



Banner In-Series Diagnostics



Cut costs by preventing and reducing downtime
Local operator guidance and remote actionable data



Reduce and simplify wiring
Up to 32 plug-n-play devices with one in-series connection — achieves the highest level of safety; up to Category 4, PL e, SIL CL 3



Intuitive setup and PLC integration
Easy to use software and auto tag export



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Software To Design, Configure, and Manage Your Safety System

Prevent Downtime:

Marginal

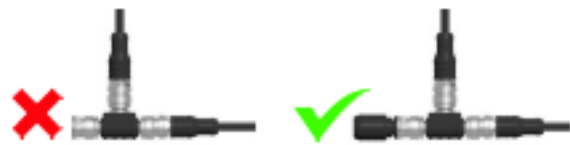
Alert to check Door 1 for misalignment
before it causes downtime

Warning

Alert to check E-Stop 1 for low voltage
before it causes downtime

Troubleshooting Made Easy:

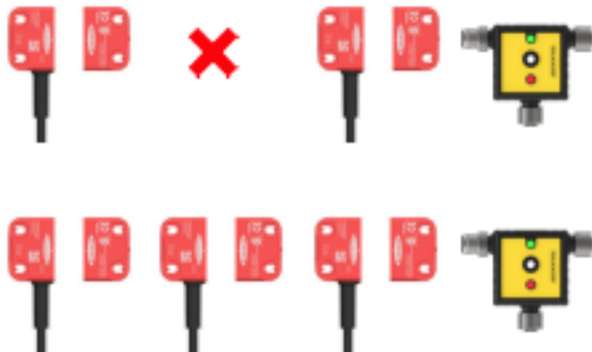
Terminator missing



Actuator not taught



Wrong number of devices



Equipment Functional View Wiring Diagram Ladder Logic Configuration Summary Live Mode ISD

	Status	Alert	Actuator
Terminator Plug	On Off Reset	Marginal Warning Fault	Detected
1 Door 1	On	Marginal	Detected
2 Door 2	Off	Warning	Detected
3 Door 3	Off	Warning	Detected
4 Door 4	Off	Warning	Detected
M0:Chain 1	Off	Warning	Detected

Terminator Missing; Actuator not Taught

Up to 32 ISD safety devices in any order per chain

Reduce Downtime:
Local operator guidance to activated E-Stop

Chain:1	Device:1	Close
Expected Code	901A	
Received Code	901A	
Internal Temperature	75 C	
Actuator Distance	13.8 mm	
Supply Voltage	21.5 V	
Output 1	False	
Output 2	False	
Actuator Detected	True	
Wrong Actuator	False	
Marginal Range	True	
Input 1	False	
Input 2	False	
Local Reset Expected	False	
Output Error	False	
Safety Input Fault	False	
ISD Data Error	False	
Operating Voltage Error	False	
Power Cycle Required	False	
Operating Voltage Warning	False	
Sensor Not Paired	False	
Device	Door Switch	
Teach-ins Remaining	0	
Number of Voltage Errors	0	
Output Switch-off Time	Inactive	
Range Warning Count	0	
Expected Company Name	0000	
Received Company Name	0000	
Internal Error A	0000	
Internal Error B	0000	
Local Reset Unit	False	
High Coding Level	True	
Cascadable	True	
Fault Tolerant Outputs	True	

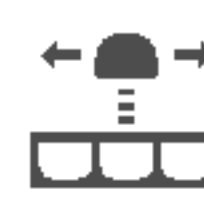
Additional uses for ISD



Rotation/Indexing



Tool Identification



Position Verification

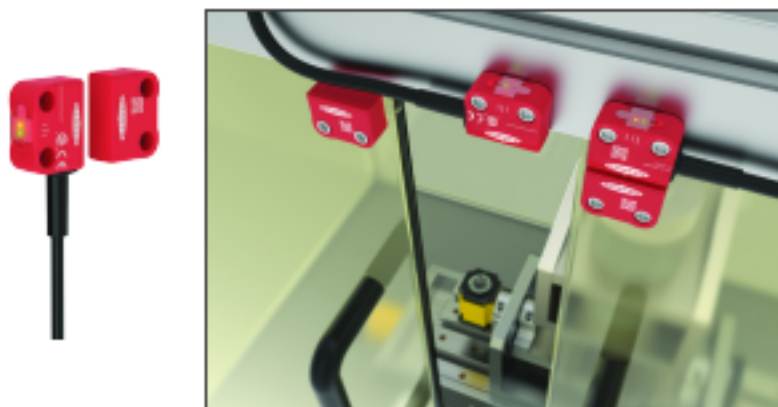
- Simplified wiring using T-adapters and cost-effective 4-pin cables
- Achieves the highest level of safety; up to Category 4, PL e, SIL CL 3





ISD-Enabled Products by Banner

RFID Safety Switches



- High tolerance to misalignment and provides data to prevent downtime
- Basic, medium and high tamper resistance models available
- Features an IP69 rating and resistance to both vibration and metal shavings
- Cascade up to 32 sensors while achieving the highest level of safety

Illuminated E-Stops



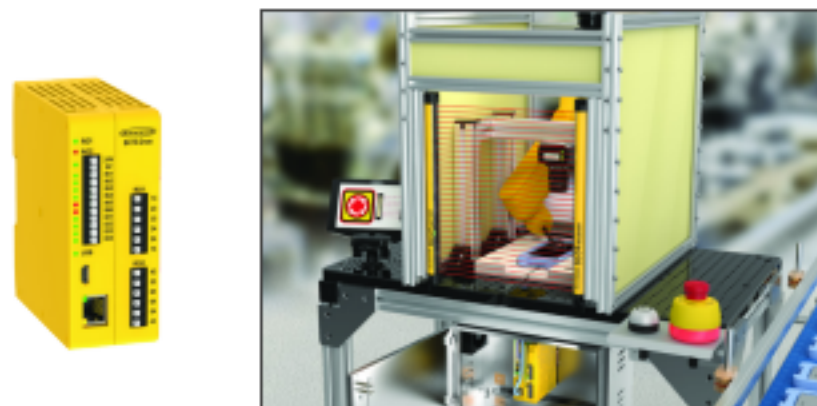
- Illuminated base flashes red to quickly identify which button has been pressed
- Illuminated base turns green, yellow or unlit to indicate it is armed and ready for operation
- Unique OSSD Safety outputs simplify wiring and allowing it to be included in an In-Series Diagnostics (ISD) chain
- Cascade up to 32 devices while achieving the highest level of safety

ISD Connect



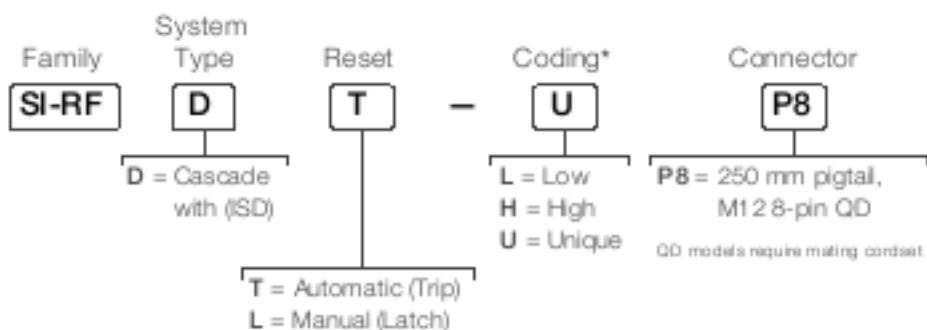
- Add a Non-ISD device to an ISD chain
- Requires 2 normally closed sets of contacts on any safety device such as a mechanical switch on RFID ISD Chain or a panel E-stop on Illuminated e-stop ISD Chain
- Bright LEDs for simplified local diagnostics
- Flexible mounting in any orientation with integral mounting holes and visible LEDs on both sides
- Add up to 32 Non-ISD devices to an ISD Chain and achieve up to the highest level of safety

SC10 Safety Controller



- Free and intuitive PC configuration software
- Connects up to 64 ISD devices, and has 6 available safe inputs for other devices
- Two independently controlled safety relay outputs, with 6 Amps each
- Industrial Ethernet two-way communication enables 256 virtual non-safe status outputs and 80 virtual non-safe inputs

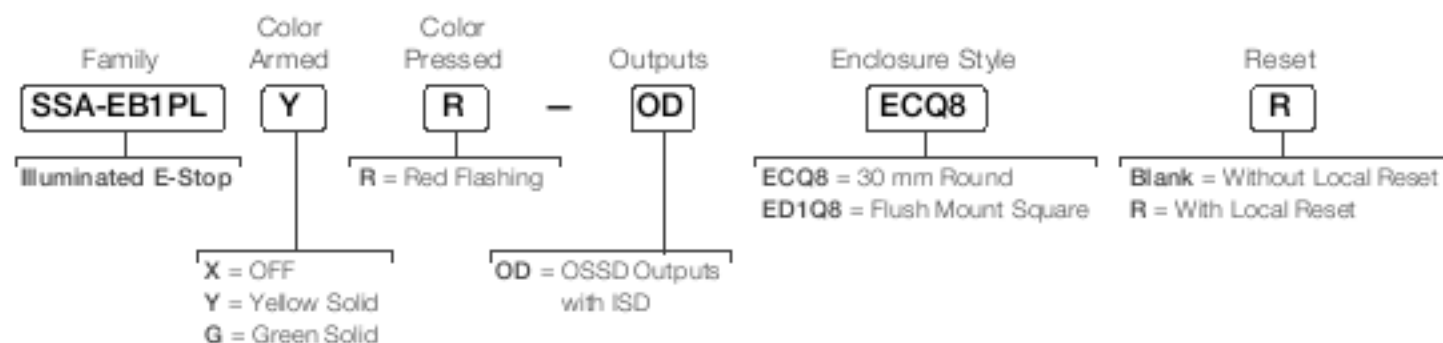
RFID Safety Switches



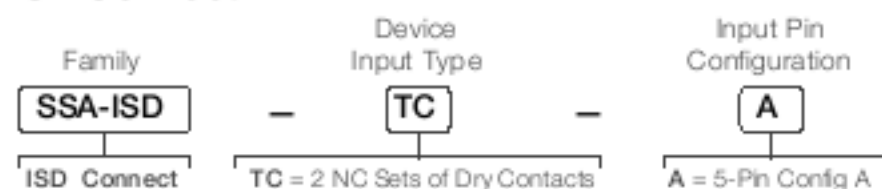
NOTE: SI-RF-A Actuator is required to complete a sensor solution. Ordered separately.

* Tamper Resistant Coding
Low (L)—The SI-RF Safety Switch accepts any SI-RF-A actuator
High (H)—The SI-RF Safety Switch only accepts the last taught-in actuator, a maximum of 12 teach-in processes are possible
Unique (U)—The SI-RF Safety Switch only accepts the taught-in actuator, and only one teach-in process is possible

Illuminated E-Stops



ISD Connect



SC10-2roe

Expedite PLC Integration with Tag Export Feature

- Eliminates error-prone manual entries
- Import tags to PLC via .csv or .xml files
- Defines actionable In-Series Diagnostic data within the PLC
- For more information visit bannerengineering.com/safetycontroller



SC-XM3 Fast Programming and Swapout

- Backup copy of configuration, password, network settings
- Download configuration without a PC
- Save time during panel build
- Fast swapout minimizes downtime

In-Series Diagnostics System Overview



HMI



PLC

EtherNet/IP

Modbus TCP/IP

PROFINET



BANNER

View the comprehensive collection of machine safety products which provide up to the highest levels of safety without compromising productivity. For more information visit bannerengineering.com/machinesafety

