Game Changing Industry 4.0 Safety Diagnostics:

Banner's In-Series Diagnostics (ISD)

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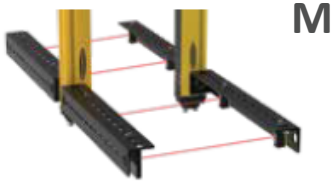
Banner Safety Objectives:

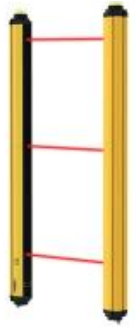
- Innovate to solve customer needs
- Easy to use
- Deliver customer value

Complete Safety Solutions from Banner

Safety Light Curtains

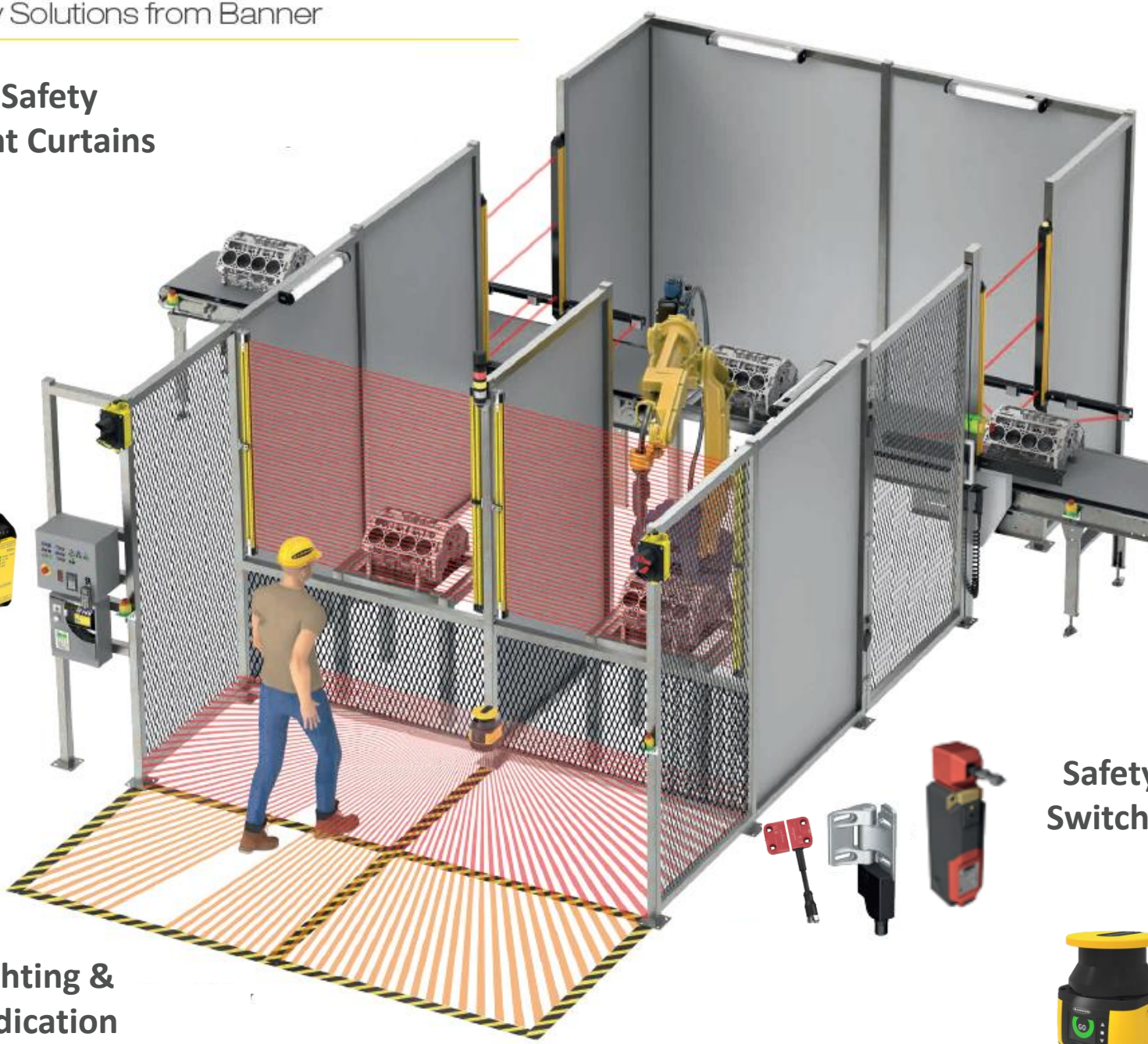


Mute Kits



Safety Grids

Safety Controllers



Illuminated E-Stops

Safety Switches

Lighting & Indication

Safety Laser Scanner

Safety Control Options

Safety Relays

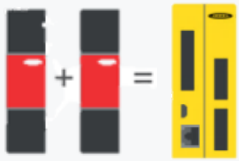
SC10

Hybrid- Safety Controller + 2 Relays

Expandable Safety Controller

Fixed Logic

Single Device Input



PC Configured Logic

10 Inputs

EtherNet/IP PROFINET Modbus TCP/IP

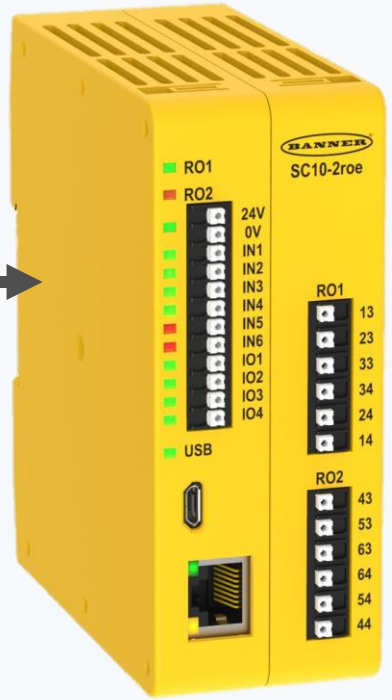
PC Configured Logic

Up to 154 Inputs

EtherNet/IP PROFINET Modbus TCP/IP

SC10 Hybrid Safety Controller

10 Safe Inputs



Safety Outputs

Safety Zone 1: 6A Relay 3NO

Safety Zone 2: 6A Relay 3NO

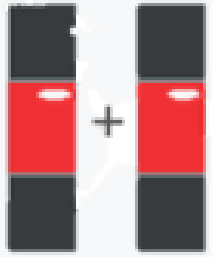
Free PC Software!

EtherNet/IP

PROFINET INDUSTRIAL ETHERNET

Modbus TCP/IP

Safety Controller, why not!



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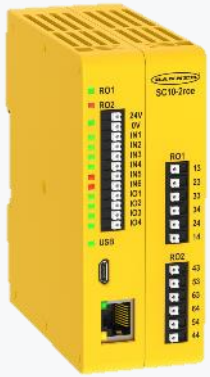

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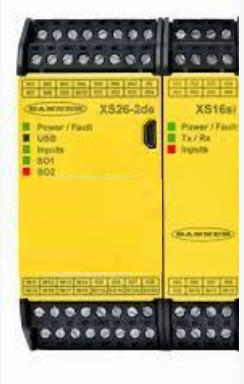
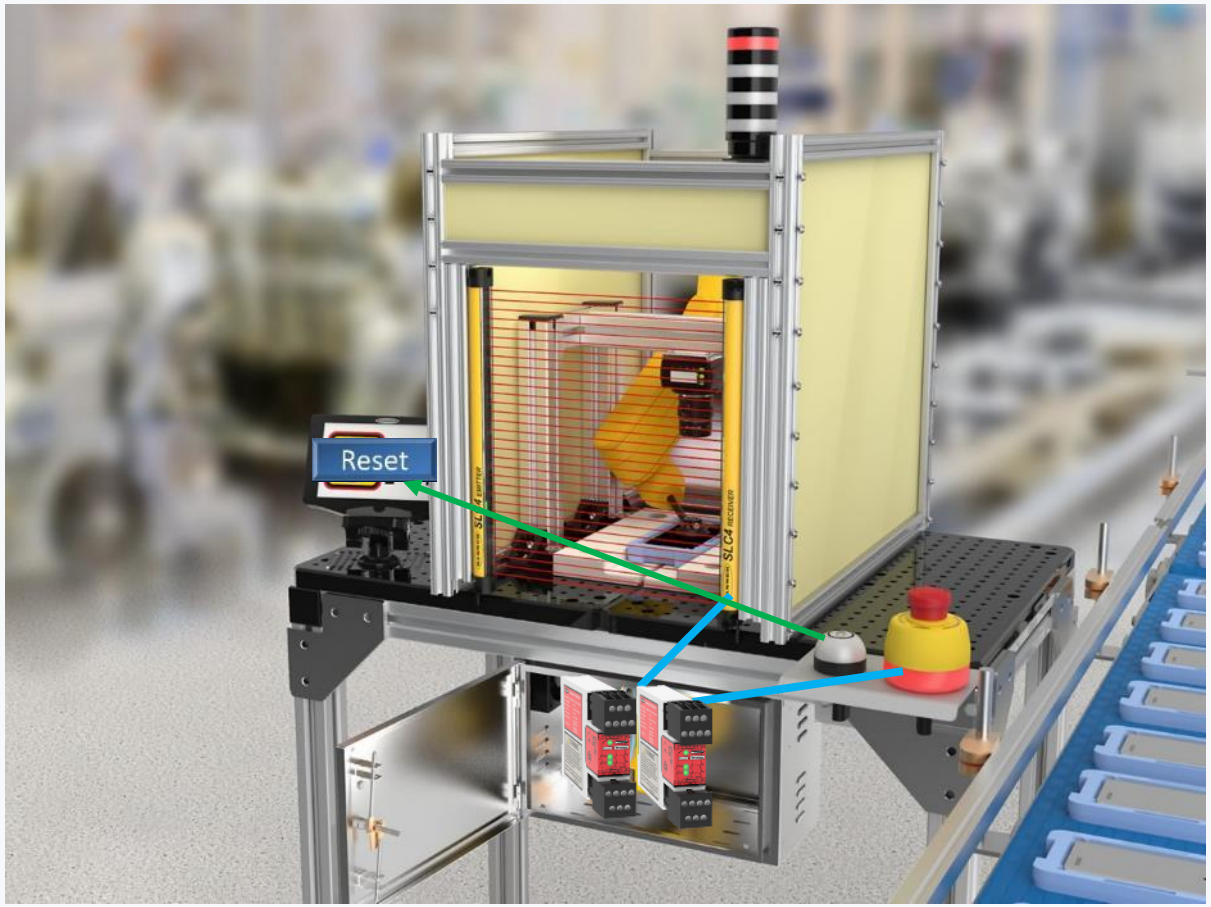


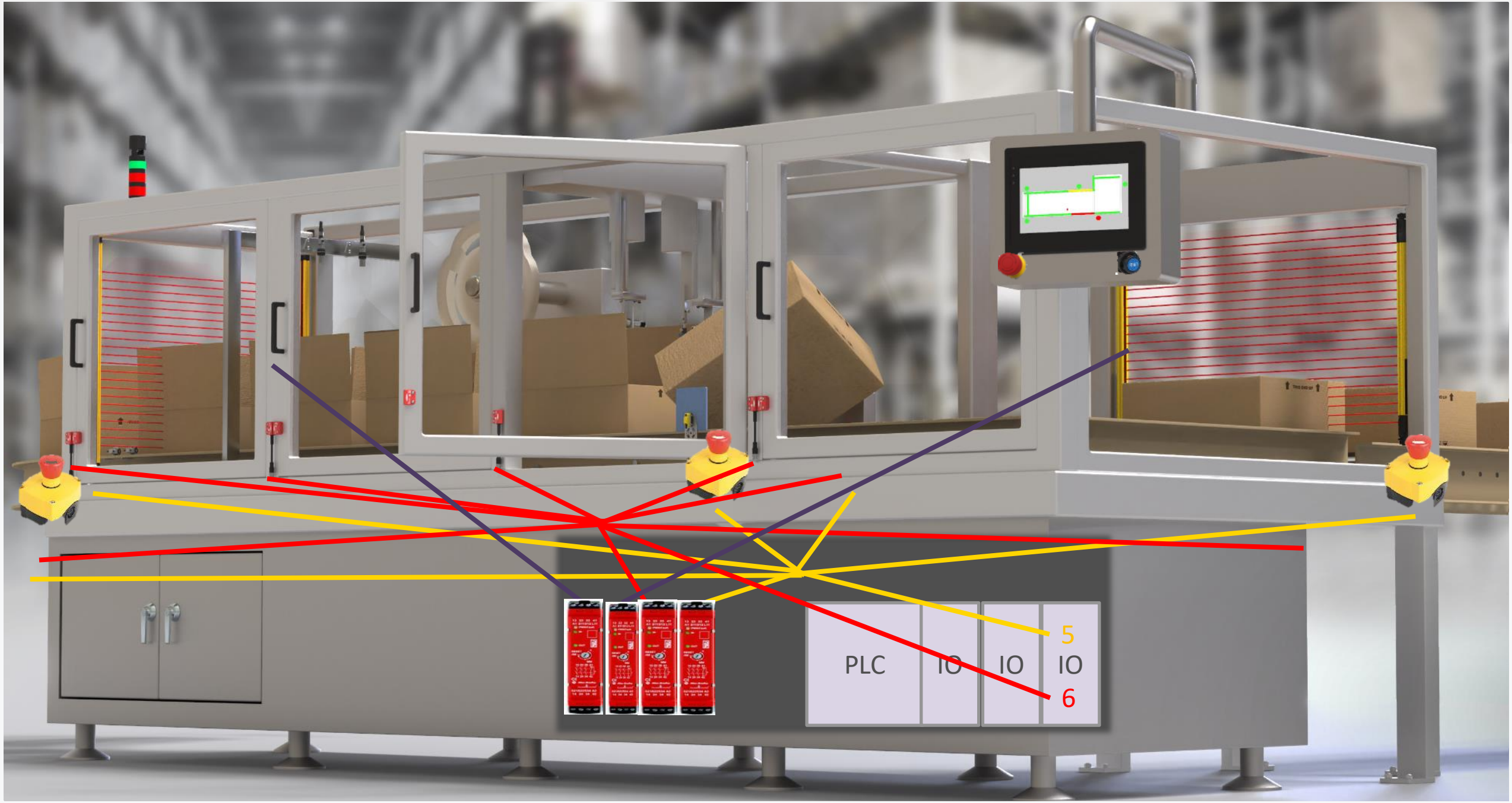
List Price
$300 to $500
$450
$700 to $1,200

Typical Application- Safety Relays

Safeguarding Solution:

- Stop Robot Temporarily
  - Light Curtain + SC10 (2 inputs, Safety Zone 1)
- Emergency Stop of Entire Machine
  - E-Stop + SC10 (3-4 inputs, Safety Zone 2)
- Virtual Reset Button…eliminate physical reset
- Industry 4.0 Diagnostics to HMI/PLC





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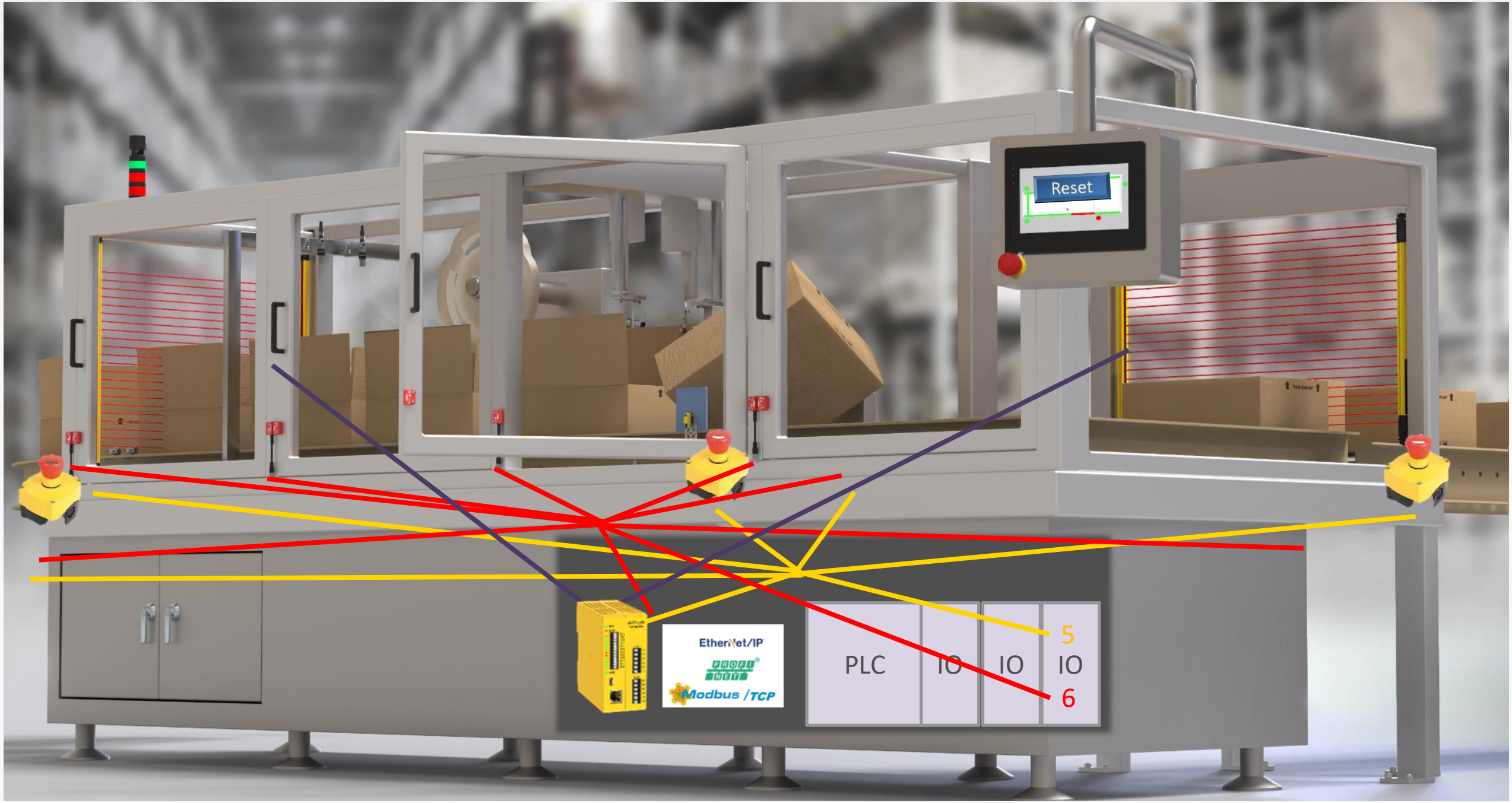

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SC10 - Real Customer Value

Current

$600-$1k

$100

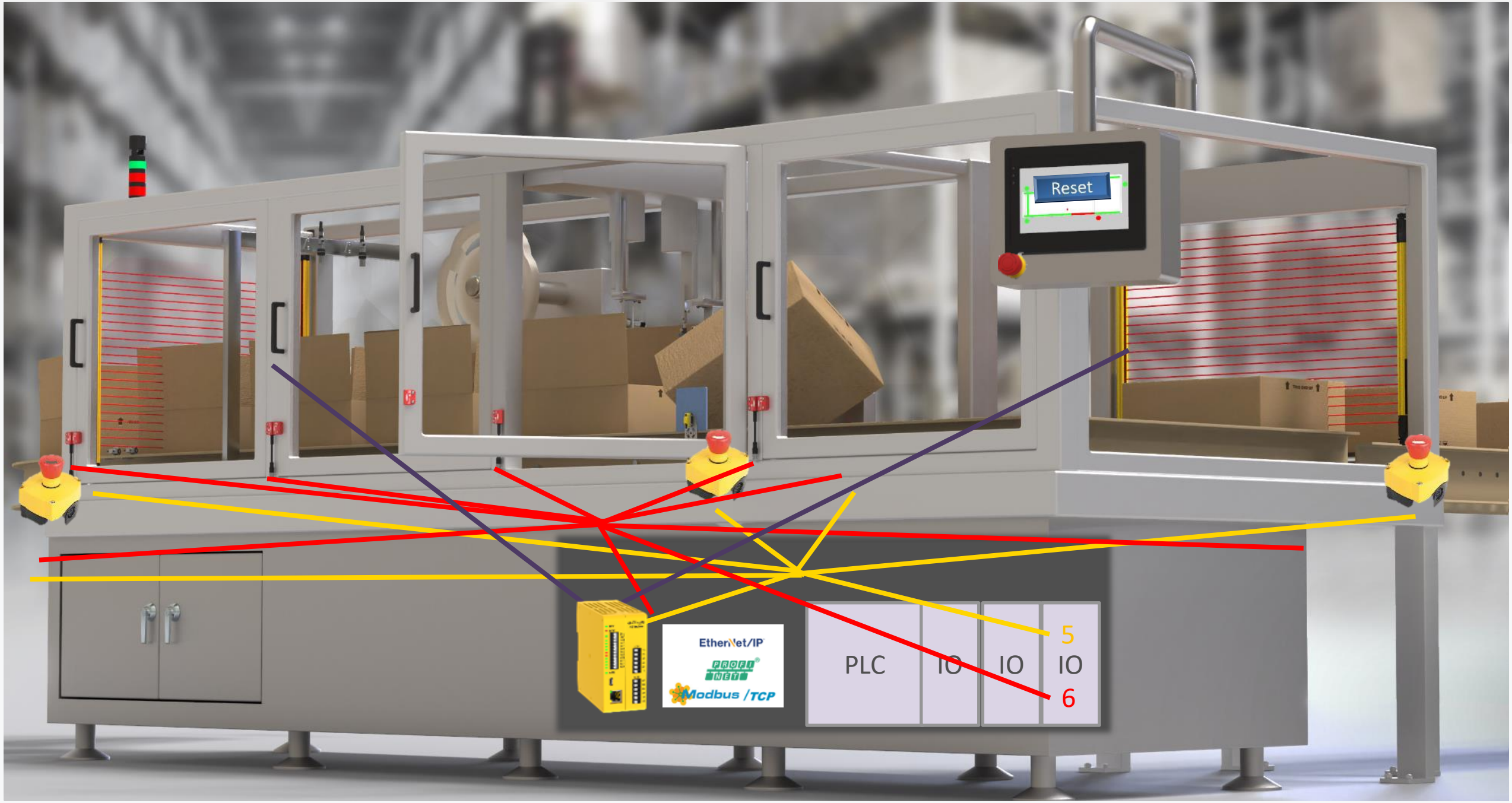
SC10

$450

Reset $0

Cost Savings: ~$450/ Machine

- Simplified Inventory ✓
- Configurable Safety Controller ✓
- Industry 4.0 Diagnostics ✓
- Simplified Wiring ✓



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Banner In-Series Diagnostics (ISD)

PLC

HMI

EtherNet/IP

PROFINET INDUSTRIAL ETHERNET

Modbus TCP/IP

Banner
In-Series
Diagnostics

ISD Delivers Real Value

PREVENT DOWNTIME

Adjust Door 3; 13.8mm

Low Voltage E-Stop 3; 19.3V

Door 25 Temperature is 75˚C

REDUCE DOWNTIME

E-Stop 3 Activated

Door 7 Open

Door Chain 1 is OK

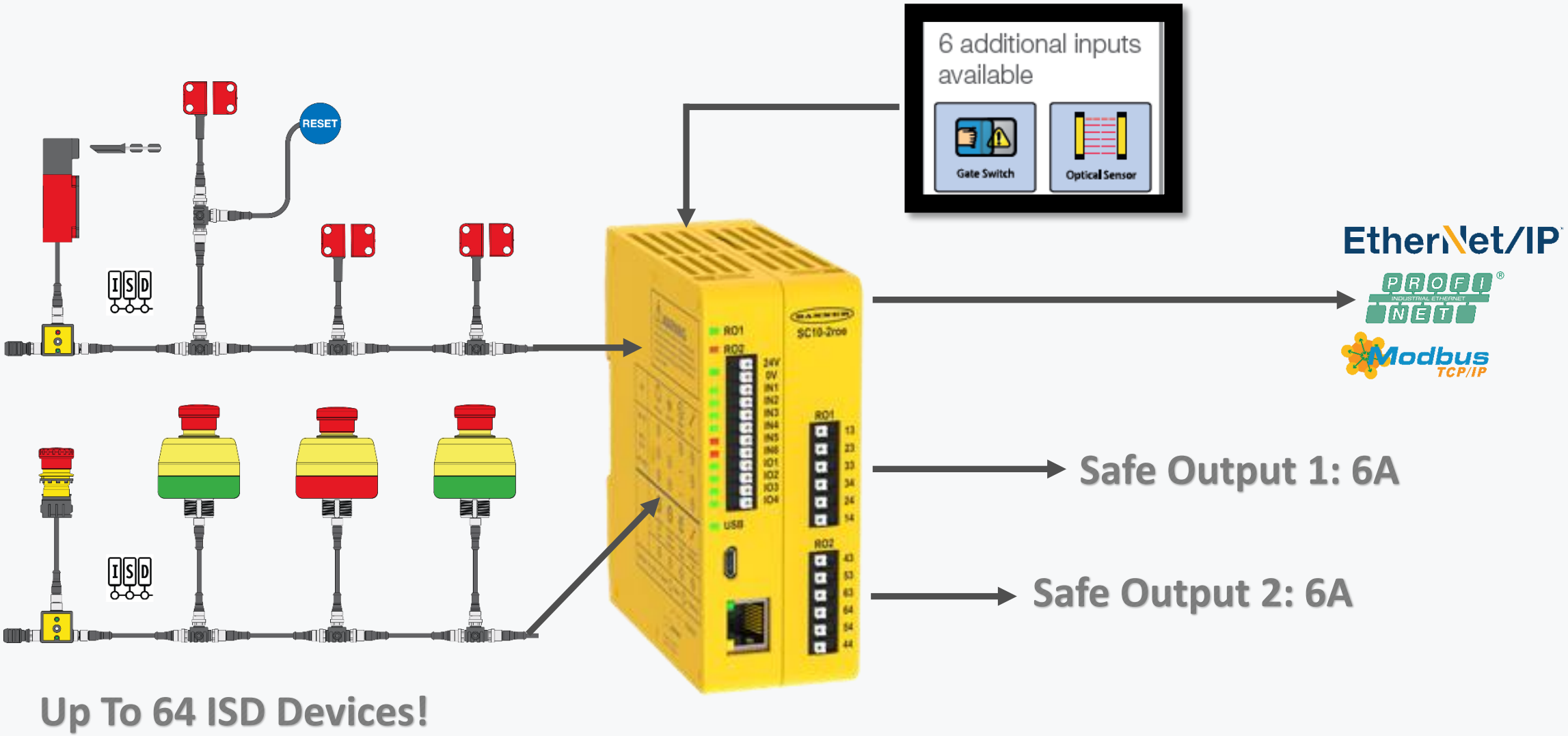
REDUCE COST & TIME

Export Tags- Simple PLC Setup

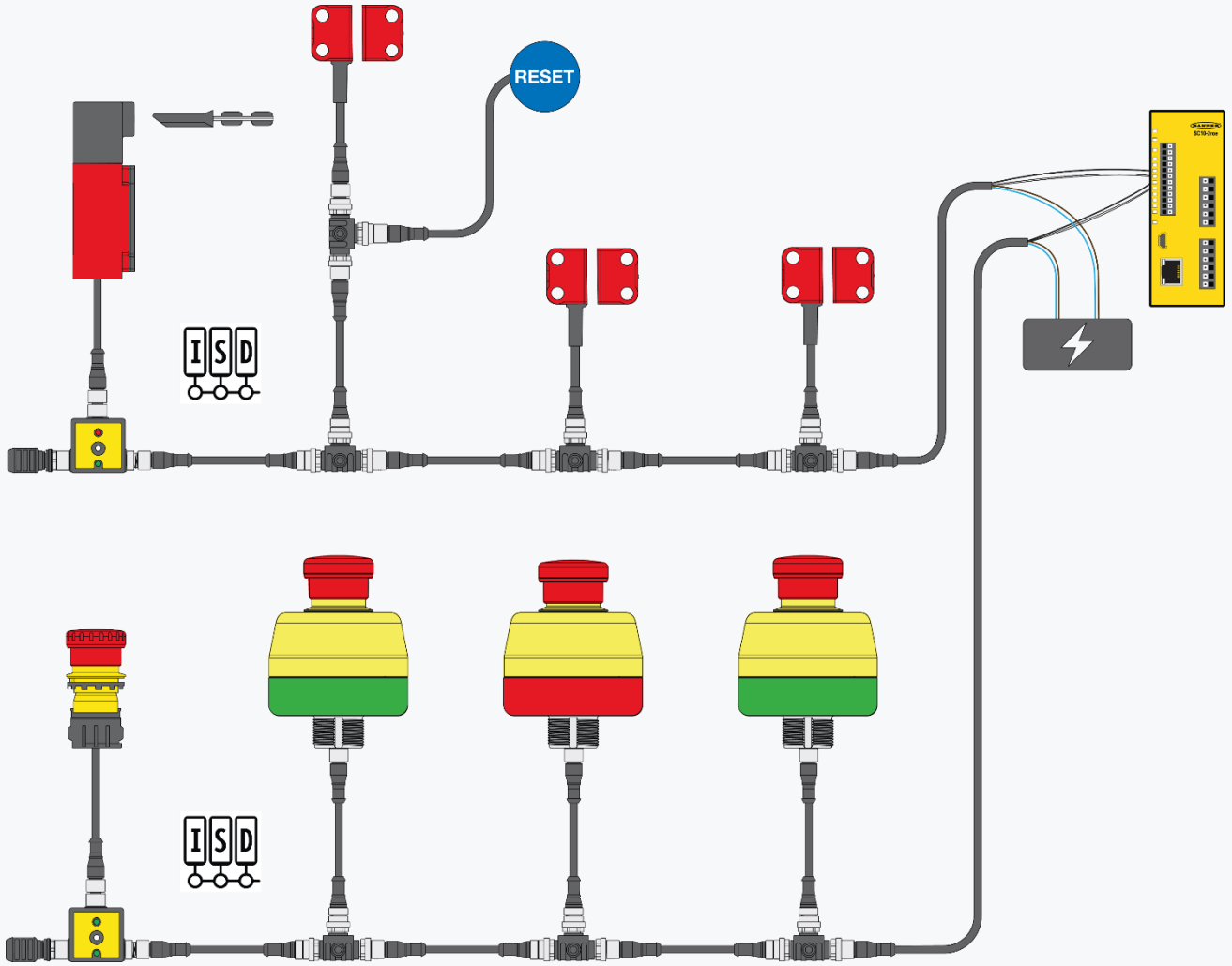
Expedite Machine Build

T-Connectors & 4-Pin Cables

Banner In-Series Diagnostics



In-Series Diagnostics- System Components



Termination Plug

T-Connector (TS)

T-Connector (TK)

Reset/IO-Link

Standard Cables

Banner In-Series Diagnostics: Devices

- Flexible RFID technology
  - **<u>Prevent Downtime</u>**- Adjust door alert via ISD
  - RFID Reader- Add Process Data to ISD Chain!
- Illuminated E-Stop + ISD
  - Easier to wire
  - Illumination for local operator guidance
- ISD Connect
  - Add non-ISD Safety devices to an ISD chain

RFID Door Switches with ISD

Family	System Type	Reset		Coding*	Connector
SI-RF	D	T	–	U	P8
	D = Cascade with (ISD)	T = Automatic (Trip) L = Manual (Latch)		L = Low H = High U = Unique	P8 = 250 mm pigtail, M12 8-pin QD QD models require mating cordset

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

- Real-time device data communicated to prevent and reduce downtime
- Reduce installation time and cost by using T-connectors and 4 pin cables to connect up to 32 devices
- Achieve the highest level of safety with only 2 wires

Illuminated E-Stops with ISD

Illuminated E-Stops

2 wire Safety &

- Industry Leading Illuminated E-Stop + ISD
  - Fully assembled w/ M12 connector
  - OSSD outputs
  - Now with ISD!

Available Accessory: IP69 Cover

Family	Color Armed	Color Pressed		Outputs	Enclosure Style	Reset
SSA-EB1PL	Y	R	–	0D	ECQ8	R
Illuminated E-Stop	**X** = Off **Y** = Yellow Solid **G** = Green Solid	**R** = Red Flashing		**0D** = OSSD Outputs with ISD	**ECQ8** = 30 mm Round **ED1Q8** = Flush Mount (square)	**Blank** = Without Local Reset **R** = With Local Reset

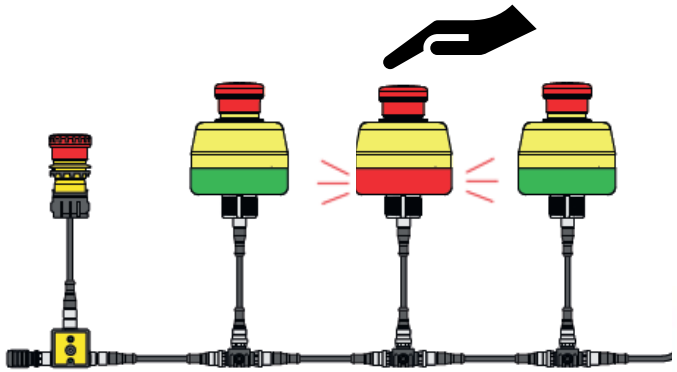
Local Reset Feature

E-Stop Reset Function

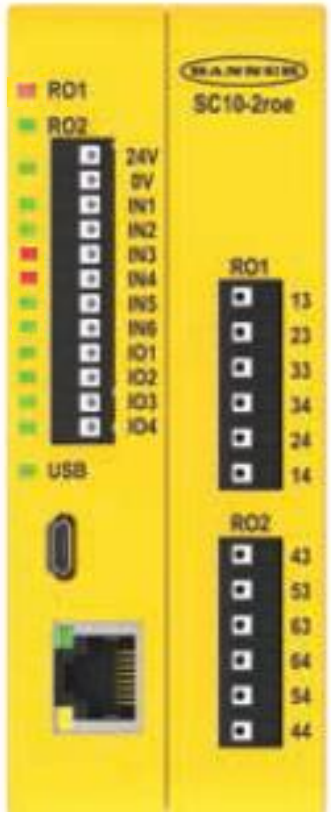
- What is a Local Reset feature?
  - E-stop with 2 independent latch/reset functions built-in
    - Typical e-stops only have one

- Why use a Local Reset?
  - Door switches & E-Stops in same ISD chain
  - Convenience
  - E-stop zone not visible from HMI

Local Reset Feature



Global Reset- Typical



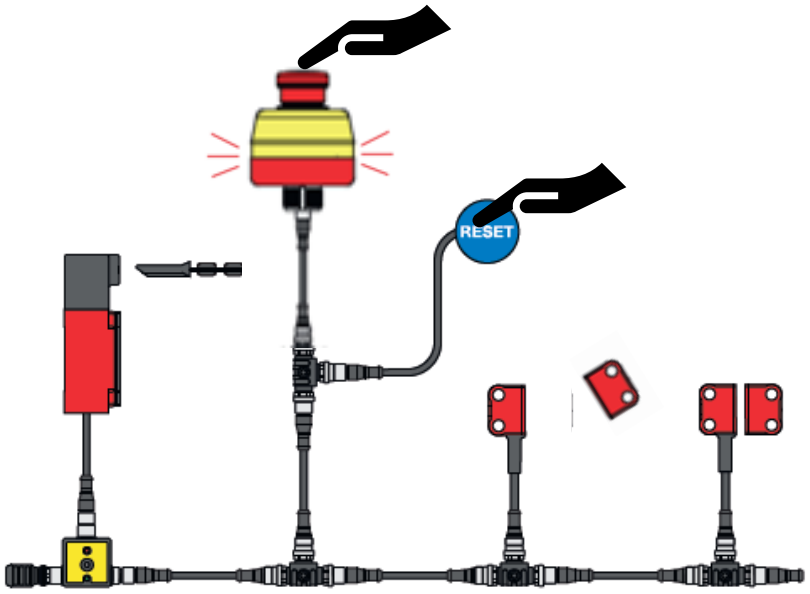
Reset

HMI / PLC

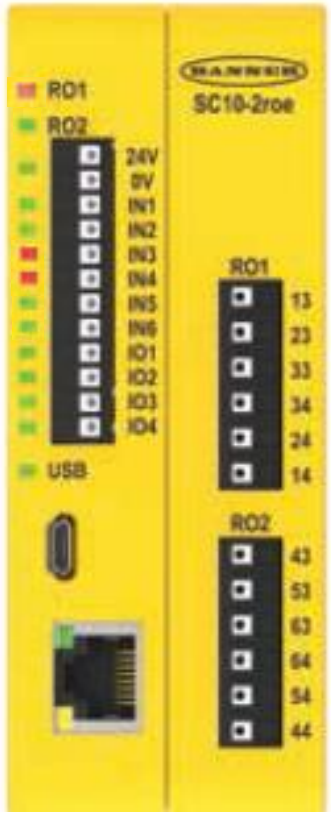
Safety Zone 1

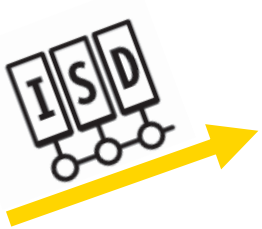
Safety Zone 2

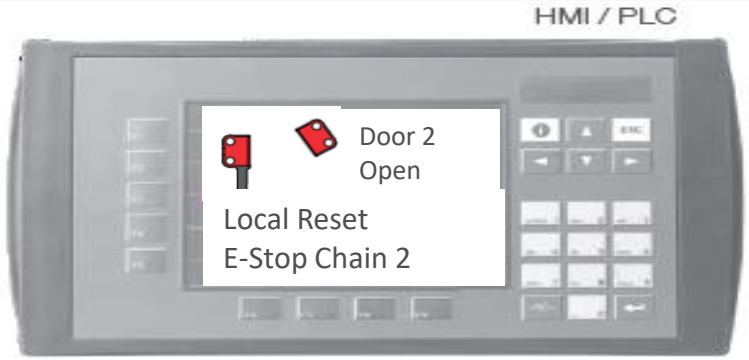
Local Reset Feature



Local Reset- Optional



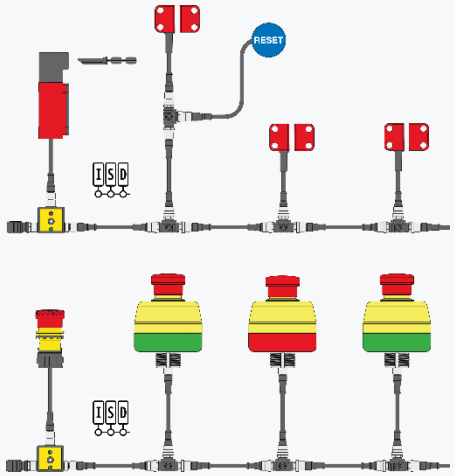




Safety Zone 1

Safety Zone 2

ISD Connect- *Q4 2020*



- Add a Non-ISD device to an ISD chain
  - Any Safety Device with 2 NC Sets of Contacts
    - Mechanical switch on RFID ISD Chain
    - Panel E-stop on Illuminated e-stop ISD Chain

Software Demo

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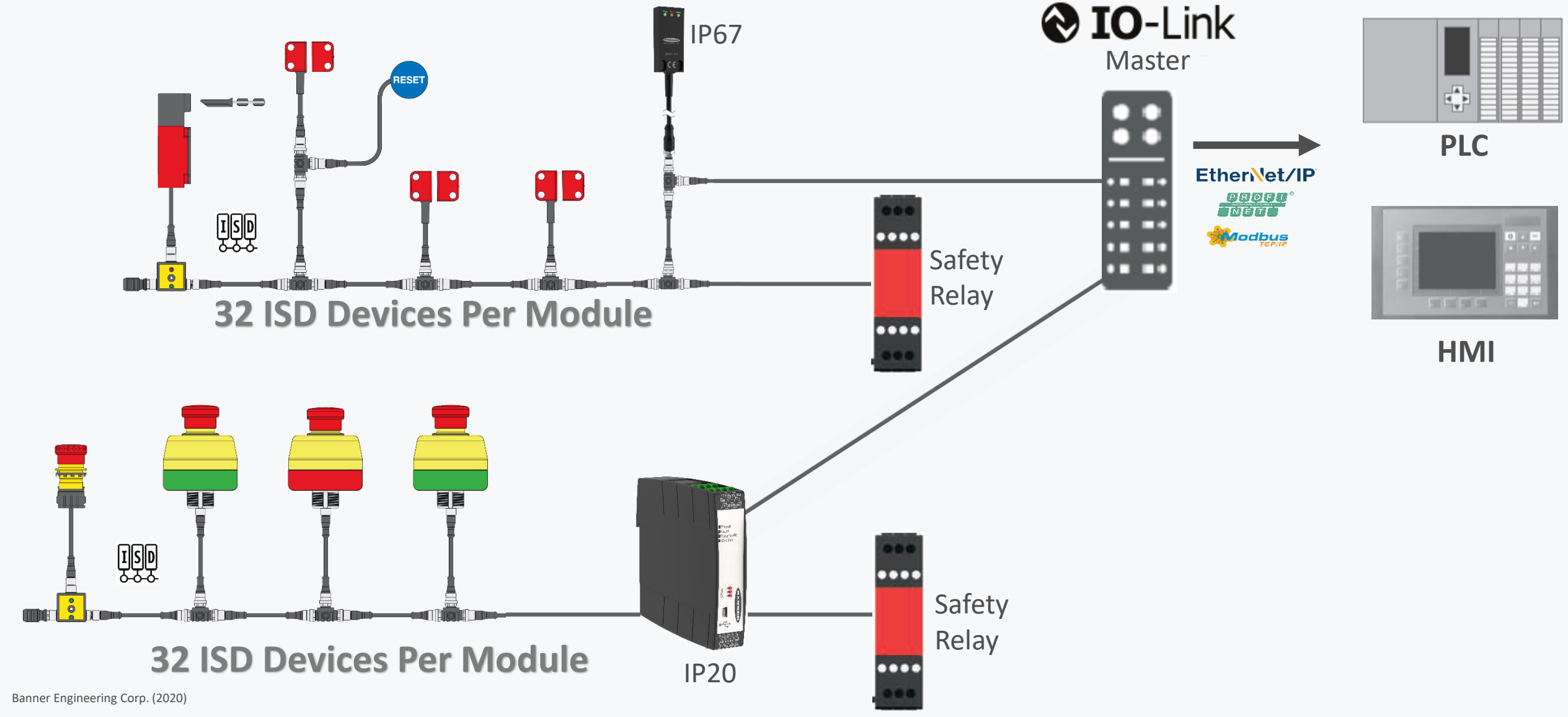
In-Series Diagnostics to IO-Link Options



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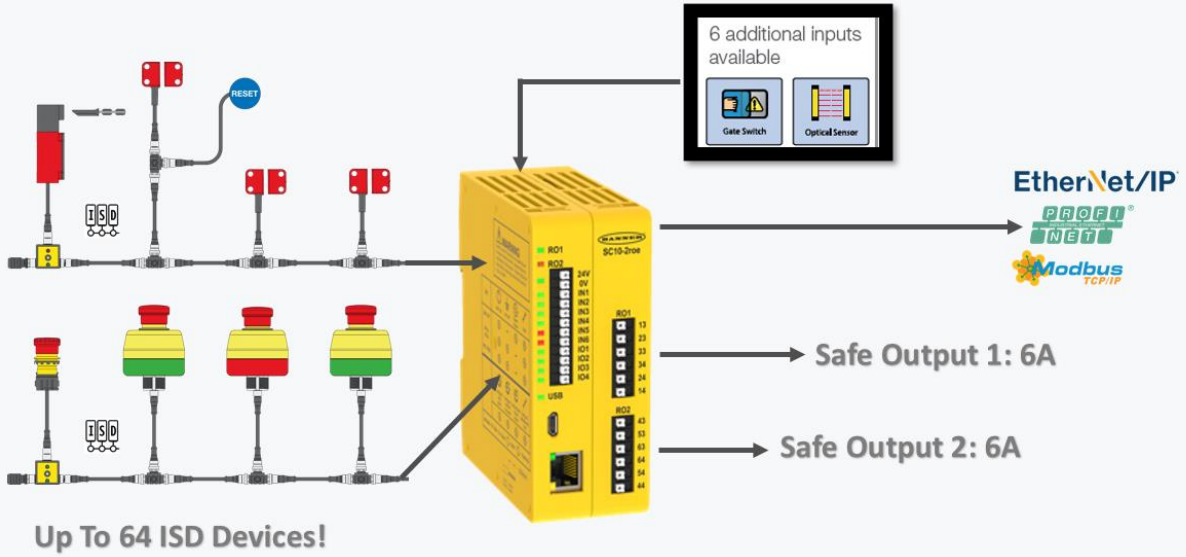
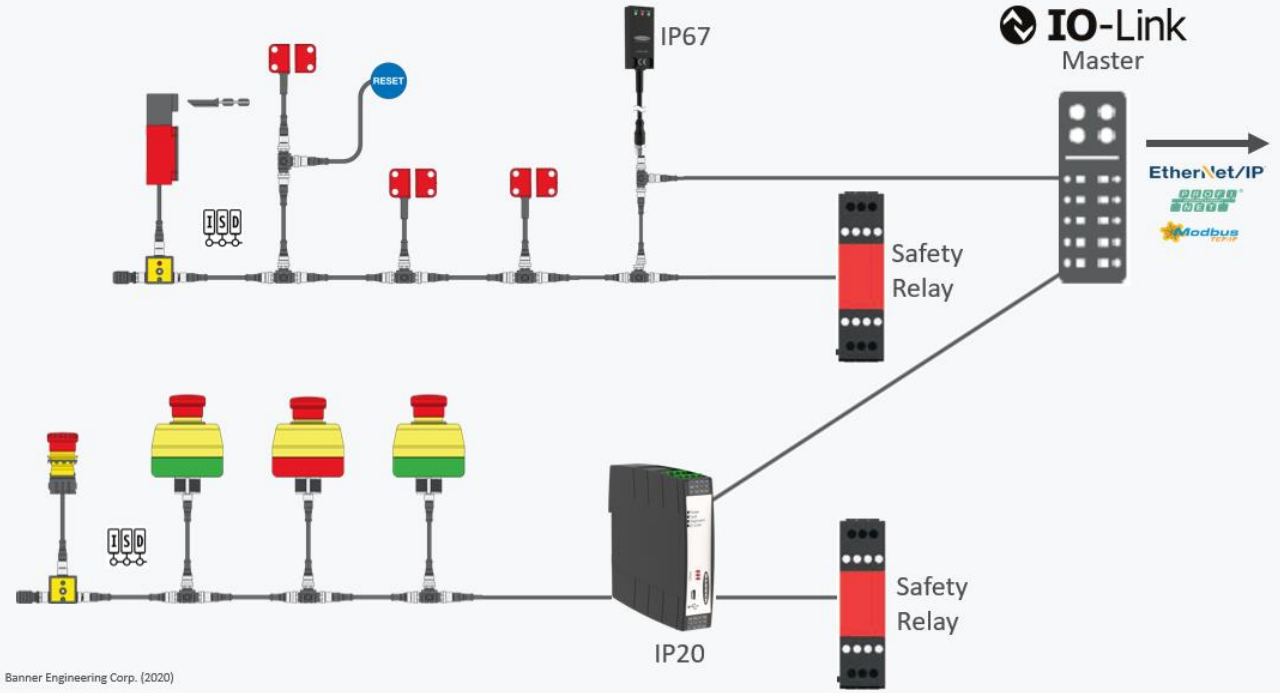
In-Series Diagnostics Solutions



Safety Controller Direct To PLC



Safety Relay /PLC + IO-Link Master to PLC

PLEASE CONTACT YOUR BARNUM SALESMAN FOR MORE INFORMATION, or VISIT

www.HHBarnum.com

Thank you for attending!

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