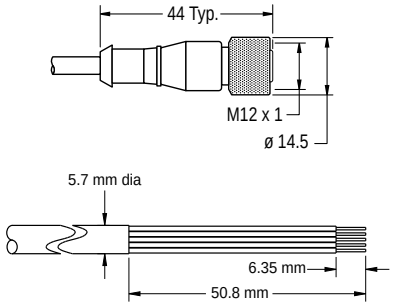
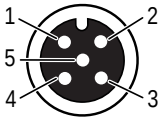
Individual Unit Data - Values		
Short Name	**Data Format**	**Description**
Received code		Not applicable
Teach-ins remaining	number	Not applicable
Number of voltage errors	number	The number of voltage warnings received in the last 60 seconds (voltage is checked every second), a number between 0 and 60
Number of operations	number	The number of on/off cycles the device has experienced
Output switch-off time	number	The delay counter for certain output faults (0 - inactive, 20 to 1 - remaining minutes to device lockout state)
Range warning count	number	Not applicable
Supply voltage	number	The actual input voltage detected by the ISD device.
Internal temperature	number	The internal temperature of the ISD device (°C)
Actuator distance	number	Not applicable
Expected company name		Not applicable, value of 6 will be received
Received company name		Not applicable, this is the code received from an actuator (for RFID switches)

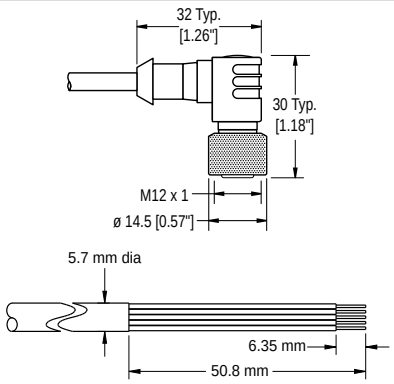
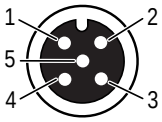
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Chapter 6 Accessories

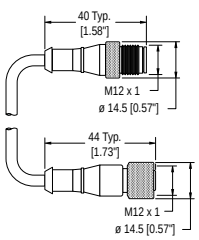
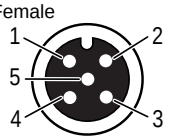
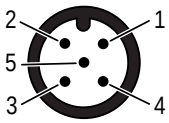
6.1 Cordsets

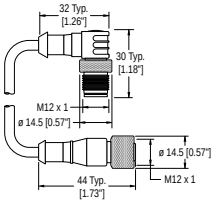
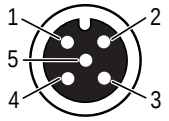
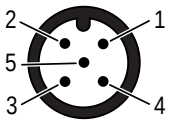
8-Pin A-Code Single-Ended M12 Female Cordsets (datasheet p/n 235941)				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BC-M12F8-24-1	1 m (3.28 ft)			1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red
BC-M12F8-24-2	2 m (6.56 ft)			
BC-M12F8-24-5	5 m (16.4 ft)			
BC-M12F8-24-10	10 m (30.81 ft)			

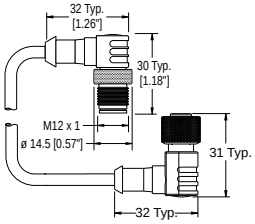
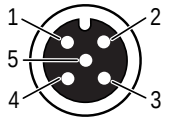
5-Pin A-Code Single-Ended M12 Female Cordsets (datasheet p/n 235936)				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BC-M12F5-22-1	1 m (3.28 ft)			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray c UL us LISTED
BC-M12F5-22-2	2 m (6.56 ft)			
BC-M12F5-22-5	5 m (16.4 ft)			
BC-M12F5-22-8	8 m (26.25 ft)			
BC-M12F5-22-10	10 m (30.81 ft)			
BC-M12F5-22-15	15 m (49.2 ft)			

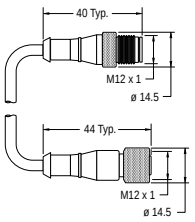
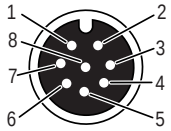
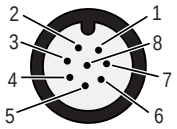
5-Pin A-Code Single-Ended M12 Female Right-Angle Cordsets (datasheet p/n 235936)				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BC-M12F5A-22-1	1 m (3.28 ft)			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray c UL us LISTED
BC-M12F5A-22-2	2 m (6.56 ft)			
BC-M12F5A-22-5	5 m (16.4 ft)			
BC-M12F5A-22-8	8 m (26.25 ft)			
BC-M12F5A-22-10	10 m (30.81 ft)			
BC-M12F5A-22-15	15 m (49.2 ft)			

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5-Pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 236183)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F5-M12M5-22-0.3	0.3 m (1 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
BC-M12F5-M12M5-22-1	1 m (3.28 ft)			
BC-M12F5-M12M5-22-2	2 m (6.56 ft)			
BC-M12F5-M12M5-22-5	5 m (16.4 ft)			
BC-M12F5-M12M5-22-8	8 m (26.25 ft)			
BC-M12F5-M12M5-22-10	10 m (30.81 ft)			
BC-M12F5-M12M5-22-15	15 m (49.2 ft)			

5-Pin A-Code Double-Ended M12 Female Straight to M12 Male Right-Angle Cordsets (datasheet p/n 236183)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F5-M12M5A-22-1	1 m (3.28 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
BC-M12F5-M12M5A-22-2	2 m (6.56 ft)			
BC-M12F5-M12M5A-22-5	5 m (16.4 ft)			
BC-M12F5-M12M5A-22-10	10 m (30.81 ft)			

5-Pin A-Code Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets (datasheet p/n 236183)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F5A-M12M5A-22-1	1 m (3.28 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
BC-M12F5A-M12M5A-22-2	2 m (6.56 ft)			
BC-M12F5A-M12M5A-22-5	5 m (16.4 ft)			
BC-M12F5A-M12M5A-22-8	8 m (26.25 ft)			
BC-M12F5A-M12M5A-22-10	10 m (30.81 ft)			
BC-M12F5A-M12M5A-22-15	15 m (49.2 ft)			

8-Pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 235955)				
Model	**Length**	**Dimensions (mm)**	**Pinouts (Female)**	**Pinouts (Male)**
BC-M12F8-M12M8-24-1	1 m (3.28 ft)			
BC-M12F8-M12M8-24-2	2 m (6.56 ft)			
BC-M12F8-M12M8-24-5	5 m (16.4 ft)			
BC-M12F8-M12M8-24-8	8 m (26.25 ft)		1 = White 2 = Brown 3 = Green 4 = Yellow	5 = Gray 6 = Pink 7 = Blue 8 = Red
BC-M12F8-M12M8-24-10	10 m (30.81 ft)			
BC-M12F8-M12M8-24-15	15 m (49.2 ft)			

6.2 Brackets

The SSA-MBK-EECx brackets offer:

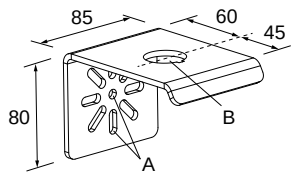
- Horizontal and vertical (post) mounting

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- Interchangeable positions of mounted devices (e.g. OTB/STB/VTB, E-Stop, K50s)

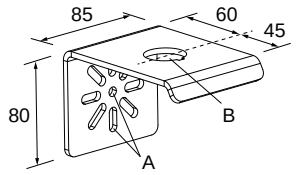
SSA-MBK-EEC1
- Single 30 mm hole
- 8 gauge steel, black finish (powder coat)
- Front surface for customer-applied labels
- CAD Files: DXF, PDF, IGS, STP

Hole size: A = ø 7 , B = ø 30



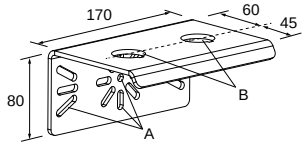
SSA-MBK-EEC1-SS
- Single 30 mm hole
- 8 gauge 316 stainless steel
- Front surface for customer-applied labels
- CAD Files: DXF, PDF, IGS, STP

Hole size: A = ø 7 , B = ø 30



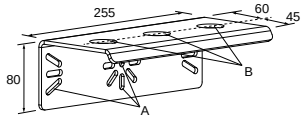
SSA-MBK-EEC2
- Two 30 mm holes
- 8 gauge steel, black finish (powder coat)
- Front surface for customer-applied labels
- CAD Files: DXF, PDF, IGS, STP

Hole size: A = ø 7 , B = ø 30



SSA-MBK-EEC3
- Three 30 mm holes
- 8 gauge steel, black finish (powder coat)
- Front surface for customer-applied labels
- CAD Files: DXF, PDF, IGS, STP

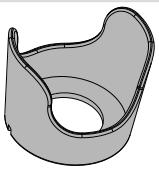
Hole size: A = ø 7 , B = ø 30



6.3 Adapters and Other Accessories

Model	Description
SI-RFA-TS	SI-RF T-adapter for series connection, 4 pin to 8 pin to 4 pin, IP68 rated
SI-RFA-TK	SI-RF T-adapter for connection of the reset button, 8 pin to 4 pin to 8 pin, IP68 rated
SI-RFA-P	SI-RF Termination plug M12, IP68 rated
SI-RFA-DM1	SI-RF Diagnostic Module with 8 digital outputs and 1 diagnostic circuit Interfaces: IO-Link, USB 2.0
SI-RFA-DM2	SI-RF Diagnostic Module with 1 diagnostic circuit, IP69 rated Interfaces: IO-Link
CSB-M1250M1250-T	Splitter that can be used to add power between ISD devices
BC-M12F8-M12M4-24-0.3-CW818949	8-pin to 4-pin patch cable

SSA-EC-SA
- Field-installable emergency stop shroud
- Fits SSA-EC compact E-stop
- Clear color
- CAD Files: DXF, PDF, IGS, STP

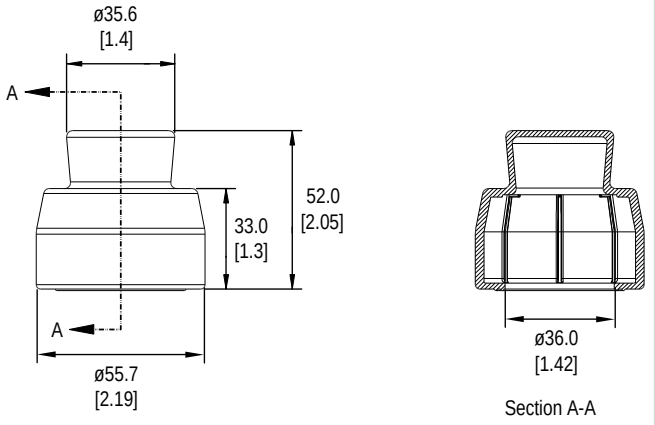


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6.4 Washdown Silicone Cover

SSA-EC-WC

- FDA Grade Silicone
- Fits SSA-EC Compact E-Stops
- IP67 & IP69K Rated
- CAD Files: DXF, PDF, IGS, STP



6.5 Safety Controllers

Safety Controllers provide a fully configurable, software-based safety logic solution for monitoring safety and non-safety devices.

For additional models and XS26 expansion modules, see instruction manual p/n 174868.

Table 3. Safety controller models

Non-Expandable Models	Expandable Models	Description
SC26-2	**XS26-2**	26 convertible I/O and 2 redundant solid-state safety outputs
SC26-2d	**XS26-2d**	26 convertible I/O and 2 redundant solid-state safety outputs with display
SC26-2e	**XS26-2e**	26 convertible I/O and 2 redundant solid-state safety outputs with Ethernet
SC26-2de	**XS26-2de**	26 convertible I/O and 2 redundant solid-state safety outputs with display and Ethernet
SC10-2roe		10 inputs, 2 redundant relay safety outputs (3 contacts each) (ISD and Ethernet compatible)
	XS26-ISDd	26 inputs, 2 redundant solid-state safety outputs with display, Ethernet, and 8 ISD channels

6.6 Universal (Input) Safety Modules

UM-FA-xA Safety Modules provide forced-guided, mechanically-linked relay (safety) outputs for the SSA-ECLx-0DQx system when an external manual reset (latch) is desired or external device monitoring is required in the application. See datasheet p/n 141249 for more information.

Model	Description
UM-FA-9A	3 normally open (N.O.) redundant-output 6 amp contacts
UM-FA-11A	2 normally open (N.O.) redundant-output 6 amp contacts, plus 1 normally closed (N.C.) auxiliary contact

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Chapter 7 Product Support and Maintenance

7.1 Maintenance and Service

Do not use alcoholic cleaning agents.

The SSA-ECLx-0DQx is maintenance-free.

For long-term and trouble-free operation, please periodically check the following points:

- solid fit of all components
- reliable switching function
- if damage occurs, please exchange the relevant components

Liability disclaimer— By breach of the given instructions (concerning the intended use, the safety instructions, the installation and connection through qualified personnel and the testing of the safety function) manufacturer's liability expires.

7.2 Repairs and Translations (No Field-Replaceable Parts)

English

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

```
IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return
shipping is not covered by warranty.
```

Obtain assistance with product repairs by contacting your local Banner Engineering Corp distributor or by calling Banner directly at (763) 544-3164. Access literature translated into your native language on the Banner website at www.bannerengineering.com or contact Banner directly at (763) 544-3164.

Deutsch

Wenden Sie sich zur Fehlerbehebung dieses Geräts an Banner Engineering. **Versuchen Sie nicht, Reparaturen an diesem Banner-Gerät vorzunehmen. Das Gerät enthält keine am Einsatzort auszuwechselnden Teile oder Komponenten.** Wenn ein Banner-Anwendungstechniker zu dem Schluss kommt, dass dieses Gerät, ein Teil oder eine Komponente davon defekt ist, erhalten Sie von dem Techniker Erläuterungen zu Banners RMA-Verfahren (Return Merchandise Authorization) für die Warenrückgabe.

```
WICHTIG: Wenn Sie der Techniker anweist, das Gerät zurückzusenden, verpacken Sie es bitte
sorgfältig. Transportschäden bei der Rücksendung werden von der Garantie nicht abgedeckt.
```

Unterstützung bei Produktreparaturen erhalten Sie von Ihrem örtlichen Banner Engineering Corp Händler oder direkt von Banner unter Tel. (763) 544-3164. Die in Ihre Muttersprache übersetzte Literatur finden Sie auf der Banner-Website unter www.bannerengineering.com oder kontaktieren Sie Banner direkt unter Tel. (763) 544-3164.

Français

Pour plus d'informations sur le dépannage du produit, contactez Banner Engineering. **Ne tentez pas de réparer ce dispositif Banner. Il ne contient aucun composant ou pièce qui puisse être remplacé sur place.** Si un ingénieur de Banner conclut que le dispositif ou l'une de ses pièces ou composants est défectueux, il vous informera de la procédure à suivre pour le retour des produits (RMA).

```
Important : Si vous devez retourner le dispositif, emballez-le avec soin. Les dégâts
occasionnés pendant le transport de retour ne sont pas couverts par la garantie.
```

Pour vous aider lors de la réparation de produits, contactez votre distributeur Banner local our appelez directement Banner au (763) 544-3164. La documentation traduite dans votre langue est disponible sur le site internet de Banner www.bannerengineering.com ou contactez directement Banner au (763) 544-3164.

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Italiano

Per le procedure di individuazione e riparazione dei guasti di questo dispositivo, contattare Banner Engineering. **Non tentare di riparare questo dispositivo Banner, in quanto non contiene parti o componenti sostituibili dall'utente.** Se il dispositivo, una parte del dispositivo o un componente del dispositivo viene riscontrato difettoso da un tecnico Banner, il nostro personale vi comunicherà la procedura da seguire per ottenere l'autorizzazione al reso.

Importante: Se si ricevono istruzioni di rispedire il dispositivo al produttore, imballarlo con cura. I danni dovuti al trasporto non sono coperti dalla garanzia.

Per assistenza nelle riparazioni dei prodotti, contattare il distributore locale Banner Engineering Corp o contattare direttamente Banner al numero (763) 544-3164. È possibile accedere alla documentazione tradotta nella propria lingua madre sul sito Web Banner all'indirizzo www.bannerengineering.com o contattare direttamente Banner al numero (763) 544-3164.

Español

Comuníquese con Banner Engineering para solucionar de problemas de este dispositivo. **No intente ninguna reparación a este dispositivo de Banner, contiene piezas o componente que no se pueden cambiar en terreno.** Si algún ingeniero de aplicaciones de Banner determina que el dispositivo, alguna de las piezas o alguno de los componentes del dispositivo está defectuoso, le informará el procedimiento de autorización de devolución de mercancía (RMA, por sus siglas en inglés) de Banner.

Importante: Si se le solicita devolver el dispositivo, empáquelo con cuidado. Puede haber daños durante el envío de devolución que no estén cubiertos por la garantía.

Para reparaciones de productos, por favor contacte a su distribuidor local de Banner Engineering o llame a Banner directamente al 00 1 (763) 544-3164. Vea la literatura traducida en su idioma en el sitio web Banner en www.bannerengineering.com o comuníquese con Banner directamente al 00 1 (763) 544-3164.

中国人

如需对本装置进行故障排查，请联系邦纳。**请勿尝试自行维修该邦纳装置；本装置不包含任何可在现场更换的部件或组件。** 若经邦纳应用工程师确认设备、设备部件或组件存在缺陷，他们将告知您邦纳退货授权 (RMA) 流程。

重要注意事项： 如被要求退回装置，请妥善包装后寄回。退货运输过程中发生的损坏不在保修范围内。

请联系当地的 Banner Engineering Corp 经销商或直接致电 Banner +1 (763) 544-3164，以获得产品维修帮助。请访问邦纳网站 www.bannerengineering.com 或直接拨打 +1 (763) 544-3164 联系邦纳，获取翻译成您母语的资料。

한국인

이 장치의 문제를 해결하려면 Banner Engineering에 문의하십시오. **이 Banner 장치에는 현장에서 교체할 수 있는 부품 또는 구성품이 없으므로 수리를 시도하지 마십시오.** Banner 애플리케이션 엔지니어가 장치, 장치 부품 또는 장치 구성품에 결함이 있는 것으로 판정하면, Banner의 RMA(제품 반송 승인)절차에 대해 안내해 드립니다.

중요: 제품을 반송하도록 안내 받으셨다면 잘 포장해주십시오. 반송 도중에 발생한 손상은 보증 서비스가 적용되지 않습니다.

제품 수리에 대한 지원은 지역 Banner Engineering Corp 대리점에 문의하거나 Banner에 직접 (763) 544-3164로 문의하실 수 있습니다. 사용자의 모국어로 번역된 자료는 Banner 웹사이트 www.bannerengineering.com에서 액세스하거나 Banner에 직접 (763) 544-3164로 문의하실 수 있습니다.

日本語

この装置のトラブルシューティングについては、バナーエンジニアリングにお問い合わせください。**このバナー装置には、現場では交換できない部品またはコンポーネントが含まれているため、修理を試みてはいけません。** バナーのアプリケーションエンジニアが装置、装置の部品、または装置のコンポーネントに欠陥があると判断した場合、バナーのRMA（返品承認）手続きについてお知らせします。

重要 ： 返品を指示された場合は、装置を丁寧に梱包してください。返品時に発生した破損は保証の対象外となります。

製品の修理については、最寄りのBanner Engineering Corp代理店にお問い合わせいただくか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。バナーのウェブサイト（www.bannerengineering.com）でお客様の言語に翻訳された資料にアクセスするか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。

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čeština

Pro řešení problémů se zařízením kontaktujte společnost Banner Engineering. **Neprovádějte žádné opravy zařízení Banner. Neobsahují žádné komponenty nebo části, které by byly vyměnitelné.** Pokud je zařízení, jeho část nebo díl označen technikem společnosti Banner jako poškozený, bude Vám doporučeno vyplnit reklamační RMA protokol.

```
Důležité: Pokud byl vydán požadavek na vrácení zařízení, pečlivě ho zabalte. Poškození vzniklé
při dopravě není považováno za záruční opravu.
```

Pokud produkt potřebuje opravu, vyžádejte si pomoc od místního distributora společnosti Banner Engineering Corp nebo přímo na telefonním čísle (763) 544-3164. Dokumentaci přeloženou do vašeho jazyka si vyhledejte na webových stránkách společnosti Banner na adrese www.bannerengineering.com nebo se obraťte přímo na společnost Banner na telefonním čísle (763) 544-3164.

Polski

W celu rozwiązania problemów z urządzeniem należy skontaktować się z działem technicznym firmy Banner Engineering. **Pod żadnym pozorem nie próbuj naprawiać tego urządzenia firmy Banner; nie zawiera ono części ani elementów, które można wymieniać samodzielnie.** Jeśli urządzenie, jego część lub element zostaną uznane za wadliwe przez inżyniera technicznego Banner, poinformuje on użytkownika o firmowej procedurze zwrotu towaru (RMA) firmy Banner.

```
Ważne: Jeśli urządzenie ma zostać zwrócone, należy je starannie zapakować. Uszkodzenia powstałe
podczas odsyłki nie są objęte gwarancją.
```

Aby uzyskać pomoc w zakresie naprawy produktu, należy skontaktować się z lokalnym dystrybutorem Banner Engineering Corp lub zadzwonić bezpośrednio do firmy Banner pod numer (763) 544-3164. Dostęp do literatury przetłumaczonej na swój język ojczysty można uzyskać na stronie internetowej firmy Banner pod adresem www.bannerengineering.com lub kontaktując się bezpośrednio z firmą Banner pod numerem (763) 544-3164.

Português

Entre em contato com a Engenharia da Banner para a solução de problemas deste dispositivo. **Não tente fazer nenhum reparo neste dispositivo Banner; ele não contém peças ou componentes substituíveis em campo.** Se um técnico de aplicações da Banner determinar que o dispositivo, peça ou componente do dispositivo está com defeito, ele o informará sobre o procedimento de RMA (Autorização de Devolução de Mercadoria) da Banner.

```
Importante: Se for instruído a devolver o dispositivo, embale-o com cuidado. Os danos ocorridos
no transporte de devolução não são cobertos pela garantia.
```

Obtenha assistência para reparos do produto entrando em contato com o distribuidor local da Banner Engineering Corp ou ligando diretamente para a Banner no telefone (763) 544-3164. Acesse a literatura traduzida para seu idioma nativo no site da Banner em www.bannerengineering.com ou entre em contato diretamente com a Banner pelo telefone (763) 544-3164.

Türkçe

Bu cihazda sorun giderme işlemleri için Banner Engineering ile iletişime geçin. **Bu Banner cihazını onarmaya çalışmayın; cihaz sahada değiştirilebilir parça veya bileşen içermez.** Bir Banner Uygulama Mühendisi tarafından cihazın, cihazın bir parçasının veya bir cihaz bileşeninin kusurlu olduğu tespit edilirse, Banner RMA (İade Mal Yetkilendirme) prosedürü hakkında bilgilendirilirsiniz.

```
ÖNEMLİ: İade etmeniz istenirse, cihazı dikkatli bir şekilde paketleyin. İade nakliyesinde
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```

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7.3 Contact Us

Banner Engineering Corp. | 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

7.4 Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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For patent information, see www.bannerengineering.com/patents.

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Chapter 8 Standards and Regulations

The list of standards below is included as a convenience for users of this Banner device. Inclusion of the standards below does not imply that the device complies specifically with any standard, other than those specified in the Specifications/Design Standards section of this manual. See the American National Standards Institute (ANSI) at https://webstore.ansi.org/ or another source for applicable documents.

8.1 Applicable U.S. Standards

Not inclusive

ANSI B11 Standards for Machine Tools Safety

ANSI/RIA R15.06 Safety Requirements for Industrial Robots and Robot Systems

NFPA 79 Electrical Standard for Industrial Machinery

ANSI/PMMI B155.1 Package Machinery and Packaging-Related Converting Machinery — Safety Requirements

ANSI/ASSP Z244.1-2024 The Control of Hazardous Energy – Lockout, Tagout, and Alternative Methods

OSHA 29 CFR 1910 Occupational Safety and Health Standards

8.2 Applicable European and International Standards

Not Inclusive

ISO 12100 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction

EN 60204-1 Electrical Equipment of Machines Part 1: General Requirements

ISO 13849-1 Safety of Machinery – Safety-Related Parts of Control Systems – Part 1: General Principles for Design

IEC 61508 Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems

ISO 13850 Emergency Stop Devices, Functional Aspects – Principles for Design

EN 13855 The Positioning of Protective Equipment in Respect to Approach Speeds of Parts of the Human Body

ISO 13857 Safety of Machinery – Safety Distances to Prevent Hazard Zones Being Reached

ISO 14119 Interlocking Devices Associated with Guards – Principles for Design and Selection

ISO 14120 Safety of machinery – Guards – General requirements for the design and construction of fixed and movable guards

Acquire a type C standard for your specific machinery.

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