RSio Remote Safe I/O

More Devices, Machine Mountable, and No Learning Curve

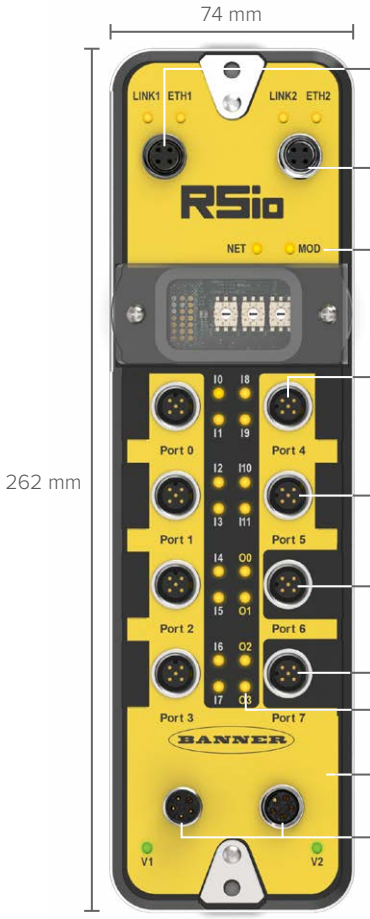
CIP Safety™

ISD

In-Series Diagnostics

BANNER®

RSio Remote Safe I/O Block



Seamless integration into **CIP Safety** applications

Easy scalability with **Ethernet passthrough**

Familiar setup using Rockwell's **Studio 5000®** No new software to learn

Six inputs compatible with most industrial safety devices, including light curtains, e-stops, door switches, and scanners

Simplify wiring, reduce cost, and gain valuable insights into your safety devices with **In-Series Diagnostics** (ISD)

Two configurable safety outputs provide single- or dual-channel control at 1 A per channel

Bright LEDs for easy status indication and troubleshooting

IP67-rated for flexible, out-of-cabinet installations

Available with either M12 L-Code or Mini **pass-through power** connections

Banner's RSio Remote Safety I/O block provides eight independently configurable hybrid I/O ports that support safety-rated or standard devices, giving controls engineers flexibility in how each port is used. Inputs support dry-contact or solid-state safety devices, In-Series Diagnostics (ISD), and standard control signals. Two configurable outputs provide control signals for final switching devices, safety-rated devices, or non-safety devices, with ON/OFF readback for faster fault detection.

RSio is configured directly in Rockwell Automation's Studio 5000®, without any additional software needed, thanks to an included EDS file that also includes user-selectable port presets that simplify integration of common safety devices such as e-stops, light curtains, and safety switches.

Six inputs each support up to 32 ISD-enabled safety devices—up to 192 devices on a single RSio—delivering device-level diagnostics and scalable safety coverage up to Cat 4 PLe/SIL3 while reducing cable runs and shrinking cabinet footprints.

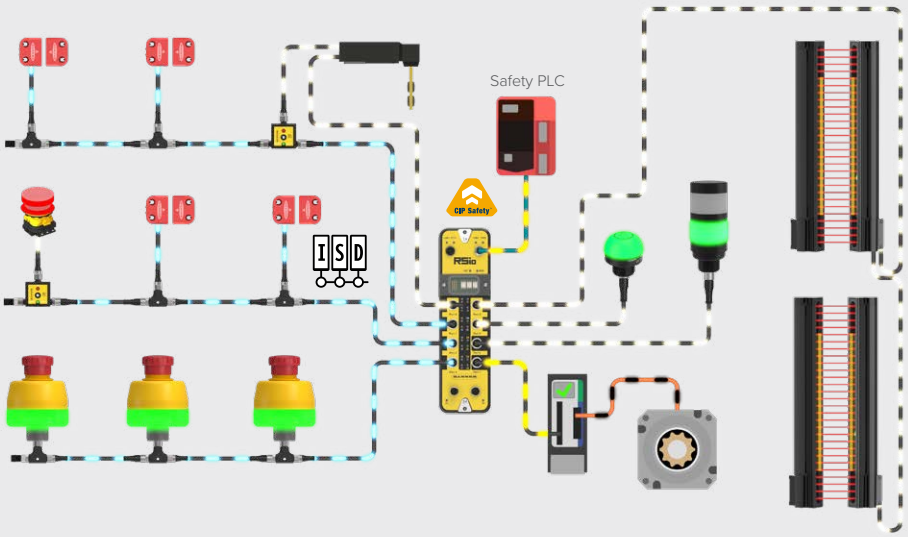
Available with M12 L-Code or Mini pass-through power and an IP67-rated, machine-mountable housing, RSio delivers field-level safety I/O with hybrid I/O flexibility and ISD scalability for CIP Safety systems—and it's configured entirely in the same Studio 5000 environment controls engineers already live in.

ISD In-Series Diagnostics

More Devices, Less Wiring, and Faster Diagnostics

In-Series Diagnostics (ISD) makes it possible for each RSio input to connect up to 32 ISD-enabled safety devices, or safety devices brought in through ISD Connect, in a daisy-chain while providing diagnostic data for each individual device. ISD chains use plug-and-play M12 T-connectors and cabling, with the ISD protocol traveling over the same wiring as the OSSD signals, providing continuous device status and clear identification of which device in the chain causes a stop.

RSio supports a mix of ISD and non-ISD devices across its six inputs. Each input can monitor either a single safety device directly or an ISD chain of up to 32 devices—192 devices total across one RSio.



Applications

Independent Coverage and Control Across Conveyor Lines

Use RSio's In-Series Diagnostics (ISD) capabilities to create individual safety zones on long-run conveyors common in distribution, 3PL, and material-handling environments. On one safety input, an ISD chain consisting of a rope pull brought in via ISD Connect and a series of e-stops provides stop coverage along the first conveyor line. A second safety input brings in another ISD chain of e-stops to protect a second line. A final switching device connected to one of RSio's safety-rated outputs controls the motor-driven rollers on the first line, while the second line's final switching device (FSD) is controlled by the GuardLogix safety controller via the CIP Safety connection. A hybrid port configured as a standard output drives a CL50 Column Light to provide system-status indication at a distance.

When any device in the first ISD chain is tripped, RSio drops the safety output to remove power from the FSD and stop the first conveyor. When a device in the second ISD chain is tripped, RSio reports the safety input status to the Safety PLC over the CIP Safety connection on the EtherNet/IP network, and the Safety PLC commands its final switching device to stop the second conveyor. ISD device-level diagnostics help maintenance quickly locate which device along either line needs attention.

RSIO-MA4-6SI2SO-C
Remote Safe I/O

SSA-EB1PLGR-0DECQ8
E-Stop

CL50GRYPQ
Column Light

K30LGRYPQ
Indicator

RP-RM83F-75LR
Rope Pull with E-Stop

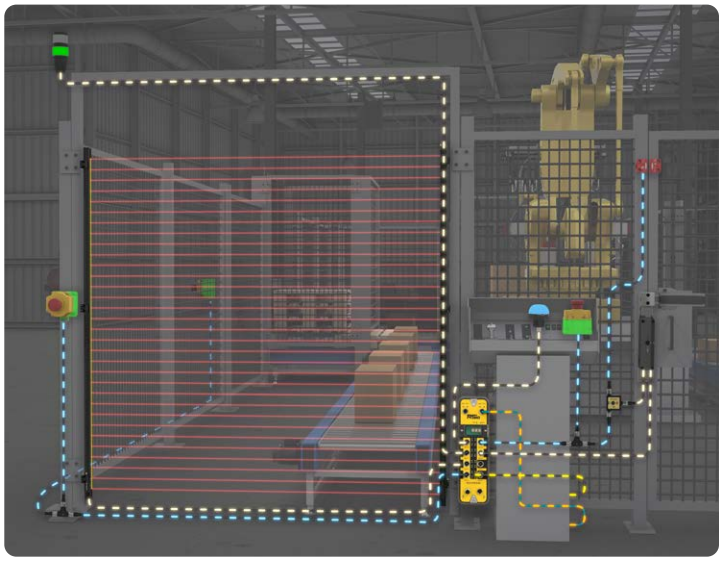
SSA-ISD-TCA
ISD Connect

Add a standard device, such as this Rope Pull to an ISD network using the ISD Connect.

Complete Palletizer Coverage

Use RSio to create a complete safety solution for robotic palletizing cells that takes advantage of hybrid I/O and In-Series Diagnostics (ISD). On one safety input, an S4B Safety Light Curtain provides perimeter protection. A second safety input brings in a daisy-chain of ISD e-stops that provide stop coverage along one side of the cell. A third safety input brings in another ISD chain with an e-stop for the gate area, and an SI-RF Safety Switch paired with an SI-GL42 Safety Locking Switch via ISD Connect to control gate access. Two ports configured for standard devices tie in both indication and a localized reset switch. A TL50 Tower Light provides visibility of system status at a distance, and a K50 Programmable Touch Button provides status indication and acts as a system reset switch. One of the safety-rated outputs controls the final switching device for the palletizer's motion.

When any safety device is tripped, RSio drops the safety output to stop the palletizer. The color on the TL50 and K50 then changes from green to red, indicating shutdown. Across both ISD chains, device-level visibility speeds up troubleshooting. After the tripped device is reset, touching the K50 resets the input through the Safety PLC to restart the system. Both indicators then switch back to green.



RSIO-MA4-6SI2SO-C
Remote Safe I/O

S4BE30-1200-S
S4BR30-1200-S
Safety
Light Curtain

SI-RF-A
SI-RFDT-HP8
Safety Switch

SSA-EB1PLGR-0DED1Q8
E-Stop

SI-GL42DM01-20Q13
Safety Locking Switch

SSA-ISD-TCA
ISD Connect

TL50GYQ
Tower Light

K50PSTGRY3Q
Reset Button

Add a standard device, such as this Safety Locking Switch to an ISD network using the ISD Connect.

BANNER

RSio Remote Safe I/O

Safety Communication Protocol	Safe Output Ports	Safe/Non-Safe Input Ports	Power Connection	Models
CIP Safety	2	6* (ISD compatible†)	4-pin Mini	**RSIO-MA4-6SI2SO-C**
			5-pin M12 L-code	**RSIO-L5-6SI2SO-C**

*Pin 1 and pin 5 test outputs independently controlled
†Each input supports an ISD chain of up to 32 ISD-enabled devices—192 devices total across one RSio.

Specifications

RSIO-L5-6SI2SO-C

RSIO-MA4-6SI2SOC

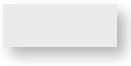
Supply Voltage	24 V DC
Safety	Up to Category 4, PL e (EN ISO 13849) Up to SIL 3 (IEC 61508)
Reaction Time	Maximum input time: 6 ms + debounce time (default 6 ms) Maximum output time: 5 ms
Construction	Enclosure: Glass filled polyamide Rotary switch cover: Polycarbonate Encapsulation: Epoxy Connectors: Nickel-plated copper and polyamide
Operating Conditions	–25 to +70 °C (–13 to +158 °F)
Environmental Rating	For Indoor Use Only IP65, IP67, NEMA 1, UL Type 1

Accessories

ACC-CAP M12-10
Female M12 Cap (10 pack)

BCC-MAM-NPB
Male 7/8 Inch Cap

BCC-MAF-NPB
Female 7/8 Inch Cap



RSA-PL-16
Port Labels (16 pack)

RSA-RSD-1
Door Hardware Kit
(1 door, 1 gasket, 2 screws)

M12 Single-Ended for Signal Connections
Straight connector models

4-Pin Male	4-Pin Female	5-Pin Male	5-Pin Female
BC-M12M4-22-2 2 m (6.6 ft) **BC-M12M4-22-5** 5 m (16.4 ft) **BC-M12M4-22-10** 10 m (32.8 ft)	**BC-M12F4-22-2** 2 m (6.6 ft) **BC-M12F4-22-5** 5 m (16.4 ft) **BC-M12F4-22-10** 10 m (32.8 ft)	**BC-M12M5-22-2** 2 m (6.6 ft) **BC-M12M5-22-5** 5 m (16.4 ft) **BC-M12M5-22-10** 10 m (32.8 ft)	**BC-M12F5-22-2** 2 m (6.6 ft) **BC-M12F5-22-5** 5 m (16.4 ft) **BC-M12F5-22-10** 10 m (32.8 ft)

M12 Double-Ended for Signal Connections
Straight connector models

4-Pin Female-Male	5-Pin Female-Male
BC-M12F4-M12M4-22-2 2 m (6.5 ft) **BC-M12F4-M12M4-22-5** 5 m (16.4 ft) **BC-M12F4-M12M4-22-10** 10 m (32.8 ft)	**BC-M12F5-M12M5-22-2** 2 m (6.5 ft) **BC-M12F5-M12M5-22-5** 5 m (16.4 ft) **BC-M12F5-M12M5-22-10** 10 m (32.8 ft)

M12 L-Code Single-Ended for Power Connections
Straight connector models

5-Pin Male	5-Pin Female
BCP-M12LM5-14-2 2 m (6.5 ft) **BCP-M12LM5-14-5** 5 m (16.4 ft) **BCP-M12LM5-14-10** 10 m (32.8 ft)	**BCP-M12LF5-14-2** 2 m (6.5 ft) **BCP-M12LF5-14-5** 5 m (16.4 ft) **BCP-M12LF5-14-10** 10 m (32.8 ft)

M12 L-Code Double-Ended for Power Connections
Straight connector models

5-Pin Female-Male
BCP-M12LF5-M12LM5-14-2 2 m (6.5 ft) **BCP-M12LF5-M12LM5-14-10** 10 m (32.8 ft) **BCP-M12LF5-M12LM5-14-15** 15 m (49.2 ft)

Mini Single-Ended for Power Connections
Straight connector models

4-Pin Female
MBCC-406 1.83 m (6 ft) **MBCC-412** 3.66 m (12 ft) **MBCC-430** 9.14 m (30 ft)

M12 D-Code Double-Ended for Ethernet/Data Connections
Straight connector models

4-Pin Male
BCD-M12DM-M12DM-2 2 m (6.5 ft) **BCD-M12DM-M12DM-5** 5 m (16.4 ft) **BCD-M12DM-M12DM-10** 10 m (32.8 ft)

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