

# New Products

3rd edition



**BANNER®**  
more sensors, more solutions

[www.mfcp.com](http://www.mfcp.com)



Banner Engineering manufactures industrial automation products that include sensors, LED lights and indicators, machine safety components, industrial wireless devices, barcode scanners, vision sensors, industrial networks and smart i/o devices, and connectivity products. These products help produce the cars we drive, the food we eat, the medicine we take, and many of the things we touch every day. Headquartered in Minneapolis since 1966, Banner is an industry leader with over 30,000 active products, operations on six continents, over 2,000 employees, and 3,500 sales and support personnel globally. Every 3.5 seconds a Banner product is installed somewhere in the world. From adding new capabilities to our existing products or introducing brand-new IIoT technology for smart manufacturing, Banner is your trusted partner for durable, dependable solutions.

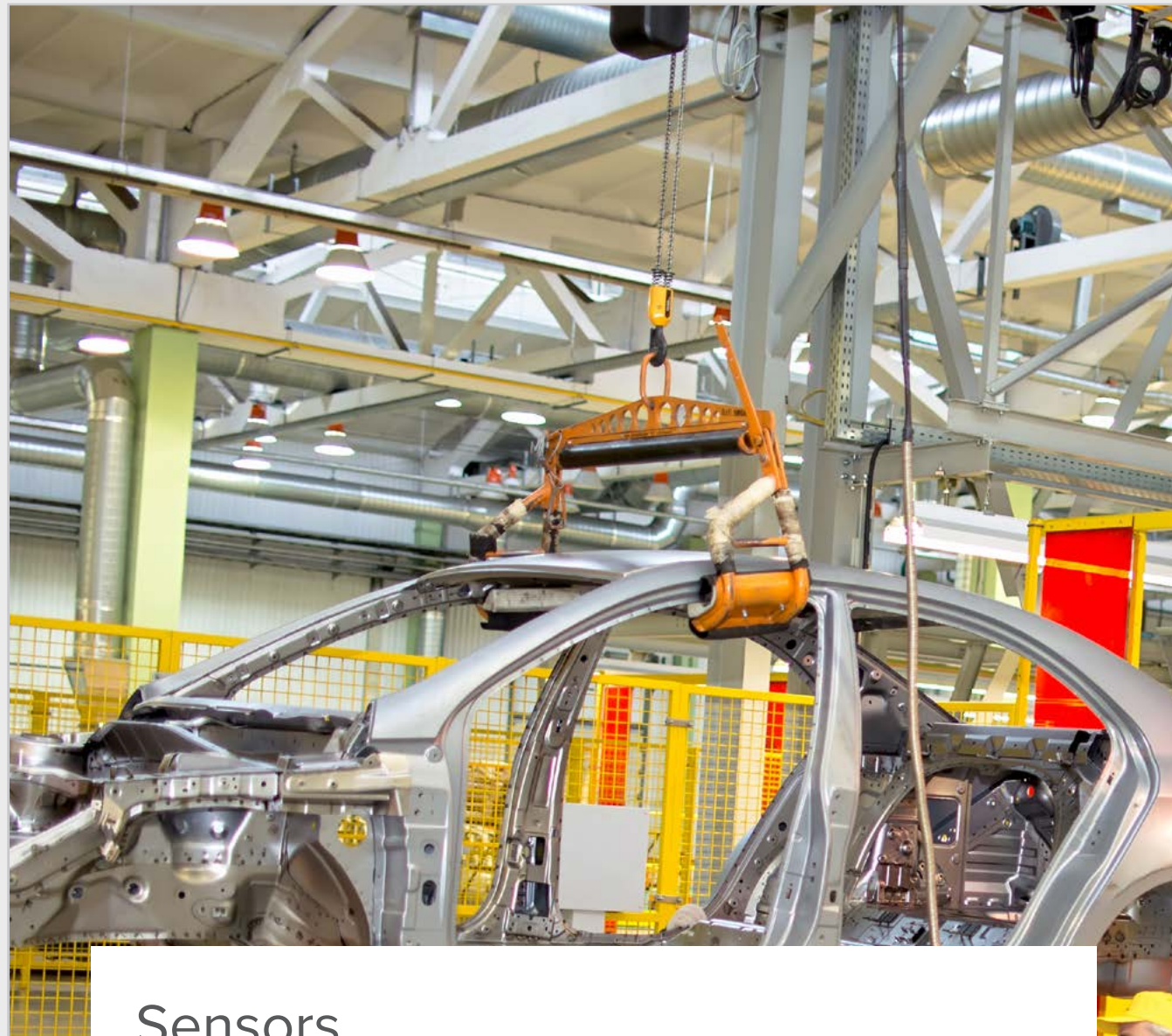


New Products

## Table of Contents

LM Series Precision Measurement Sensors .....	7
Q4X Series Rugged All-Purpose Sensors .....	8
Q5X Series High Power, Multi-Purpose Sensors.....	9
T30R Series Radar Sensors.....	10
DF-G Series Fiber Optic Amplifiers .....	12
VE Series Smart Cameras .....	16
ABR 3000 Series Barcode Readers .....	18
ABR 7000 Series Barcode Readers .....	19
SC10 Series Compact Safety Controllers with ISD.....	23
SI-RF Series RFID Safety Switches with ISD .....	24
Illuminated E-Stops with ISD.....	26
SI-GL42 Series Safety Locking Switches.....	27
SX5 Series Safety Laser Scanners.....	28
Pro Lighting and Indication Products.....	34
WLS15 Series Sealed, Low-Profile Strip Lights .....	36
WLS70 Series Sealed, High-Output Strip Lights.....	38
Flex Arm Lights Series.....	39
In-Line Products.....	40
Snap Signal IIoT Hardware.....	44
Banner SmartSolutions® Starter Kits .....	48
Call-for-Parts, Pick Up, or Service .....	50
Wireless Solutions Kits .....	51
DEK Wireless Kits .....	52
Direct Select™ Multifunction Operator Interface.....	53
Q45 Series Wireless Sensors .....	54





## Sensors

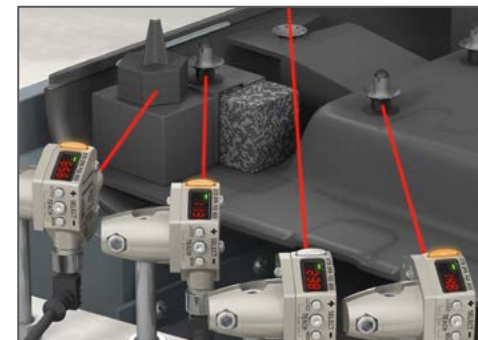
Banner Engineering has a wide variety of new innovative sensors to solve the most challenging solutions from clear object detection, distance measurement, object present or absence, to temperature and vibration, pick-to-light, and ultrasonics to solve almost any industrial automation application.



### LM Series Precision Measurement Sensors



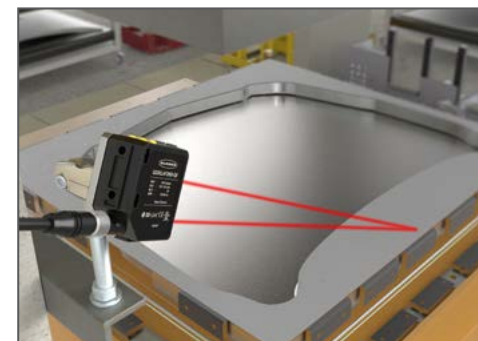
The 316-grade stainless steel precision laser distance sensor offers best-in-class measurement performance and stability in real-world industrial environments in a compact IP67-rated sensor that is intuitive to set-up and operate.



### Q4X Series Rugged All-Purpose Sensors



Versatile, rugged, IP69k-rated, stainless-steel laser-distance sensor offering best-in-class detection and measurement down to sub-millimeter changes in distance.



### Q5X Series High Power, Multi-Purpose Sensors



This powerful laser distance sensor covering a range from 50 mm to 5 m is easy to use and offers exceptionally reliable detection of the most challenging targets.



### T30R Series Radar Sensors



The T30R is a long-range sensor that provides reliable detection and position feedback even outdoors in extreme weather conditions.



### DF-G Series Fiber Optic Amplifiers



This comprehensive line-up of easy-to-use amplifiers provides a convenient and visual user interface that can be optimally placed in the machine design. Coupled with our high-performance fiber optic assemblies, they are ideal for tight space constraints.



# Solve More Challenges with New Analog Sensors

### Overview

A digital output provides one of two states ON or OFF, depending on the target location relative to a switch-point. An analog output varies across the entire measurement range of the sensor, providing a continuous reading of the measured distance to the target. Analog outputs are available in current (4–20 mA) or voltage (0–10 V DC) output types.

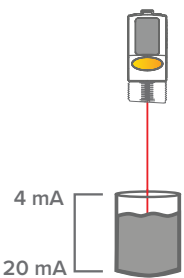
### When to Use Analog Outputs

Every analog sensing application requires that the sensor produce a change in output that corresponds with a mechanical change. The analog output produces a measurable change in voltage or current. Analog outputs are often used for process controls such as tank level, roll diameter, or loop height. They can also indicate a distance or a position when product placement changes in real time.



Q4X600

Q4X, now available in 600 mm range with Voltage (0–10 V) and Current (4–20 mA) outputs and higher excess gain to detect even darker targets at the far end of the range.

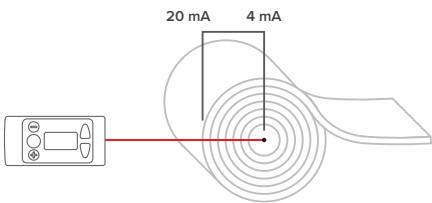


Analog output for continuous measurement of part size, position, or fill level



Q5X (3 m analog)

The Q5X triangulation model is now available with an additional meter of range—for a total of 3 meters—with Voltage (0–10 V) and Current (4–20 mA) outputs and higher excess gain to detect even darker targets at the far end of the range.

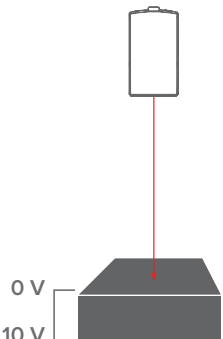


Analog output provides real-time roll diameter measurements for process optimization



LM

Voltage (0–10 V) output and RS-232 serial output models have been added to both the LM80 and the LM150. The serial model provides high-resolution distance measurements with RS-232 data export via a separate communications cable, providing a lower-cost alternative to Ethernet-based protocol.



Extremely linear analog output for precise measurement over a large span of material



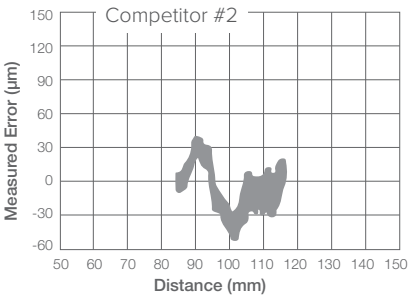
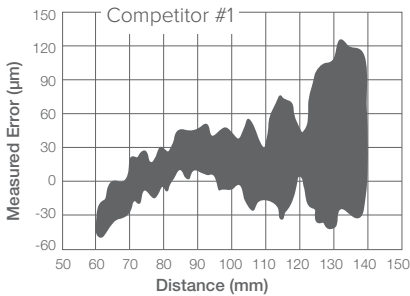
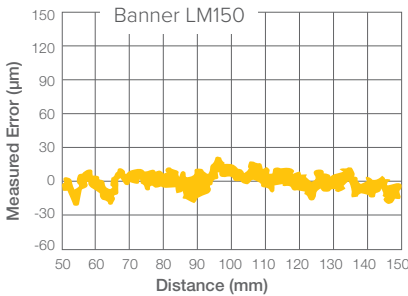
## LM Series Precision Measurement Sensors

- Superior precision for real-world applications
- Best in class thermal and mechanical stability
- Small housing design for the tightest spaces
- High response speed for fast-moving targets
- Simplified set up, control, and replacement with optional Remote Sensor Display (RSD)
- Supports Industry 4.0/IIoT with IO-Link®, discrete, and analog outputs in one model

## Precision Measurement Regardless of Target or Environment

### Linearity

Linearity is the maximum deviation between an ideal straight line measurement and the actual measurement. The more linear a sensor is, the more consistent and precise the sensing results. NOTE: Results shown in the following charts are based on the LM150. Better performance will be achieved with the LM80.



Example linearity on 90% white card

### Related Product

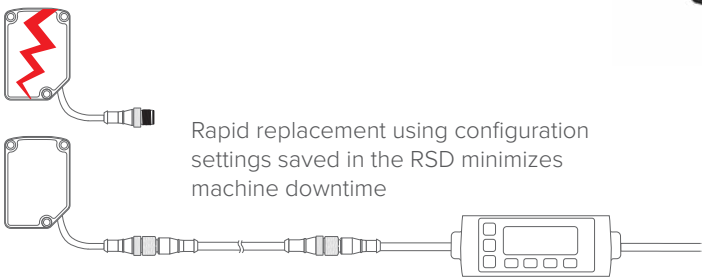
## RSD – Remote Sensor Display

The RSD is designed to provide easy sensor configuration and monitoring. It can be used for initial setup by equipment manufacturers and has the ability to copy settings across many sensors.

- Allows for configuration of remote sensor heads
- Features a 2-line, 8-character display for easy setup and use
- Displays live distance measurement for remote monitoring
- Saves up to 6 unique configurations
- Not required for continuous operation of configured sensor(s)



Compatible with:  
LM Series  
Q5X Series  
LTF Series  
Q4X Series







## Q4X Series

### Rugged, All-Purpose Sensors

Versatile, rugged, IP69K-rated laser distance sensor offering superior performance and capable of detecting sub-millimeter changes in distance.

- Discrete, analog (0–10 V or 4–20 mA), clear object, and IO-Link models available
- Reliable sensing range from 25 mm to 610 mm
- Detects and measures across a variety of target colors, material types, and surface conditions



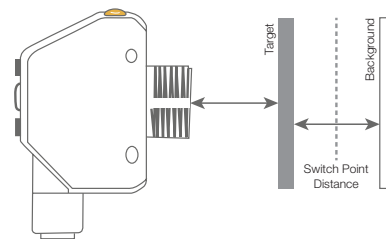
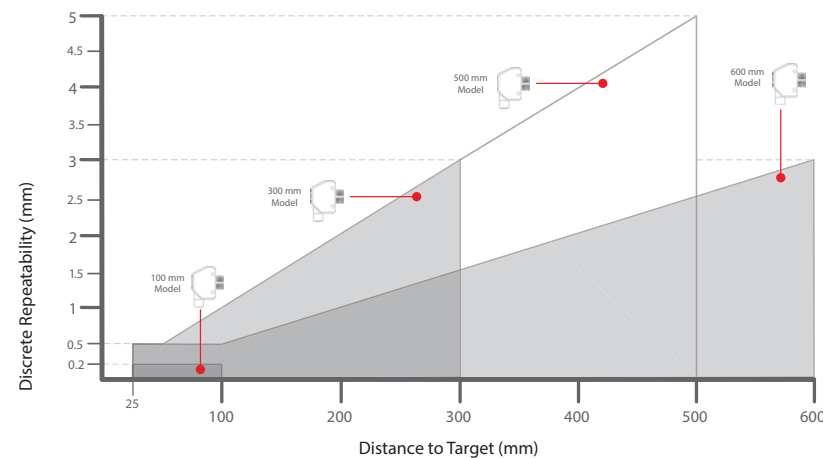
## Q5X Series

### High Power, Multi-Purpose Sensors

This powerful background suppression laser features a range from 50 mm to 5 m, is easy to use, and reliably detects the most challenging targets.

- Extremely high excess gain to detect the darkest and most difficult targets at extreme angles
- Reliable detection of black, clear, reflective, multicolor, or textured targets in front of white or shiny metal backgrounds
- Jam detection model uses time and distance intelligence to alert operators to unwanted stoppage on conveyors and production lines
- Models with discrete, analog, and IO-Link communication are available

## Distance: Precision Measurement and Detection Regardless of Target



Minimum object detection size of 0.5 mm on challenging targets (6% reflectivity) at close range.

### Point, Teach, and Go

1. Align sensor to a stable reference surface



2. Follow on screen prompts to teach first and second targets

### Reliably Detects Challenging Targets

Dynamically adjusted laser power increases output for dark targets or objects at steep or uneven angles, while reducing power for shiny targets, providing accurate measurements across a wide range of challenging targets. A small beam spot minimizes measurement variation across color transitions.



Round



Uneven



Shiny or metal



Dark surface



Multicolored



Clear

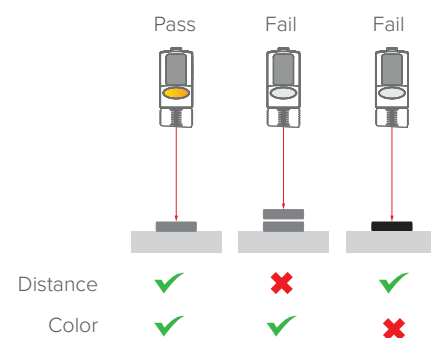


### Jam Detection Modes

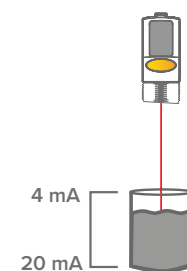
*Jam Retroreflective:* Most reliable mode that can be used when teaching a back rail or other stationary target as a reference.

*Jam Background Suppression:* Allows for jam detection across a specific area without requiring a background.

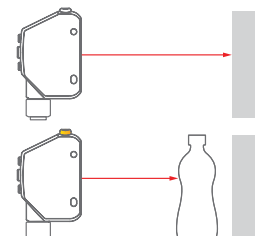
### Discrete



### Analog



### Clear Object



Inspections use distance to verify parts' presence and position, and intensity to verify correct color or part orientation



Analog output for continuous measurement of part size, position, or fill level

Reliably detects transparent objects without the need of a retro reflector



# T30R Series Radar Sensors

## Detect the Widest Range of Objects

The T30R is a long-range sensor that provides reliable detection and position feedback in challenging applications and extreme environments.

- Reliable detection of high-dielectric targets (like metal or large amounts of water) and lower-dielectric materials (such as wood, rock, or organic material) in a wider range of applications
- Virtually unaffected by rain, wind, snow, fog, steam, and sunlight
- Operating temperature of -40 to 65° C
- Radar configuration software, IO-Link, remote teach input, and push buttons for flexible setup and configuration

### Robust, Longer-Range Alternative to Ultrasonics



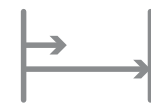
#### Ideal for outdoor applications

- Resistant to rain, snow, fog, steam, or sunlight
- IP67-rated



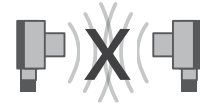
#### Temperature stability

- Radar (radio waves) not affected by temperature changes like Ultrasonic (sound waves)
- Consistent measurement from -40 to 65 °C



#### Detect near or far

- Sensing ranges down to 150 mm and up to 15 m



#### No crosstalk

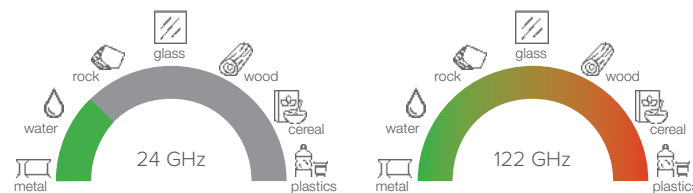
- No problem mounting multiple sensors close together

### More Precise and Reliable Alternative to Traditional 24 GHz Radar



#### Accurate measurement

- Linearity and repeatability less than 1 cm



#### Senses more objects

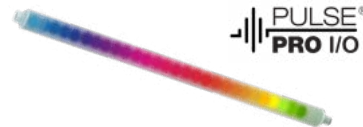
- 122 GHz radar detects a wider range of low dielectric materials compared to 24 GHz to solve more challenges

### Easy Setup – Simple Integration



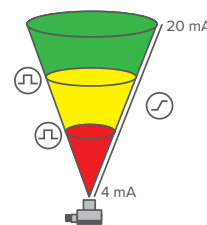
#### Flexible setup and configuration

- Optional PC configuration, push buttons, IO-Link, or remote teach



#### Direct integration with Banner lights

- No separate controller needed

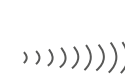


#### Solve more challenges

- Dual discrete outputs for slow and stop
- Analog and IO-Link for absolute measurement values
- Available in 15°x15° and 45°x45° beam patterns

### Beam Pattern Considerations

Radar Sensors are available in narrow and wide beam patterns. Narrow beam patterns avoid false detection of objects outside of the region of interest and allow for a more precise measurement, while wide beam patterns provide coverage of larger areas and provide more robust detection of irregular surfaces and targets presented at steep angles.



#### Narrow beam applications

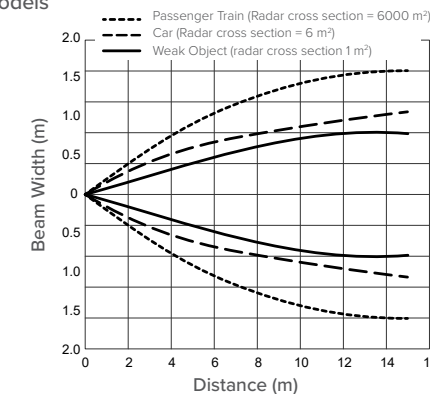
- Drive-through
- Overhead crane
- Gantry crane
- Loading docks



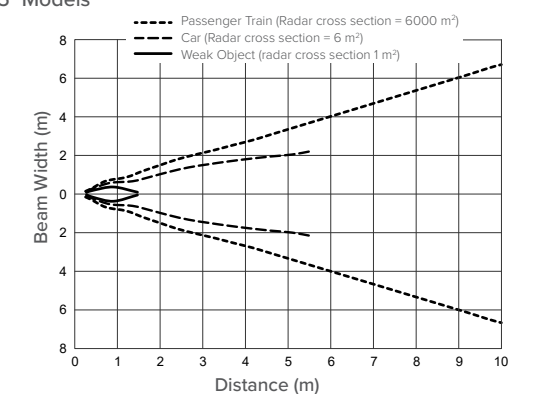
#### Wide beam applications

- Mobile equipment collision avoidance
- Vehicle detection: Train, car, boats

#### 15°x15° Models



#### 45°x45° Models



<sup>†</sup> For the most reliable detection, the target should be larger than half of the beam width.

### Related Product



## Q130RA Series

### Configurable Narrow and Wide Beam Radar Sensors

Sensors use one adjustable sensing zone to reliably detect moving or stationary objects up to 40 meters away.

- Simple setup and precise control with intuitive graphical user interface
- Available with 90°x76° or 24°x50° beam patterns for a wide variety of vehicle detection and collision avoidance applications
- Unaffected by ambient weather, including rain, snow, fog, sunlight, and temperatures from -40 to 65° C
- Rugged IP67 housing for dependable long-term operation in harsh environments
- Features half the dead zone of previous U.S. radar products

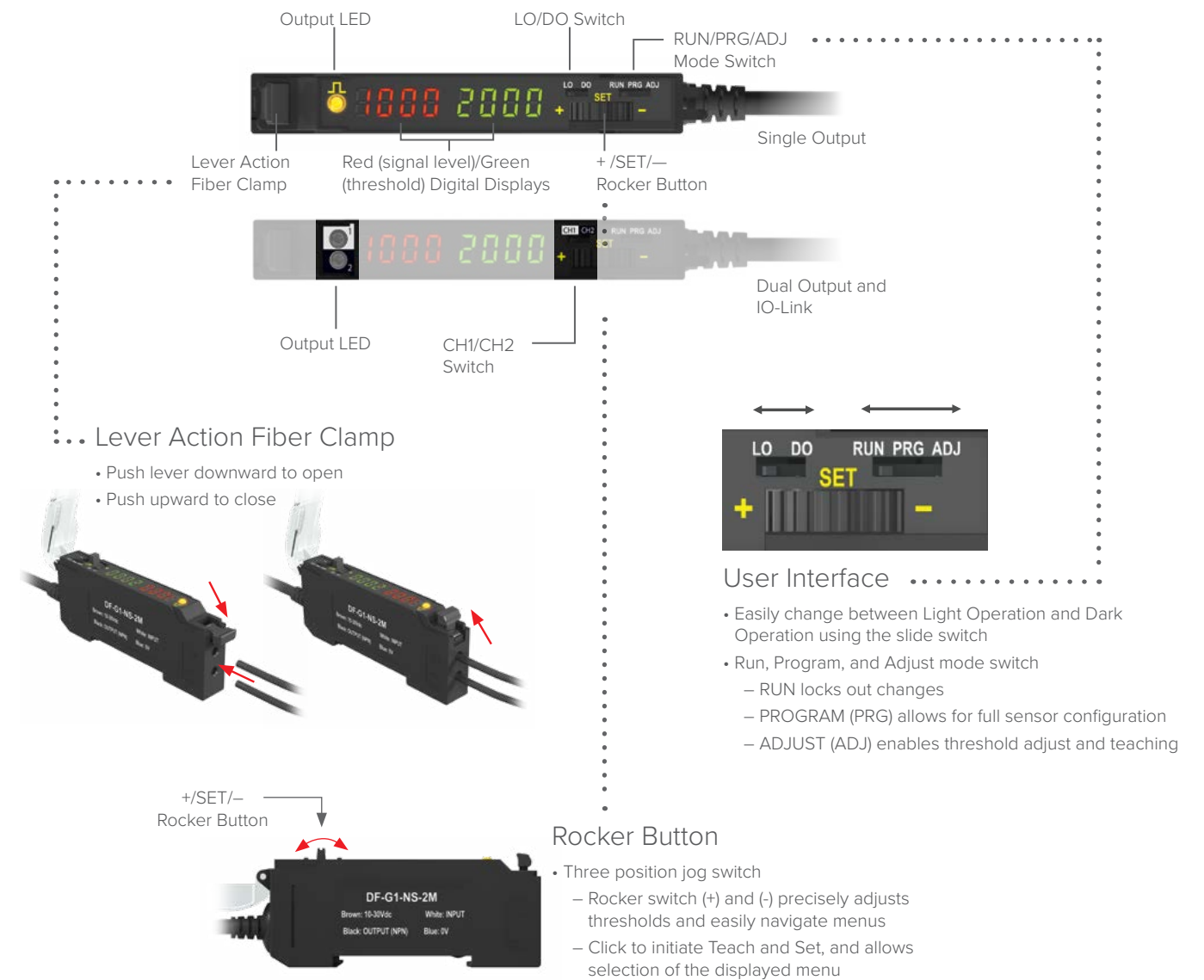




## DF-G Series Fiber Optic Amplifiers

- Easy-to-read dual digital displays show both signal level and threshold simultaneously
- Simple user interface ensures easy sensor setup and programming via displays and switches/buttons or remote-input teach wire
- Cross-talk avoidance function allows seven inspections in dense sensing-point applications
- Multi-function remote wire allows control of the LED, outputs, remote teach input, and cross-talk avoidance.
- Operator control of the sensitivity (hysteresis) provides additional detection sensitivity or a stabilized output, depending on the application details
- Lever action fiber clamp provides stable, reliable, and trouble-free fiber clamping
- Expert teach and set methods ensure optimal gain and threshold for all applications, especially for high-speed or low-contrast applications

Simple User Interface. Highly Visible Dual Display. Easy Sensor Setup.



	DF-G1	DF-G2	DF-G3
Outputs	Discrete	Discrete	Discrete and Analog
LED Colors	R	R B W IR G	R IR LIR
IO-Link	IO-Link®	IO-Link®	IO-Link®
Light Intensity Receiver			
Small Object Counting			
Extremely Fast Response Speed			
High Power			
Water Detection			

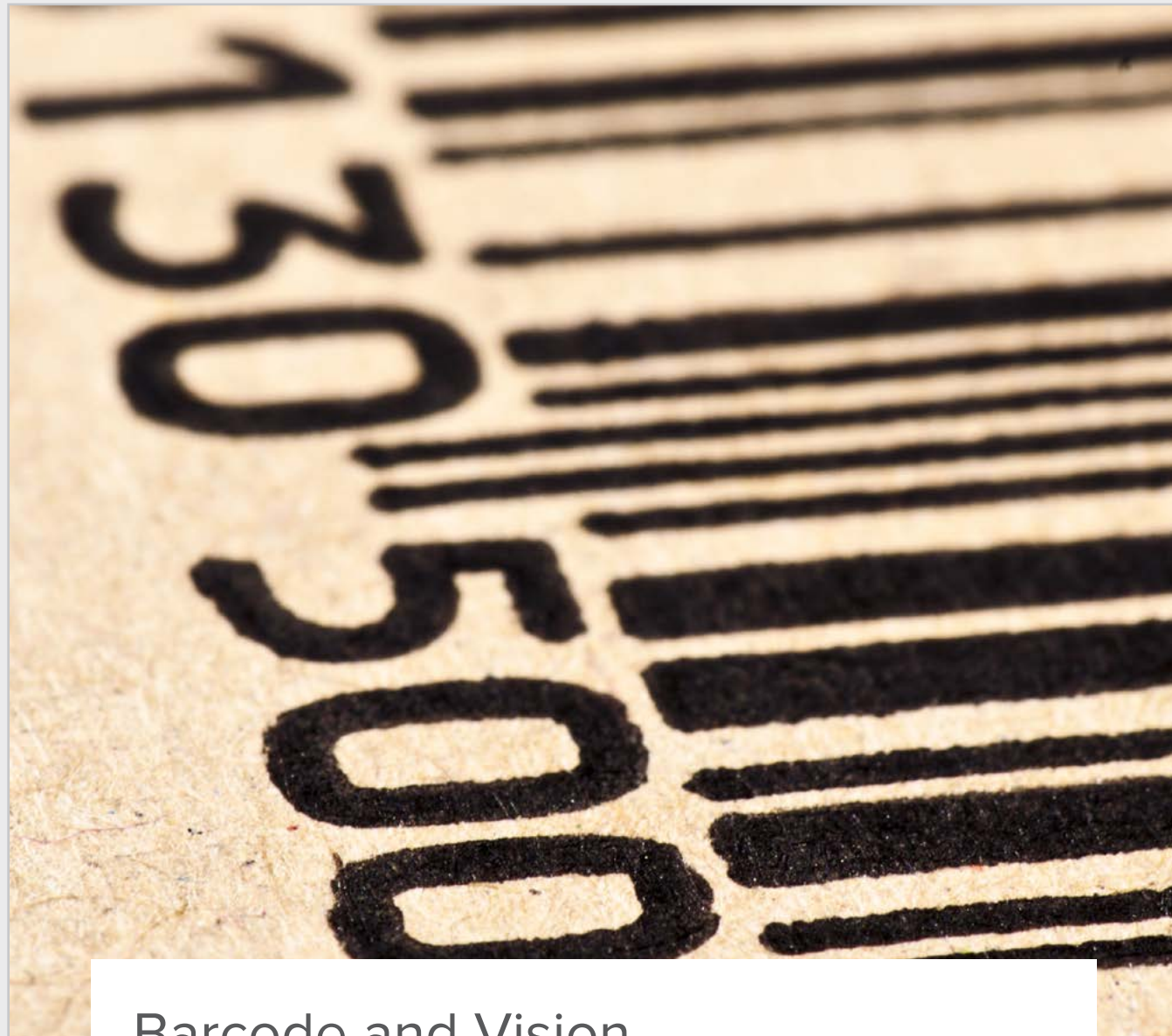
### Related Product



## Vantage Line High-Performance Fiber Optics

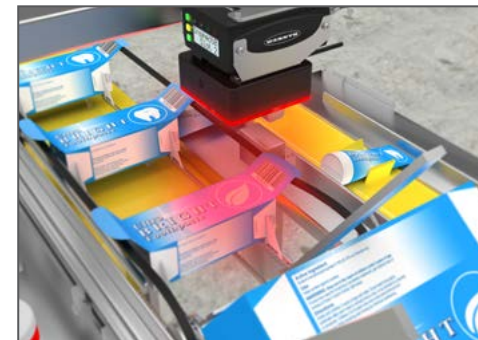
Competitively priced standard fibers and new problem solvers

- Some models offer PVC overmold flex relief
- OEM-friendly packaging
- Searchable by adding "-VL" suffix



## Barcode and Vision

Banner's flexible barcode-reading capabilities are ideal for traceability to ensure quality, improved efficiencies, and accurate inventory management in a wide variety of industries. Our machine-vision products combine high-performance tools, and intelligent features that are capable of solving thousands of simple verification or complex inspection challenges from item detection, part positioning, flaw analysis, measurement, and quality assurance.



### VE Series Smart Cameras

Banner's free and easy-to-use Vision Manager Software provides a number of tools and capabilities that enable VE Series Smart Cameras to excel in a wide range of vision and identification applications, such as item detection, part positioning, flaw analysis, quality assurance, and traceability.



### ABR Series Barcode Readers

ABR Series barcode readers offer superior decoding capability to solve the most challenging track and trace problems. They are available in two compact form factors, multiple lighting configurations, a range of resolutions, and numerous lens options.





## VE Series Smart Cameras

### Inspection and ID in One Device

- Easy-to-use Vision Manager Software provides a number of tools and capabilities that enable VE Series Smart Cameras to solve a wide range of vision and identification challenges
- Available in multiple resolutions, all with the same powerful inspection and/or identification capabilities
- Runtime editing allows for real-time changes to be made to reduce costly downtime
- Factory communications (Ethernet/IP, Modbus/TCP, Profinet, and Serial RS-232) for integration on manufacturing floors
- Robust IP67 housing with built-in display for updating sensor settings or facilitating product changeover

#### Durable Design



Robust, aluminum housing for harsh environments

C-mount lens for a variety of applications

#### Status and Troubleshooting



Bright LED indicators to easily view camera status

Two-line, eight-character display and push buttons for troubleshooting and viewing camera status

- Perform product change or trigger
- Troubleshoot and clear errors
- Change or view IP address, MAC address, or Ethernet speed
- View firmware, focus number, or status

#### Connections



Banner Vision lights can be powered directly from the camera

Discrete communication to external devices using five user-configurable optically isolated I/O

Ethernet connector with Gigabit Ethernet communication speed

#### Solutions for:



##### Identification

- Track and trace as parts transition through the supply chain
- Verify packages for tracking and sorting



##### Presence/absence

- Count vials in a tray
- Verify correct labeling



##### Orientation/position

- Verify the orientation of an IC chip
- Send part location to a pick-and-place robot



##### Flaw detection

- Calculate the eccentricity of pizza crust
- Identify burn marks on a nonwoven web

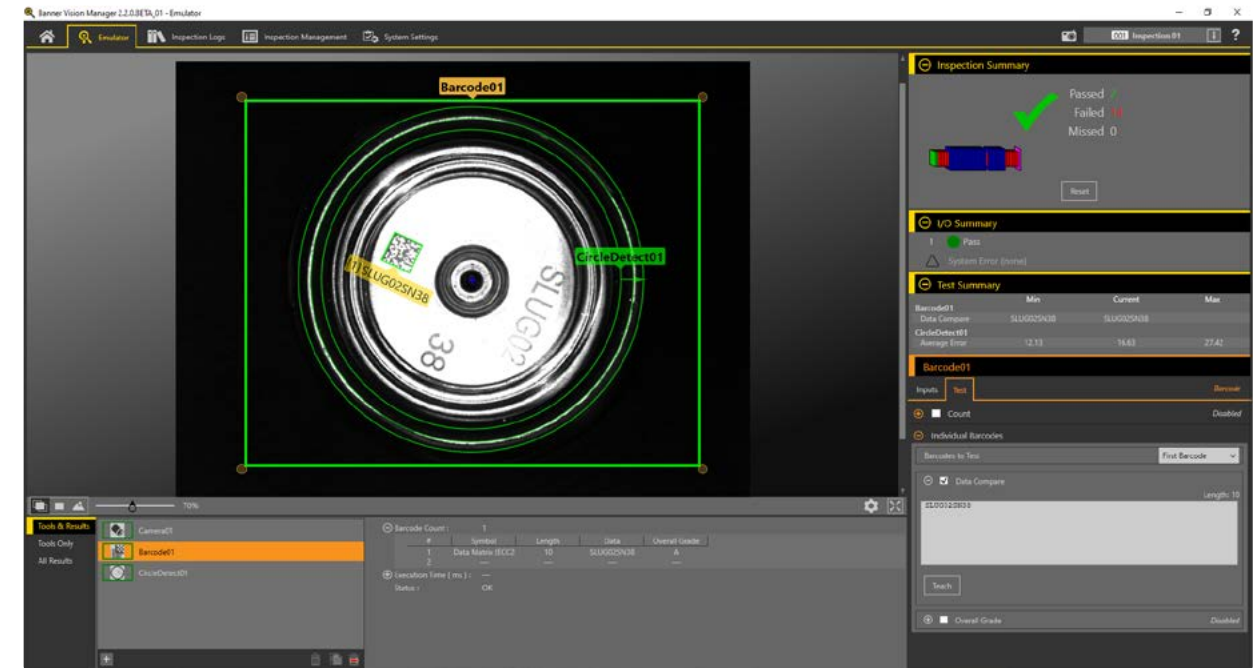


##### Measuring

- Measure critical dimensions of a stamped part
- Measure bottle cap height

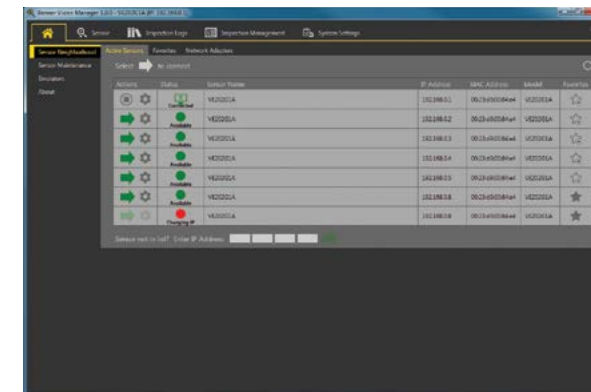
## Intuitive Software

VE Vision Manager software: Easy Configuration, Powerful Functions



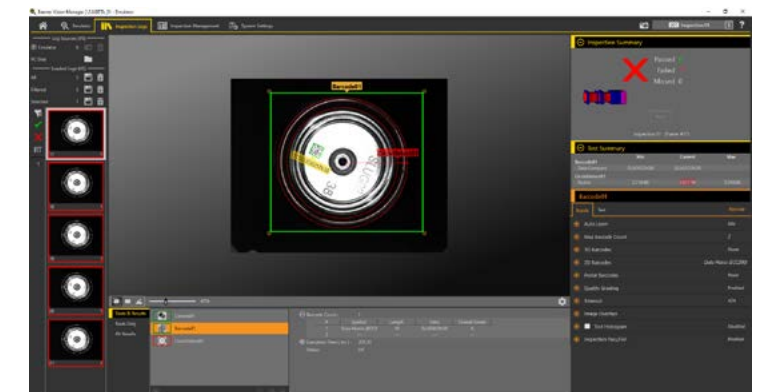
### Build Better Inspections with No Downtime

Easy-to-use configuration software with full runtime editing allows for changes to be made quickly, with no costly downtime from stopping and starting inspections. Download today at [www.bannerengineering.com/vision-manager](http://www.bannerengineering.com/vision-manager).



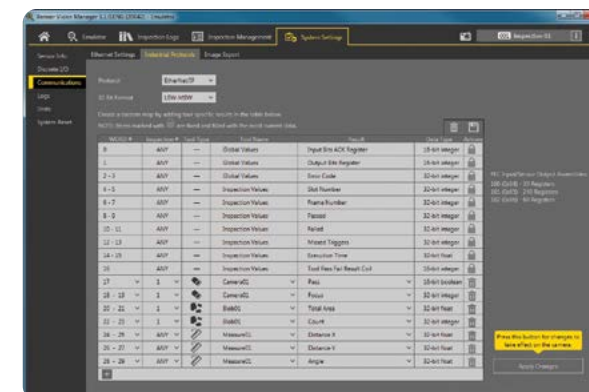
### Full Software Emulator

Connect to live cameras or use full software emulation for building inspections offline.



### Inspection Analysis

Review past inspection results, view system logs, and quickly configure inputs and outputs.



### Factory Communications

Seamlessly interface with the factory floor using Ethernet/IP, Modbus/TCP, Profinet, and serial communications.



## ABR 3000 Series Barcode Readers

### Ultracompact Design, Powerful Capabilities

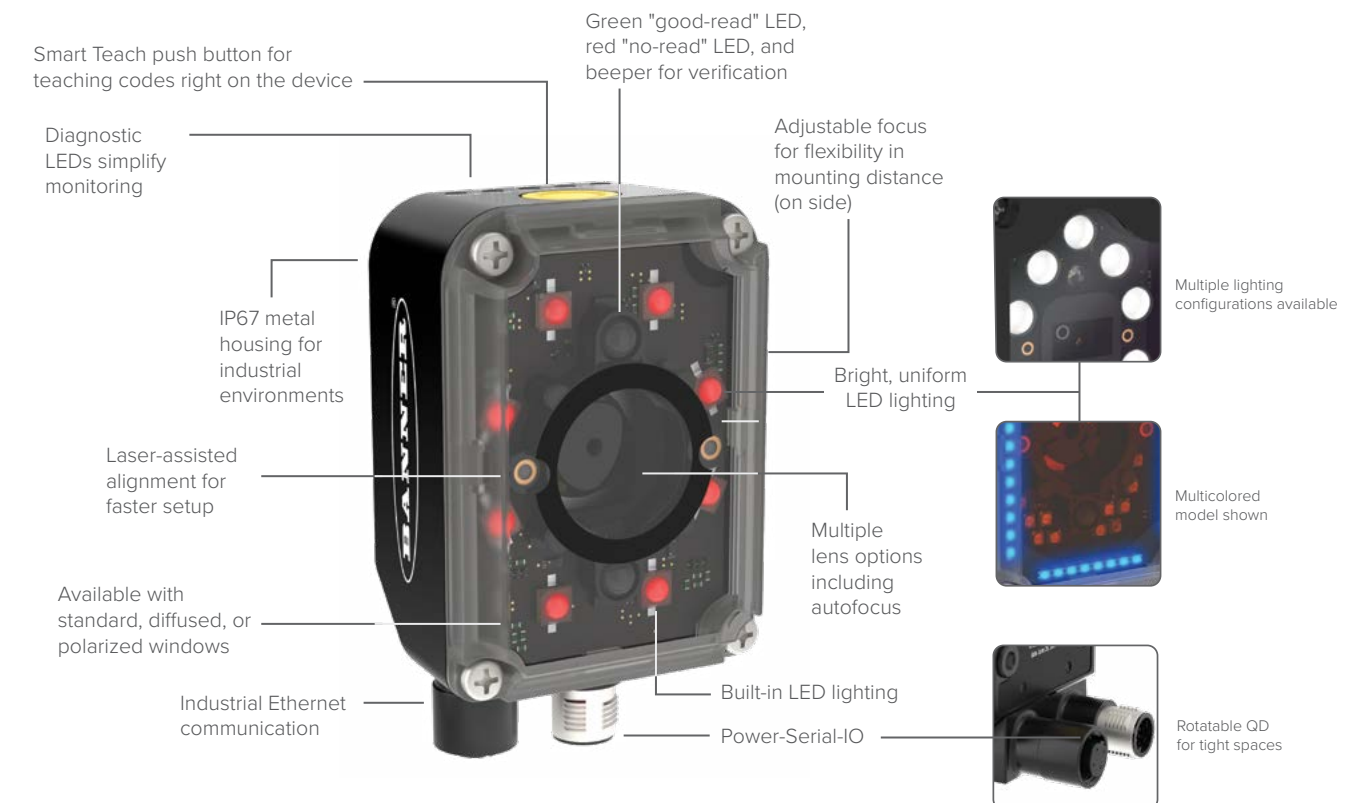
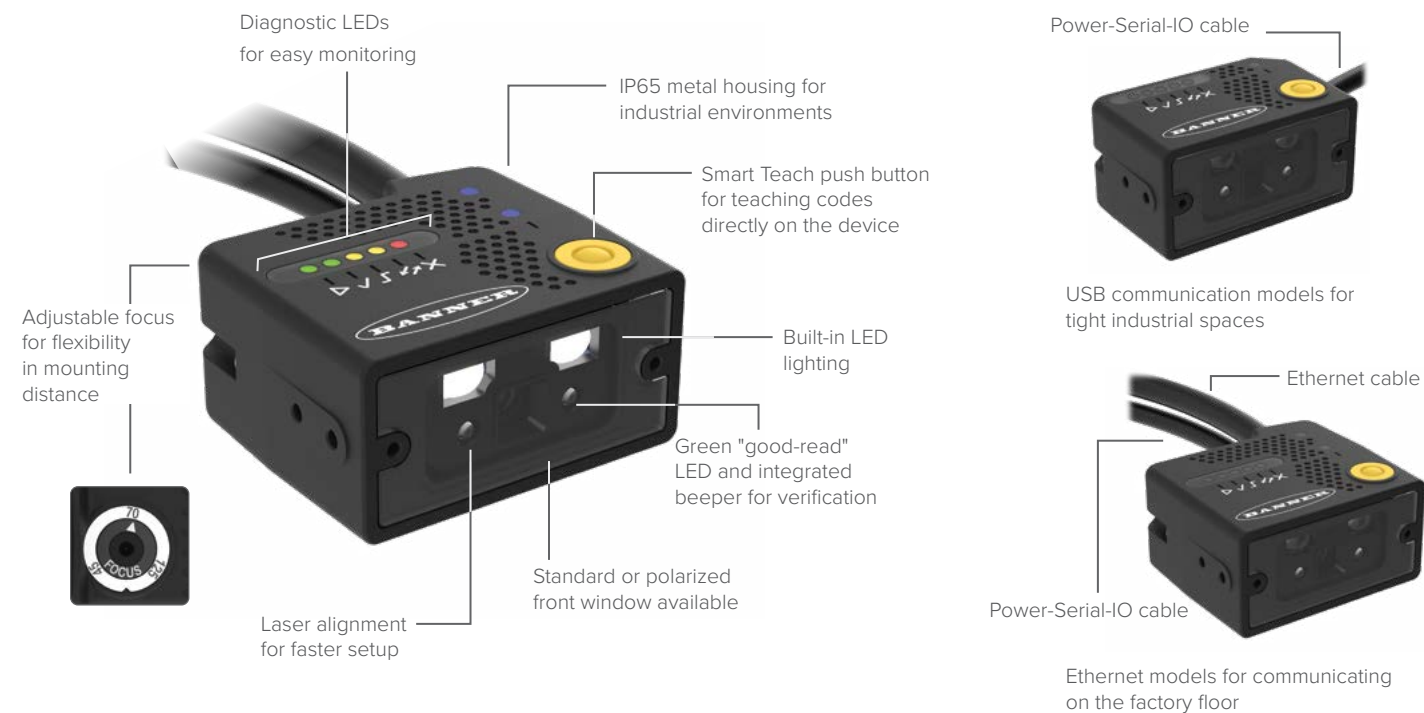
- Smallest housing with excellent performance at a competitive price point
- Two resolutions, integrated lighting, and adjustable focus for application flexibility
- Easy setup and operation using a push button or remotely with a software interface
- USB or Ethernet communication



## ABR 7000 Series Barcode Readers

### Power and Versatility to Solve Any Challenge

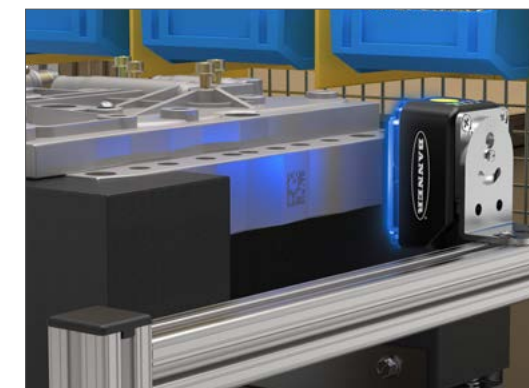
- High-resolution imager and fast processing time to solve tough challenges
- Autofocus available for faster setup and product-line changes
- Superior integrated lighting for long-range use, low-contrast codes, and direct part marking (DPM) applications
- Multi-head networking to connect multiple ABR 7000 models together for complex applications



Automated Tray Handling System



2D Codes on Pill Bottles

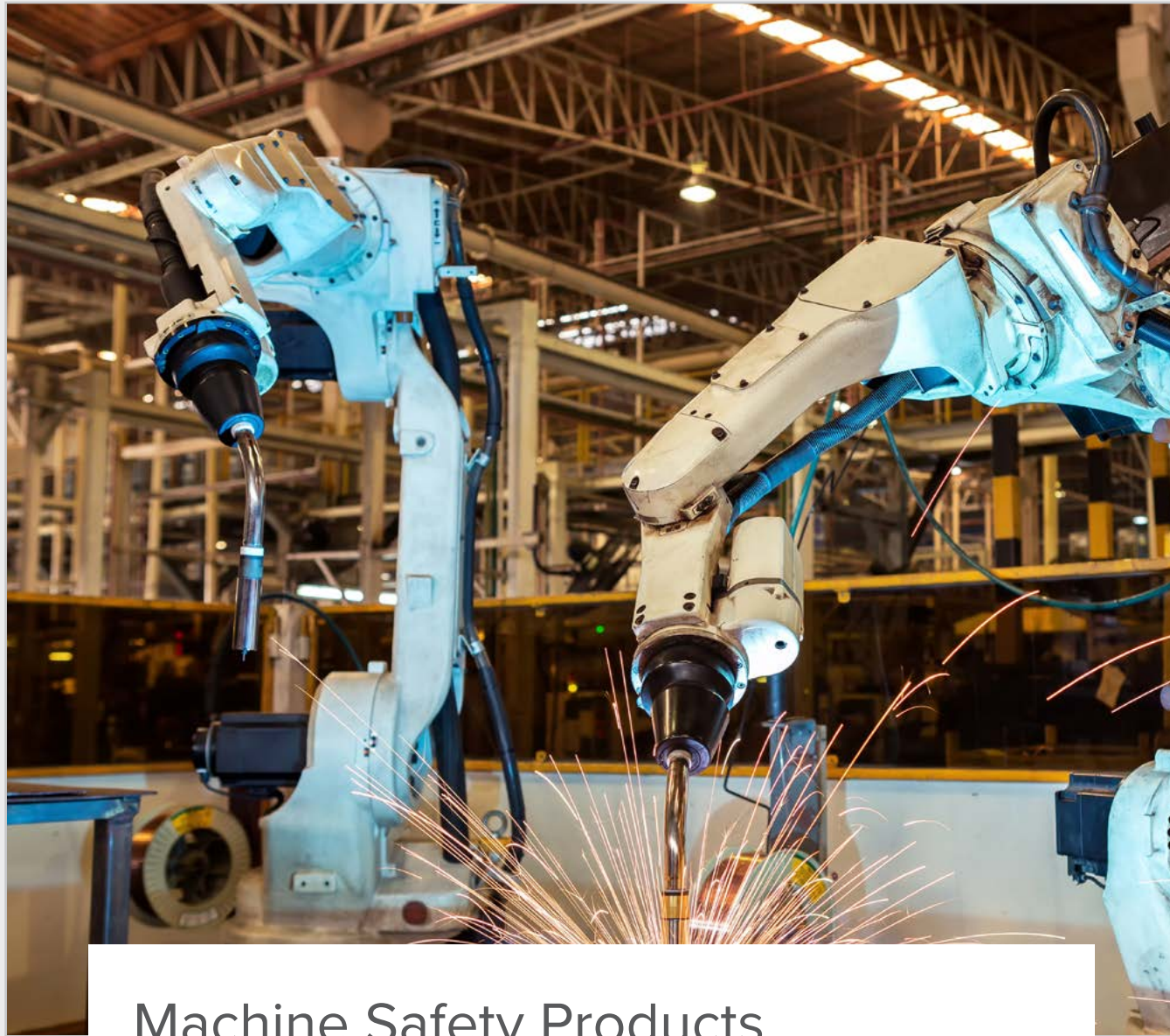


Automotive Components



Electronic Components





## Machine Safety Products

Designed to be easy to use and implement, developed to protect personnel and equipment from accident and injury, and built to perform reliably in challenging environments, our comprehensive collection of machine safety products provide the highest levels of safety without compromising productivity.



### SI-RF Series RFID Safety Switches with ISD

SI-RF Series safety switches utilize RFID technology to monitor doors, gates, and other movable mechanical safeguards that separate personnel and equipment from a hazard. They will send a signal to the machine control system to prevent or stop hazardous situations when the guard is not in the proper position.



### SI-GL42 Series Safety Locking Switch

Locking-style safety interlock switch for interlocking and position monitoring.



### ISD Connect

This compact T-connector brings a non-ISD enabled device into an ISD system.



### Illuminated E-Stops with ISD

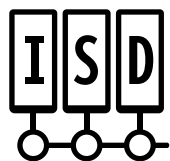
Fully assembled illuminated E-stops with ISD enable easy installation and hookup with no assembly, individual wiring, or additional enclosure required.



### SC10 Series Compact Safety Controller with ISD

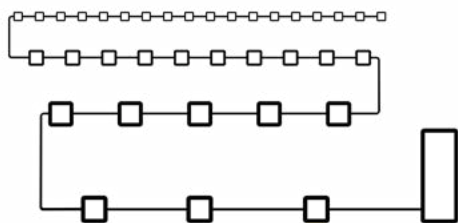
Cost-effective, easy-to-use safety controller for smaller machines replaces the functionality of two or more safety relay modules and features an intuitive user interface and advanced diagnostic capabilities.





# Banner In-Series Diagnostics

- Prevent and reduce downtime
- Local operator guidance and remote actionable data
- Reduce and simplify wiring
- Up to 32 plug-and-play devices with one in-series connection
- Intuitive setup and PLC integration
- Easy-to-use software and auto-tag export



In-Series Diagnostics allows you to connect up to 32 devices with one in-series connection and communicate directly with the most commonly used PLCs.



When a Safety Event occurs, the system receives an alert that includes information about which safety device tripped, making troubleshooting a breeze.



1234567890

74.5°C

13.7v

Status: ON

Alignment: OK

08.0 mm

In-Series Diagnostics provides an array of additional data points for each In-Series Device used, including a unique tag value, internal temperature, voltage, and more, along with device-specific details such as the alignment and distance between a safety switch's sensor and actuator.

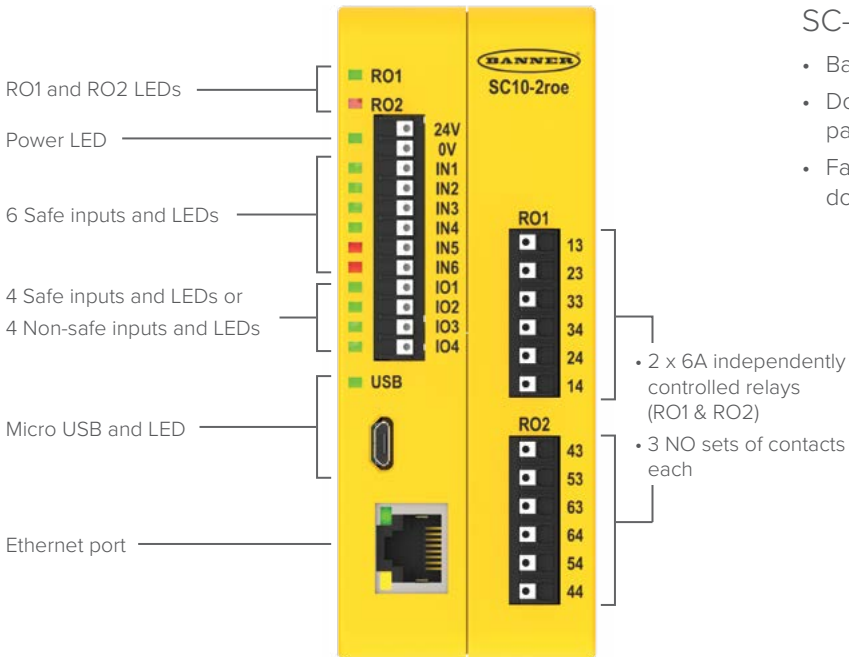
Additionally, the system sends warning alarms if devices are near to tripping, so that issues can be addressed before your machine shuts down.



# SC10 Series

## Compact Safety Controllers with ISD

- PC configurable: flexible and easy-to-use
- Safety inputs: up to 70 with ISD
- Safety outputs: two independently controlled relay outputs 6A each
- Ethernet/IP, Profinet, Modbus



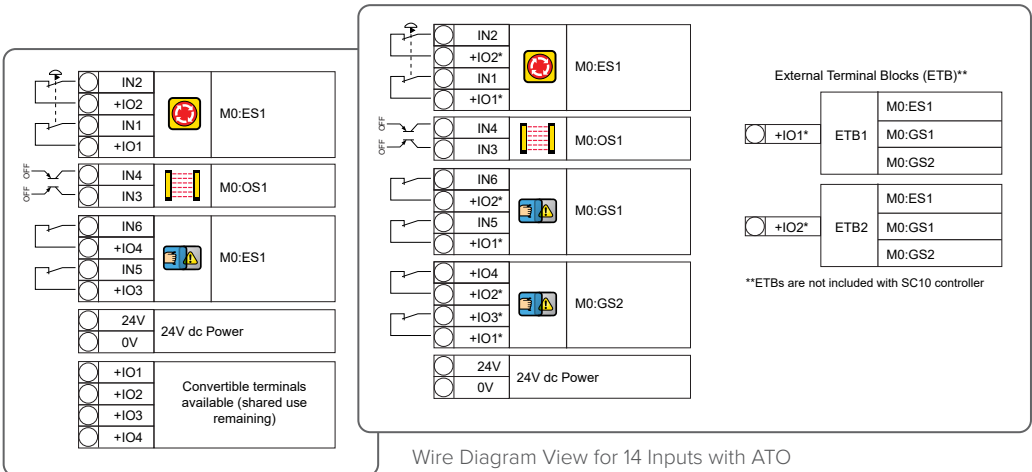
### SC-XM3—Fast Programming and Swapout

- Backup copy of configuration, password, network settings
- Download configuration without a PC; save time during panel build
- Fast swapout to minimize downtime at swapout



### Automatic Terminal Optimization (ATO)

Allows for an increase from 10 to 14 inputs







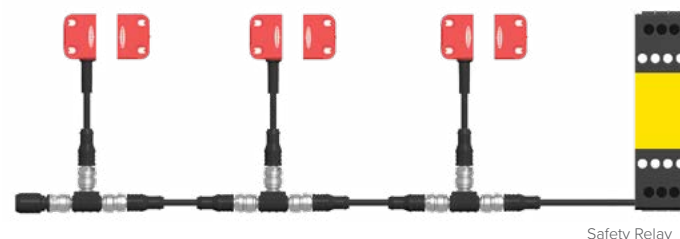
## SI-RF Series RFID Safety Switches with ISD

- Two-piece design in which sensor and actuator do not contact
- High tolerance (10 mm) to misalignment enables reliable performance in challenging industrial environments
- IP69 solutions available
- Available with the highest level of tamper resistance



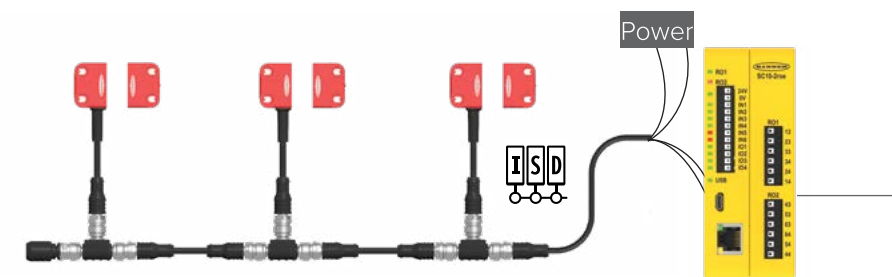
### RFID Single

- Single-door RFID non-contact gate/door sensing solution
- Resistant to high vibration and operations with metallic shavings



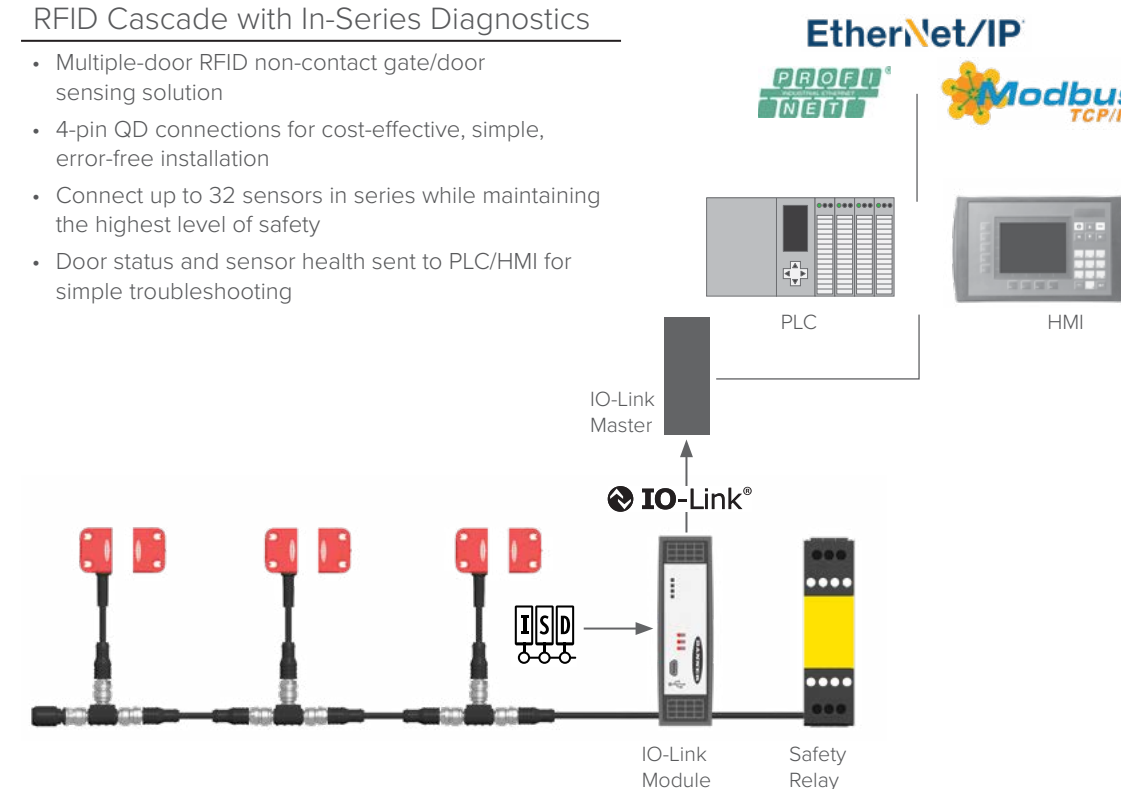
### RFID Cascade

- Multiple-door RFID non-contact gate/door sensing solution
- 4-pin QD connections for cost-effective, simple, error-free installation
- Resistant to high vibration and operations with metallic shavings



### RFID Cascade with In-Series Diagnostics

- Multiple-door RFID non-contact gate/door sensing solution
- 4-pin QD connections for cost-effective, simple, error-free installation
- Connect up to 32 sensors in series while maintaining the highest level of safety
- Door status and sensor health sent to PLC/HMI for simple troubleshooting



### Related Product



### ISD to IO-Link Modules

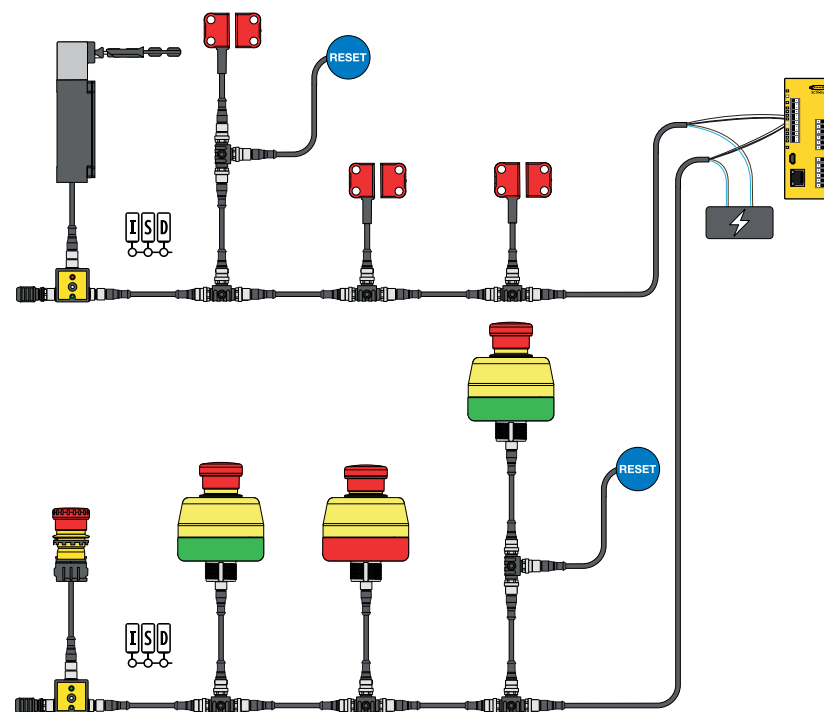
- Compact devices that transmit In-Series Diagnostics (ISD) data over IO-Link
- Connects IO-Link master to an ISD chain in or outside of the cabinet
- Connects with up to 32 ISD inputs any combination of ISD devices (ISD Connect, RFID, E-stop)
- Easily daisy-chain to safety relay or safety controller
- Model with IP69-rated housing saves limited cabinet space



## Illuminated E-Stops with ISD

### Resolve Issues and Prevent Downtime

- Available with In-Series Diagnostics (ISD), which provides detailed status and performance data from each connected button that can be accessed with an HMI or similar device
- Patented E-stop base will flash red when actuated and indicate armed status with either green, yellow, or no illumination
- One-piece, fully enclosed button with M12 connection reduces time and labor of installation; button diameter options and button shrouds available
- Rugged design rated to IP65 for use in harsh environments; IP69 cover available
- Models available with local reset input



#### Related Product



## ISD Connect T-Connector

- Connects a non-ISD-enabled safety device with 2 NC set of contacts, such as a panel-mount E-stop or safety switch, to an ISD chain
- Rugged design rated up to IP67 installs easily, with no assembly or individual wiring required
- 5-pin M12 female port for connecting an input device
- Access diagnostic data, prevent system faults, and reduce equipment downtime of non-ISD devices
- Built-in indication for input device and ISD status
- Center mounting hole for simple and versatile installation



## SI-GL42 Series

### Safety Locking Switches

- Lightweight, yet robust, design with plastic body and metal for mechanically stressed components
- Actuator head rotatable in 90° increments, providing five positions, including vertical
- Choice of spring lock with energized solenoid release or energized solenoid lock with spring release
- Multiple actuator and monitoring contact configurations for any automation safety application
- Some models compatible with Banner's exclusive In-Series Diagnostics (ISD) system for data-driven insight
- Activated locks can be manually unlocked with a tool if machines need to be accessed for maintenance or repair



#### Actuators

##### SI-QM-SSA-2

- Straight rigid actuator for sliding or removable guards



##### SI-QM-SSA-2RA

- Flat rigid actuator for sliding or removable guards



##### SI-QM-SMFA-2

- Flexible actuator for small hinged guards 150 mm or larger



##### SI-QM-SMFA-3

- Flexible actuator for small hinged guards 400 mm or larger



Sliding door handle with mechanical latch simplifies installation and provides latch function to prevent switch and actuator damage and optimizes alignment.





## SX5 Series Safety Laser Scanners

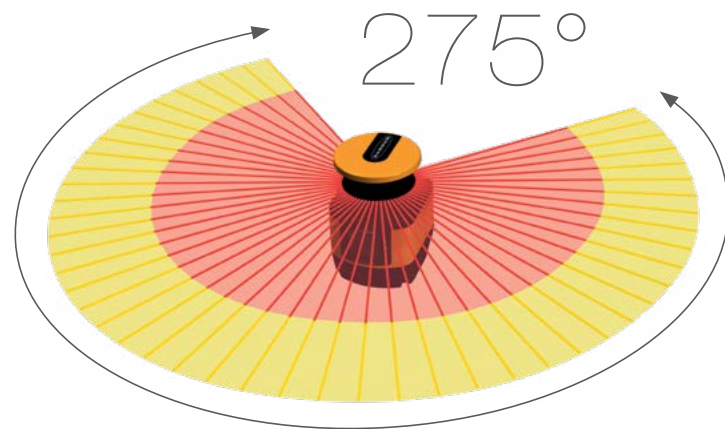
- Master and remote functionality with simplified setup and wiring
- Protect personnel and equipment with three independent safety outputs
- Ideal solution for complex applications with 70 unique safety zone sets, encoder inputs, and advanced measurement data
- Cost-effective, compact, one-piece design with 275° of monitoring
- Horizontal or vertical detection zones to reliably safeguard mobile vehicles, access points, work areas, and more

### 275 Degrees of Coverage

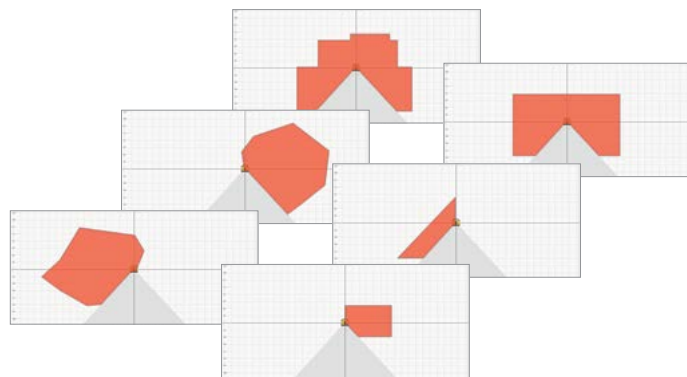
275 degrees of coverage makes it easy to mount on a corner

Maximum range for Safety Zone: 5.5 m

Maximum range for Warning Zone: 40 m



### Up to 70 Configurable Safety Zone Sets



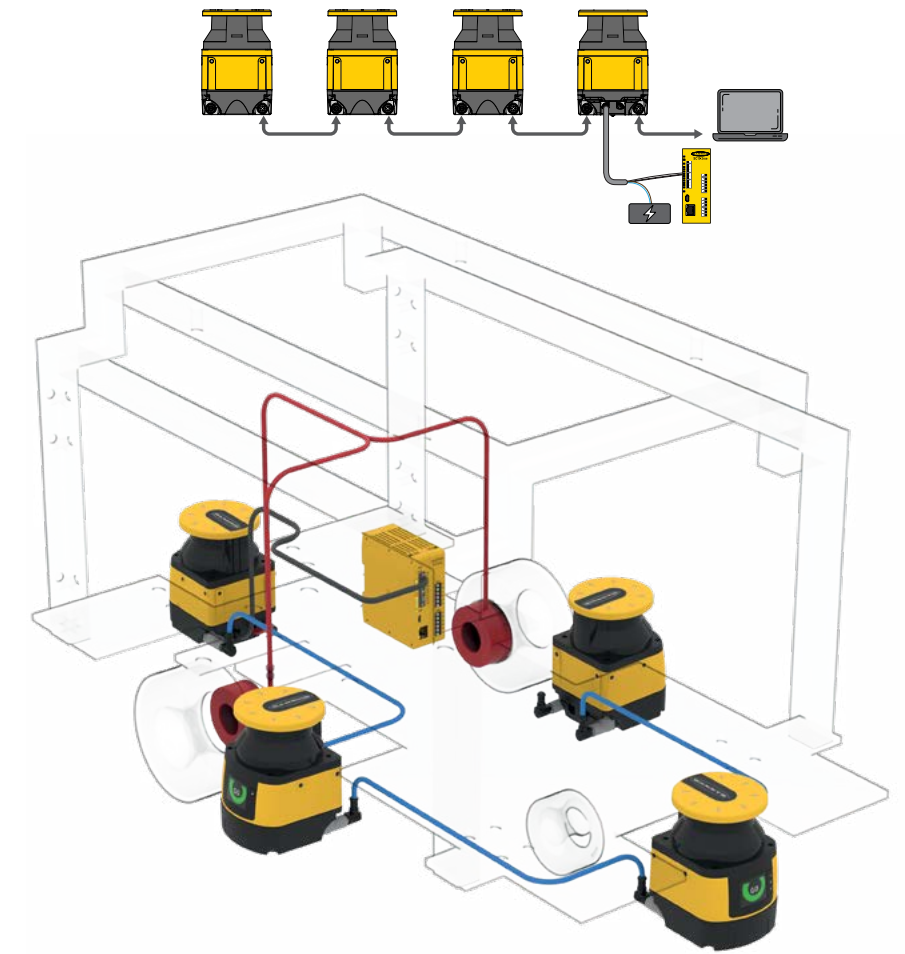
### Removable Memory for Fast Scanner Replacement

The system configuration is backed up in a removable memory unit. Install your replacement scanner quickly and easily, without needing to reconfigure your system.

### Master and Remote Connection Reduces Wiring

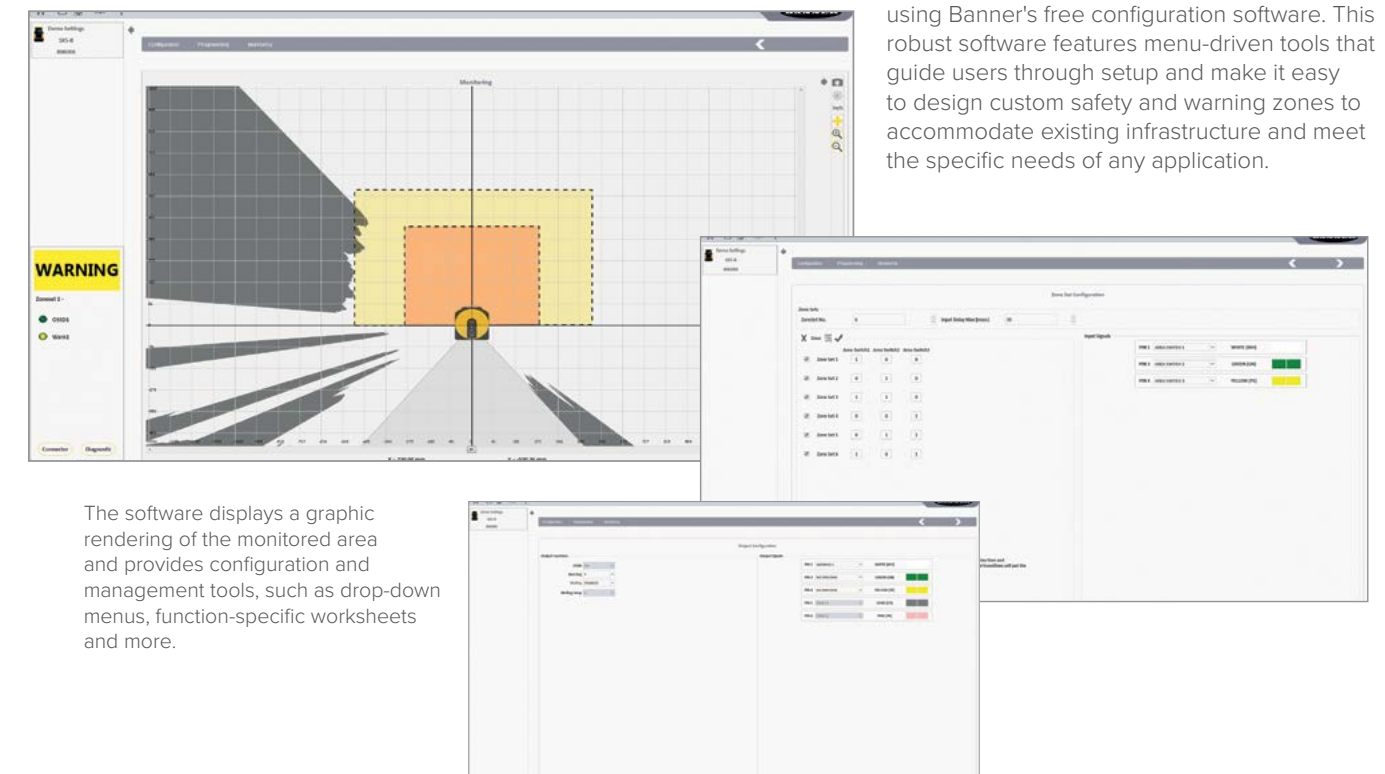
For applications that require monitoring multiple sides of an AGV, up to four scanners can be easily connected through an Ethernet-based safe communications bus, working as a single system.

Each remote unit is connected to the master by a single cable that provides them with power, and the memory of the entire system is stored in the master.



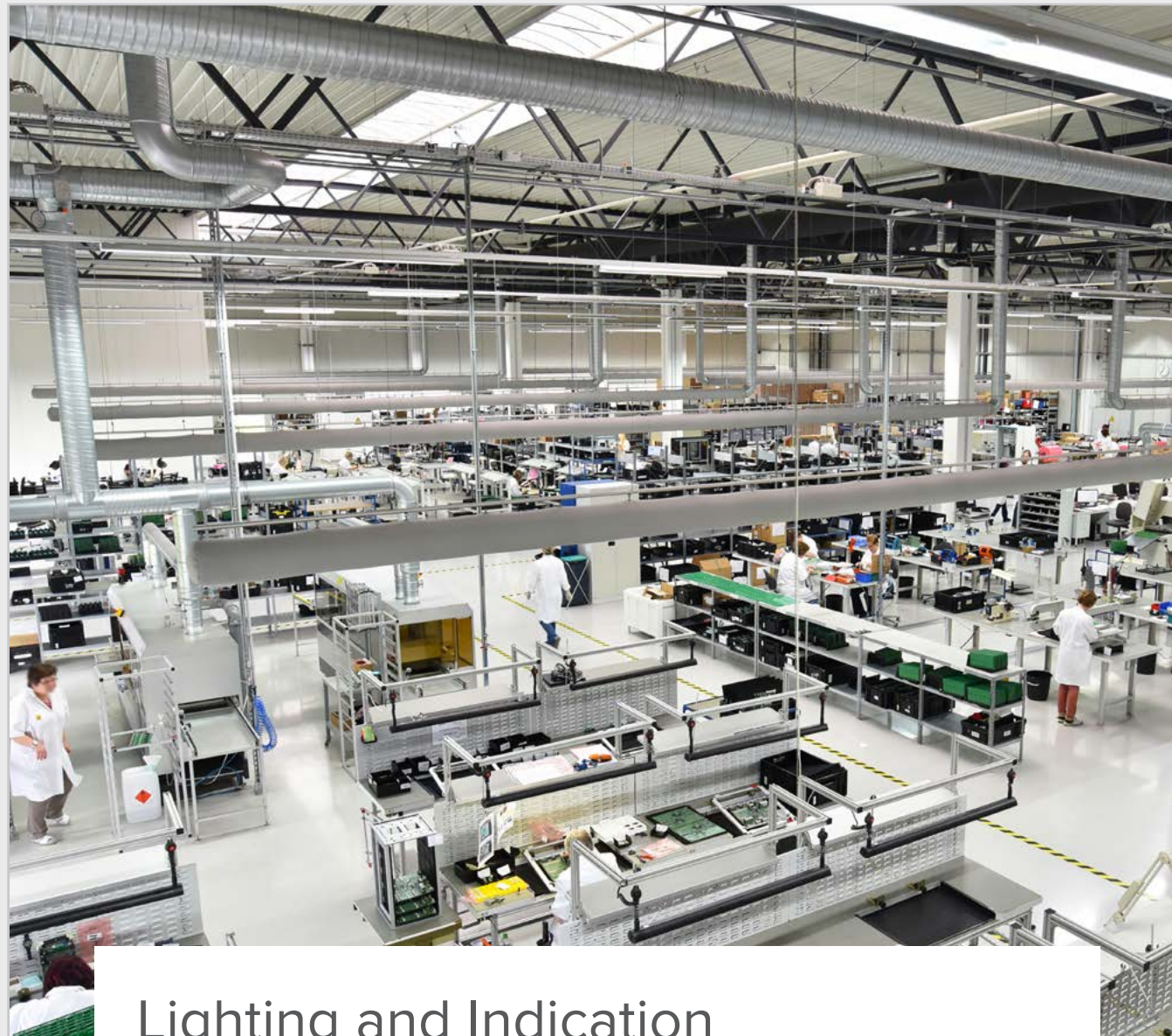
### Simple Setup for Rapid Deployment

The SX5 can be set up in just a few simple steps using Banner's free configuration software. This robust software features menu-driven tools that guide users through setup and make it easy to design custom safety and warning zones to accommodate existing infrastructure and meet the specific needs of any application.



The software displays a graphic rendering of the monitored area and provides configuration and management tools, such as drop-down menus, function-specific worksheets and more.





## Lighting and Indication

Banner's expanding selection of LED lighting, tower lights, indicators, and actuators shines brilliant and bright to provide superior-quality illumination, clear status indication, and unmistakable operator guidance. Banner offers the low-power, maintenance-free advantages of LED technology as well as programmable LED devices, which provide users the ability to configure color, flashing, dimming, and advanced animations.



### Pro Software

Whether you need illumination, indication, or interaction, the family of Pro products from Banner enables advanced capabilities and control throughout your visual factory.



### WLS15 Series Sealed, Low-Profile Strip Lights

Features a 15 mm profile that fits in tight spaces other lights cannot. Installs in minutes. Standard, high intensity, dual color, and Pro RGB models make this a complete, versatile family in a slim, rugged package.



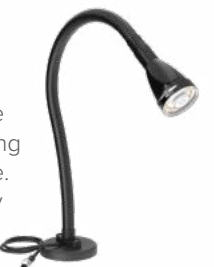
### WLS70 Series Sealed, High-Output LED Strip Lights

Banner's very bright WLS70 is a rugged, waterproof, and dustproof IP65-rated LED luminaire that features an even light output and is designed for a wide variety of challenging indoor and outdoor environments.



### Flex Arm Lights

Simply plug it in to get light where you need it most. Choose between the WL50 or the S18 flex arm with versatile mounting options including magnetic, quick-connect, flange, and more. The industrial-grade flex arm design is an integral accessory for enclosure, task, and work light applications.



### In-Line Products

In-line sensor status indicators and work lights bring information and light where you need them. Lighted cordsets supplement device indicators to reduce installation and troubleshooting time.

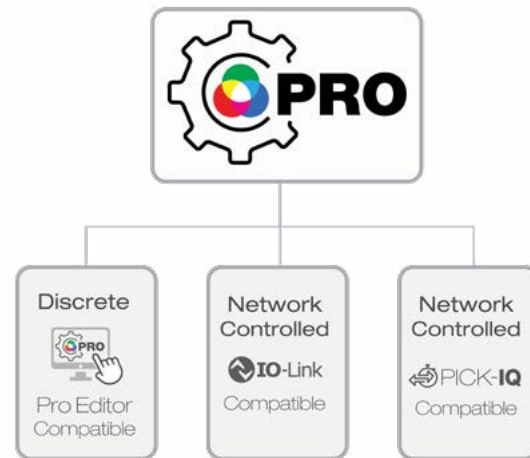






## What is Pro?

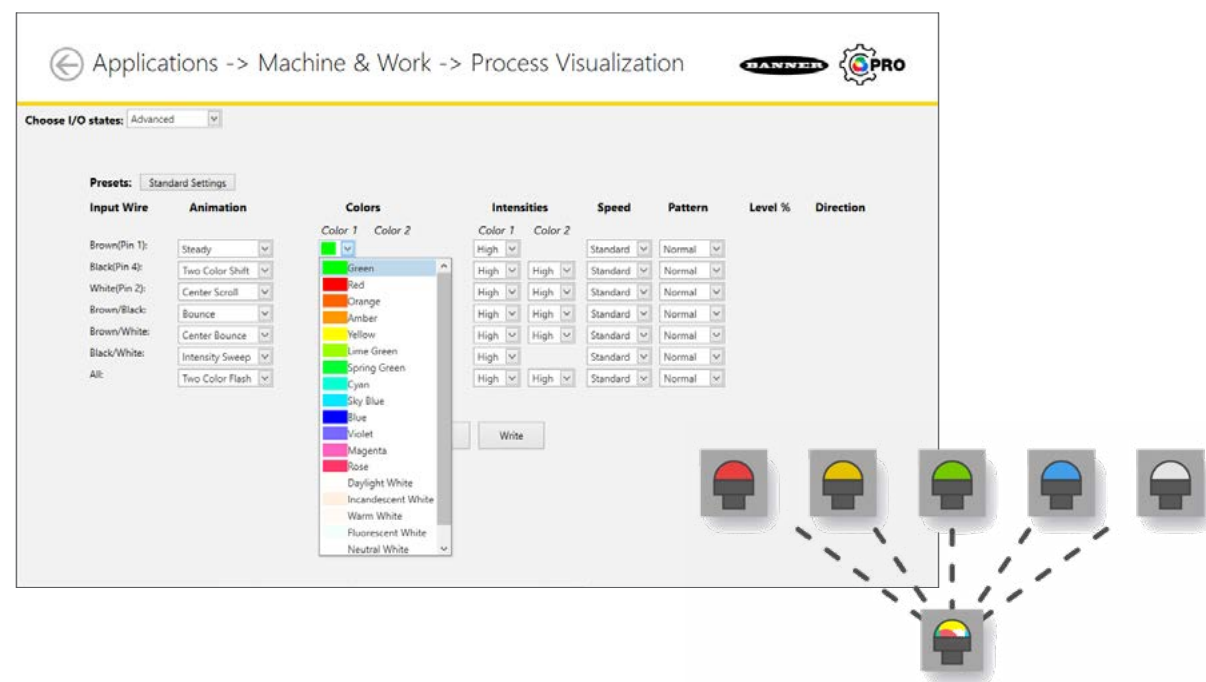
The Pro Series programmable multicolor LED devices from Banner Engineering offer limitless possibilities for advanced indication of dynamic machine states, operator interaction, and process statuses. The Pro Series is ideal for users who are looking for greater flexibility or more advanced capabilities than a traditional factory light provides. For both discrete and network-controlled devices, the Pro Series uses Banner's Pro Editor Software, IO-Link, or PICK-IQ® to customize visual communication across a factory.



### Pro Editor Software for Intuitive Indication and Interaction

#### Software for Programmable Discrete-Controlled Devices

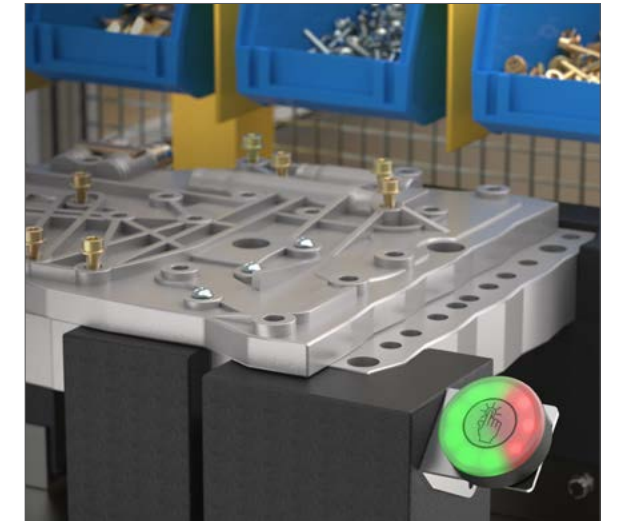
Banner's Pro Editor software allows users to program device status, colors, animations, and much more for control via discrete inputs. The application-based interface makes it easy to configure a device for a wide range of applications such as displaying machine warm-up time, indicating unique steps in an assembly process, showing distance and position information, and communicating multiple machine states.



### IO-Link for Dynamic Control

#### Reduced Costs and Increased Efficiency

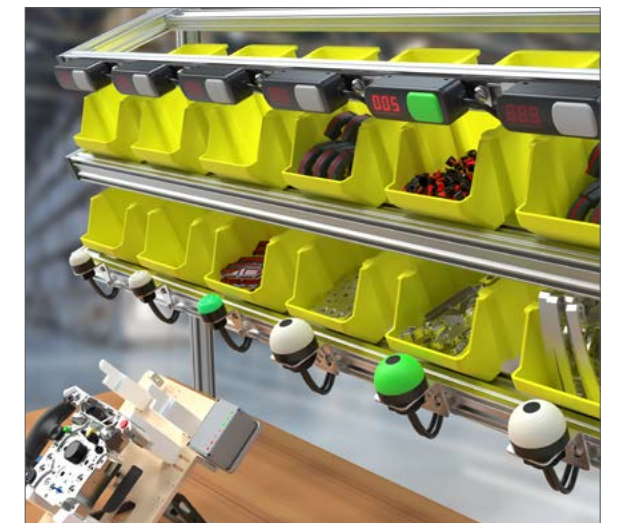
IO-Link models allow for dynamic control—reacting to inputs from other devices—and have additional modes that discrete devices do not. IO-Link enables users to change device parameters from the control system as needed, such as during product changeover, which reduces downtime and allows machines to accommodate greater product diversity. The models also offer unique LED color management to provide advanced users with total control.



### PICK-IQ® for High Device Density

#### Faster Response Speed and Simplified Programming

PICK-IQ® is a purpose-built serial bus protocol that maintains high speeds even in networks with a high device count. Devices with PICK-IQ® allow full access to color, flashing, rotating, and dimming settings as well as advanced animations such as process statuses and LED control. Devices with PICK-IQ® are typically used in pick-and-put walls, light-guided assembly, and other high-density installations with close device proximity.





## Pro Products

### Give Your Light Full Control

For illumination, indication, or interaction, the family of Pro products from Banner enable advanced capabilities and control throughout a visual environment.



#### LED Indicators

- Configure color, flashing, intensity, rotation, and sound
- Up to 14 colors, four different sizes for machine or panel mount
- Pro Editor models offer simple wiring, enabling easy setup and reduced installation time
- Harness the power of all models of Pro with PICK-IQ® using device-to-device connections
- PICK-IQ® devices provide the ideal solution for production lines and fulfillment stations that require dynamic indication
- Models with IO-Link communication enable almost limitless capacity for custom indication
- Simplify purchasing with fewer models that can be customized in-field, saving costs and inventory requirements



#### Touch Buttons

- Pro actuators offer advanced animation customization and faster response speed
- Configure color, animation, intensity, and activation logic
- Touch buttons offer excellent immunity to false triggering by water spray, oils, and other foreign materials
- Optical sensor models are immune to ambient light, electromagnetic interference, and radio frequency interference
- Can be actuated with bare hands or gloves and have the added feature of adjustable sensitivity
- Compatible models are programmable using Banner's IO-Link system for customization of colors and animation
- Models with PICK-IQ® feature faster response speeds over a serial network



#### LED Strip Lights

- RGBW LEDs for illumination and indication plus timer, counter, distance, and gauge modes
- Six white color temperatures for comfort and compatibility
- Provide high visibility status indication
- Versions available for Pro Editor, IO-Link, and PICK-IQ® to suit all your needs or integrate with other Pro products
- IO-Link helps reduce costs, increase process efficiency, and improve machine availability
- Available in multiple lengths from 150 to 1200 mm
- Visually communicate distance and other sensor measurements with Pulse Pro I/O™



#### Tower Lights

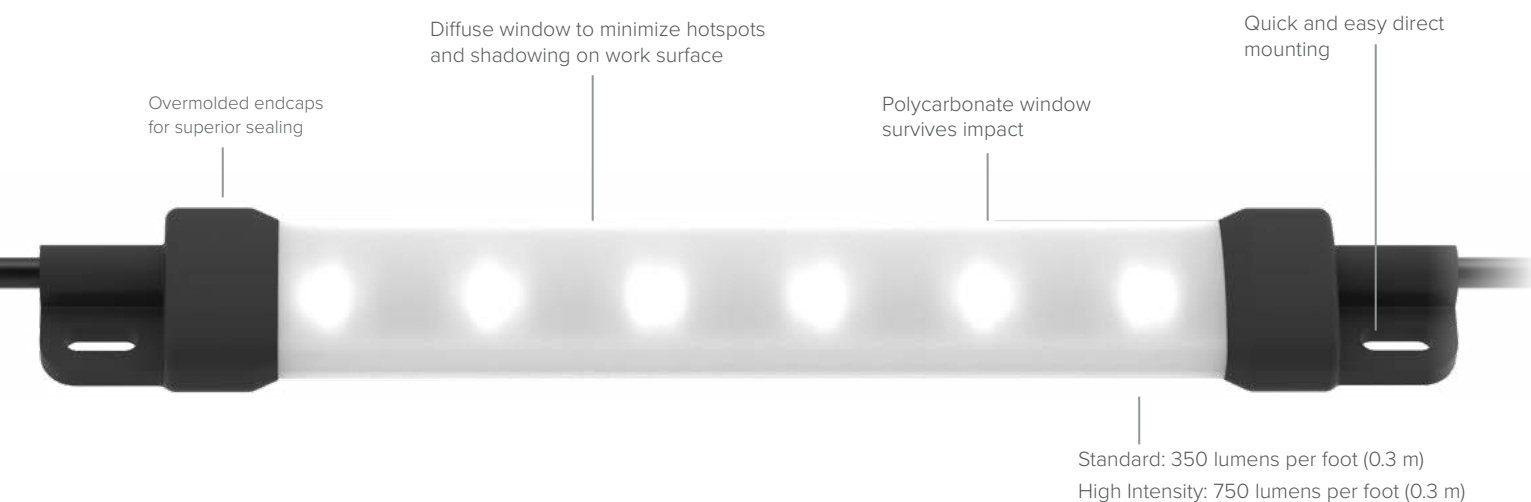
- 14 colors, three segment types, and two housing colors
- Classic segment control plus action, timer, counter, and level modes
- Pre-assembled and preconfigured multi-segment LED tower light indicators replace conventional stack lights, which often require time-consuming assembly and complex wiring
- Self-contained tower lights provide users with custom indication by combining the vast color options provided by RGB LEDs with the versatile control capabilities offered by either Pro Editor software or IO-Link communication





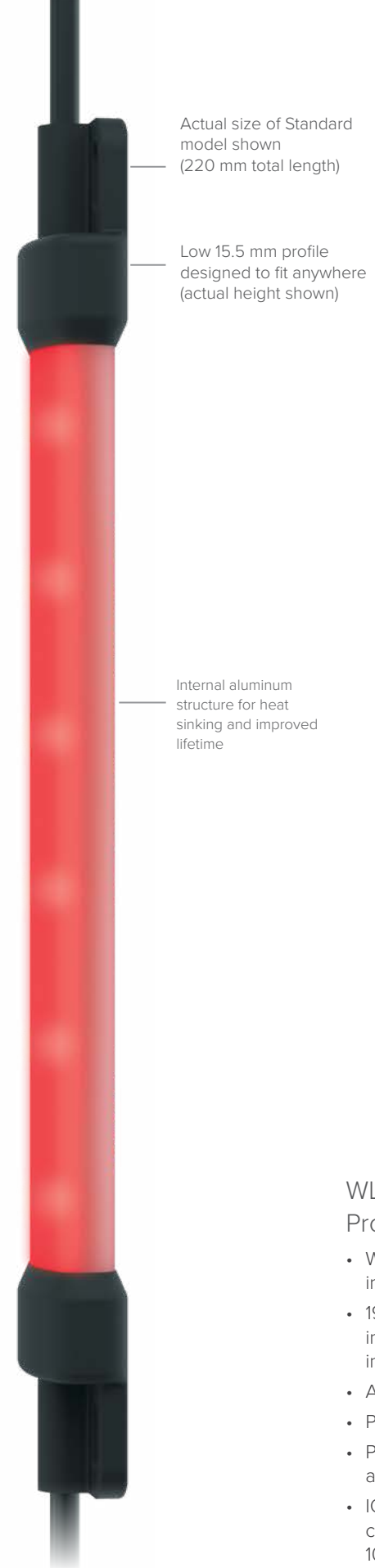
## WLS15 Series Sealed, Low-Profile Strip Lights

- Low-profile design for easy installation in tight spaces
- Improves visibility, safety, and efficiency
- Completely sealed with IP66 and IP67 ratings for use in wet or dusty environments
- LED lighting technology saves energy and minimizes replacement costs
- Available as either stand-alone models, or as cascade models that can be daisy-chained together for longer lighting runs, with a minimum of wiring
- Setup is quick and easy with simple mounting options, reducing time spent on installation



### WLS15 Low-Profile Strip Lights

- Improve worker performance by lighting under shelves, inside doors, above bins, and in cabinets
- Operates at 12 or 24 V DC in standard and dual color models
- Sturdy aluminum inner frames, encased in shatter-resistant, UV-stabilized polycarbonate shells, making them ideal for indoor and outdoor applications
- Draws less current than other lights for a low-power device that delivers high energy savings
- Available in six lengths from 220 to 1200 mm
- Cascade models require only a single electrical installation
- Capability to dim lights using PWM input



### WLS15 Dual-Color LED Strip Lights with EZ-STATUS®

- Combines bright illumination and indication in one low-profile light
- Uses two colors for status indication
- Amber LEDs available for photosensitive applications
- Promotes faster responses to status changes
- Improves ergonomics and limits wasted movement
- Reduces the risk of costly mistakes and accidents



### WLS15 High-Intensity LED Strip Lights

- Capability to dim lights using the wiring pinout (Hi/Lo/Off)
- Has more LEDs and less diffuse window than standard models
- Operates at 24 V DC only
- Available in four lengths from 360 to 1200 mm
- More than double the output of standard models



### WLS15 Pro LED Strip Lights with Pro Editor, IO-Link, or PICK-IQ®

- WLS15 Pro provides configurable, dynamic indication in a slim, sealed LED strip light
- 19 color options plus animations and direct sensor interface give limitless options to convey status, resulting in clear communication and improved productivity
- Available in six lengths from 220 to 1200 mm
- Provides operator guidance for assembly and manufacturing processes
- Pro Editor compatibility allows for field configuration of modes, colors, animations, and more on discrete (controlled) models
- IO-Link and serial (RS-485) PICK-IQ® models are available with even more capabilities, such as individual LED control and the ability to divide the light into 10 total segments



## WLS70 Series

### Sealed, High-Output Strip Lights

Banner's waterproof WLS70 is a very bright LED luminaire that features an even light output and is designed for a wide variety of environments and applications. These include machine lighting, automation systems, industrial applications, wet and harsh environments, railcars, inspection, dairy/poultry production, agriculture, parking garages, and other indoor and outdoor spaces.

- Up to 143 lumens/watt; exceptionally efficient for overall energy and cost savings
- Increases worker productivity and ergonomics with bright, high-quality, uniform light
- Sturdy aluminum housing encased in a shatterproof, UV-stabilized polycarbonate shell
- Daisy-chain long runs of AC lights quickly and easily with cascaded quick-disconnect models
- Dimming standard on all models



#### Bright, Uniform Illumination

- Increases worker productivity and ergonomics with bright, high-quality, uniform light
- Class-leading 143 lumens/watt efficacy, and up to 5400 lumens in 1200 mm model
- Available in 300, 600, 900, or 1200 mm lengths
- Over 1400 lux at 1 m (1200 mm model)

#### Quick and Easy Installation

- AC and DC models available
- Quick disconnect options
- Brackets are included, and a wide variety of optional brackets are available for fixed and hanging mounts



#### Energy Efficient, Cost-Effective

- Over 140 lumens/watt
- Automatic temperature protection (above 50° C, the light reduces output to manage heat and protects product lifetime)
- Dimmable; saves energy, prolongs product life, improves workplace ergonomics



## Flex Arm Lights Series

### Light Where You Need It

- Choose between the high output 50 mm or focused 18mm flex arm lights with an M12 connector to easily plug into one of our power supplies
- Long, 457 mm (18 in.) vinyl-coated flexible arm
- Various mounting options
- Flex arm accessory also available separately to work with cabled and quick-disconnect models of WL50S, LED S50L Spotlights, and other 30 mm base models



#### Bright LED Technology

- Bright 300 lumen output, and over 1000 lux at 1 ft. away
- Less than 3 watt
- Long-life LEDs and industrial-grade circuitry

#### Industrial-Grade Flex Arm Design

- Versatile mounting options including magnetic, quick-connect, flange, and more
- Adjustable high-tension arm that stays in place once you set it
- Easy-to-clean vinyl coating to protect against moisture, dust, and debris

#### Capacitive Touch Technology

- Ergonomic, capacitive touch design with zero force required for actuation
- On/off and dimming function built into the face of the light
- Intuitive touch logic and last state stored, even after a power outage





## In-Line Products

Indication, Illumination, Signal Conversion, and More

- Small, plug-in accessories that are designed to begin operating immediately, fitting seamlessly into factory applications
- Rugged over-molded design meets IEC IP65, IEC IP67, and IEC IP68
- Small, 15 mm tubular design and M12 connectivity enable easy installation in tight areas, directly to a device, or anywhere in line



## LC15T In-Line Switches

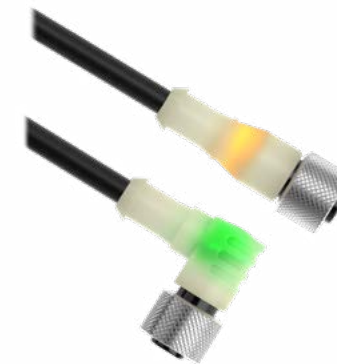
- In-line capacitive touch switch with M12 connectors
- On/Off or PWM control models available
- Low-profile, rugged, water-resistant design
- Perfect for DC-powered devices
- Rated for up to 30 V DC
- Capability to dim lights using PWM output
- Optional snap clips, VHB, or velcro, for easy installation and repositioning
- Maximum output current 4A



## S15WL In-Line Illuminators

Miniature devices providing 360-degree illumination to easily be added to existing components.

- Daisy-chain multiple lights directly or spaced with double-ended cables
- All signals pass through, simplifying installation
- Designed for enclosure or area lighting



## Lighted M12 Cordsets

- Bright indication of sensor power and output status
- Two colors: one for power and one for sensor output status
- Meets IEC IP66, IEC IP67, and IEC IP68
- Models available for PNP or NPN outputs



## S15L In-Line Indicators

The S15L Series In-Line Sensor Status Indicator is an ideal accessory in industries that require highly visible indication, such as automotive, material handling, and general assembly.

- Two-color indicators available with green, yellow, and red to show power and output status, depending on model
- Mount directly on a sensor for 360 degree-visibility of power and status
- Highly-visible body allows workers to identify and troubleshoot problems faster
- Over-molded design is reliable and rugged to withstand harsh industrial environments



## SNAP SIGNAL

## S15 In-Line Devices

Converters, Adapters, and Filters

- Adapters re-route wiring to match specific application requirements
- Filters and suppressors protect devices from electrical noise and transients
- Pulse Pro converters output a digital PFM or PWM signal from an analog input

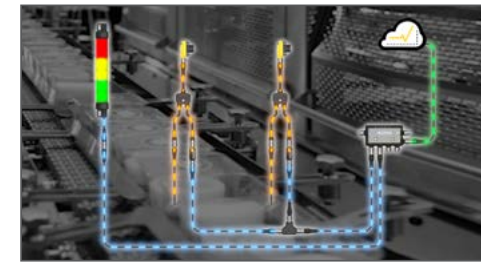






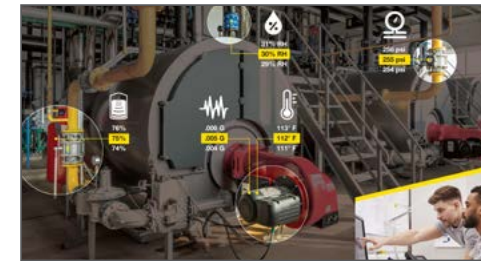
## Industrial Wireless

Industrial wireless products from Banner connect remote assets with the people who manage them, enabling real-time monitoring and management of equipment and conditions in difficult-to-access locations or where wired solutions are impractical, ineffective, or cost-prohibitive.



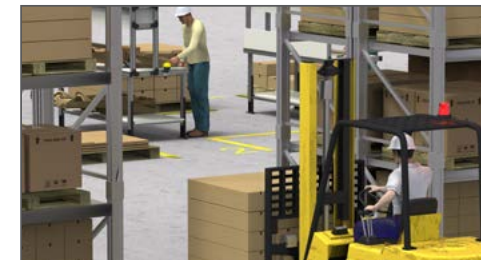
### Snap Signal IIoT Hardware

Increase productivity and unlock your factory's true potential with Snap Signal: a hardware and software toolkit for your IIoT evolution.



### Banner SmartSolutions® Starter Kits

Get everything you need to capture critical data anywhere in production. Starter Kits and Expansion Kits are easy-to-deploy, end-to-end solutions to handle operational challenges in real-time—regardless of location. Kits let you track and analyze critical performance data over time to make better, more informed decisions.



### Call-for-Parts, Pick-Up, or Service

Minimize wait times and make your production run smoothly by switching to Banner's Call for Parts Solution. The Wireless Call for Parts consists of a DXM wireless controller and two types of interface devices: the Wireless K70 touch indicators for operator requests and the Direct Select™ operator interfaces for mobile responders.



### Wireless Solutions Kits

Wireless Solutions Kits are fully integrated and easy-to-use solutions for monitoring assets and solving specific challenges. They are designed to make it easy for users of any experience level to set up a wireless network, collect remote data, and create visualization tools, warnings, and alarms.



### DEK Wireless Kits

A DEK Wireless Kit is a standalone, end-to-end preventive maintenance solution for simple remote monitoring of outdoor and indoor applications, ranging from agriculture and water treatment to mining and manufacturing. The kit can capture critical data such as vibration, temperature, humidity, tank level, duty cycle, and pressure.



### Direct Select™ Multifunction Operator Interface

Add two-way communication and operator guidance capabilities anywhere you need it, using the Direct Select™ wireless operator interface. This versatile device combines a three-digit display, high-visibility status indication, and multiple input controls in one battery-powered device.



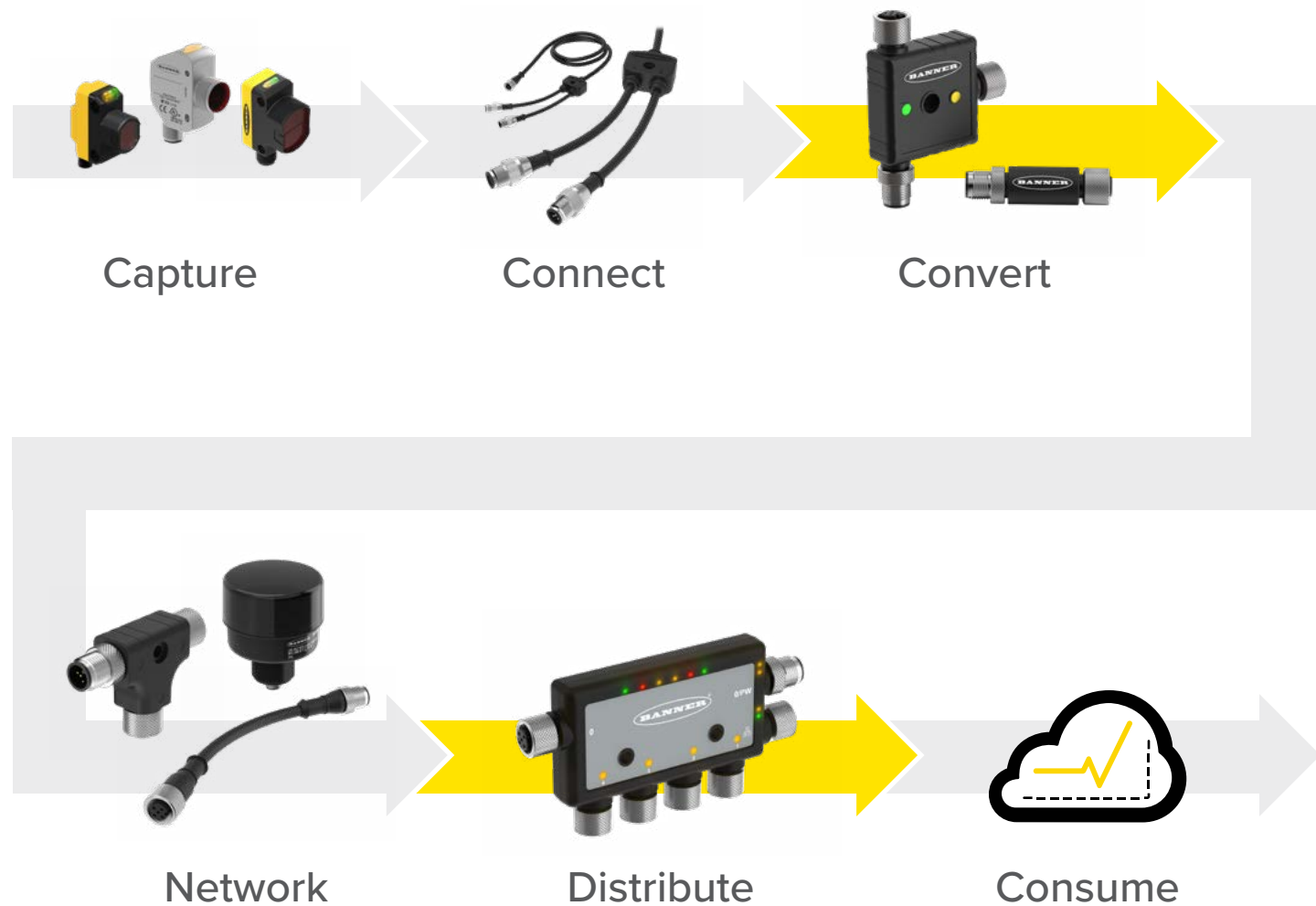
### Q45 Series Wireless Sensors

Q45 Series all-in-one devices combine a wireless node, a sensor, and a battery power supply in one easy-to-deploy device that monitors assets and equipment in remote and hard-to-access locations.

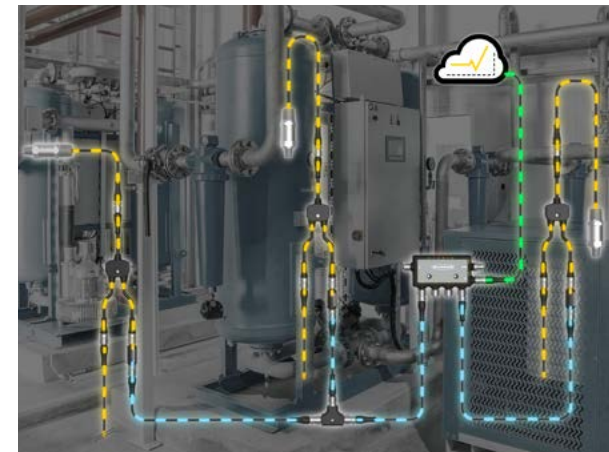


## SNAP SIGNAL

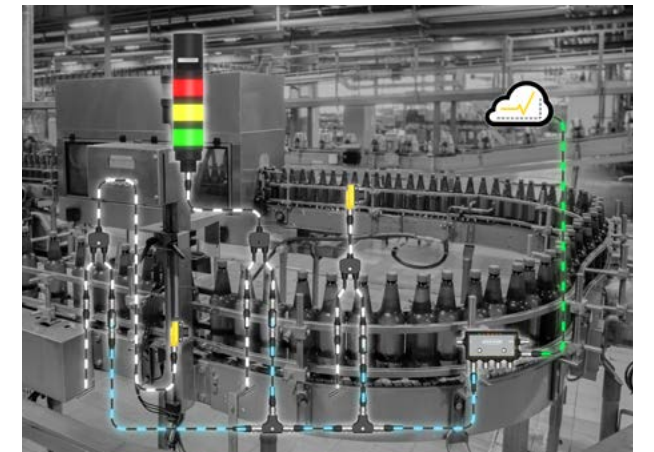
Snap Signal is an easily deployable, complete portfolio of modular IIoT hardware and software that delivers actionable machine data from across your factory. More than just another flavor of IIoT, Snap Signal is an overlay network that can capture data signals from virtually any source. It seamlessly converts these sources to a single industry-standard protocol, then distributes the data for quick and easy consumption. Snap Signal offers you the flexibility to monitor key equipment within one area or monitor your whole facility.



## Snap Signal Application Examples



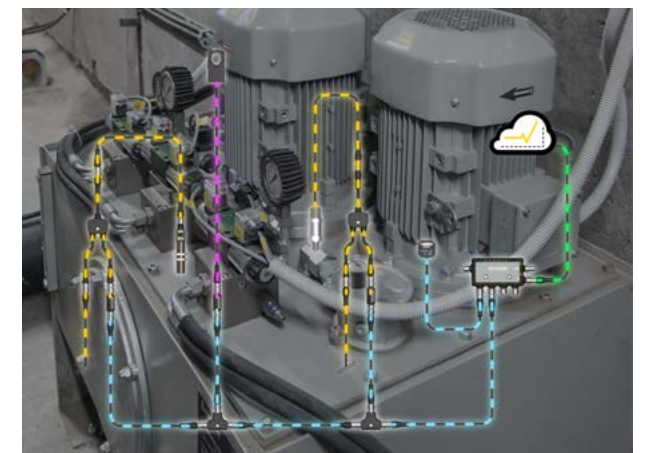
Tap into Pressure Sensor Data for Immediate Insights



Maximize Throughput and Reduce Downtime by Harnessing Sensor Data from Your Equipment



Provide Real-Time Tank Level Monitoring Data to Efficiently Manage Inventory



Keep Hydraulic Power Units Running at Peak Performance

Improve productivity, quality, and reliability with actionable data. Build smart machines and smarter factories with Snap Signal.

Snap Signal products are plug-and-play, helping customers gather information from their equipment and making it simple to view from anywhere. End-users can use it as an overlay to harvest data from legacy equipment. Simply tee into existing devices using a splitter, regardless of signal type, to gather enriched machine-level data without disturbing the existing controls. Machine builders and system integrators benefit from being able to add monitoring technology to equipment that can tie into any upstream system for data visualization.

## Control, Convert, Filter, Adapt

Banner's Snap Signal family of plug-and-play products represents a new way to unlock your valuable machine data. Snap Signal offers you the flexibility to monitor key equipment within one area or monitor your whole facility. Regardless of whether you are retrofitting existing machines or building new infrastructure, designing and implementing with Snap Signal is easy and cost effective.

The DXMR90 is an IIoT-enabling industrial controller that transmits information from multiple sources simultaneously in a unified protocol for real-time analysis and consumption. Banner's S15C and R45C converters allow you to connect previously incompatible device types (including discrete, analog, and others), transform these signals to industrial protocols like IO-Link or Modbus, and seamlessly transmit data across multiple IIoT ecosystems. The S15A compact adapters are designed to connect directly to sensors, indicators, or other devices. This allows you to begin operating immediately. Lastly, the S15F in-line filters are a simple way to solve challenges with electrical noise and transient voltage that affect devices in your system.



### DXMR90 IIoT-Enabling Industrial Controllers

Banner's DXMR90 Series Controller consolidates data from multiple connections to provide local data processing as well as accessibility for host systems as a platform for the Industrial Internet of Things (IIoT). The DXMR90 contains individual Modbus clients, allowing for concurrent communication to up to five independent serial networks. Data is collected into the controller to facilitate edge processing, convert protocols to Industrial Ethernet, and send information where you need it.

- Converts Modbus RTU to Modbus TCP/IP, Ethernet I/P, or Profinet
- Internal logic driven by action rules for easy programming, or MicroPython and ScriptBasic for developing more complex solutions
- Internet protocols including RESTful, MQTT, and APIs
- Compact housing saves space and weight compared to traditional "block"-style form factors
- Equipped with IP65-, IP67-, and IP68-rated housing for use in challenging environments
- RS-485 and Ethernet communications ports
- User-programmable LEDs for local status indication
- Connects to databases (including Banner's Cloud Data Services) over Ethernet or through a cellular-enabled DXM controller
- Email alerts on critical assets can be set up in the Cloud
- Ideal for IIoT data analytics, condition monitoring, predictive maintenance, OEE analysis, diagnostics, and troubleshooting



### S15C Converters

Break free from protocol limitations with S15C in-line converters. S15C converters take various types of signals such as discrete, analog, and others and convert these signals to smart protocols like IO-Link or Modbus. This makes it easy to incorporate existing legacy sensors into standard protocols to enable process monitoring. The converters are designed to connect directly to a sensor, indicator, or other device and begin operating immediately, fitting seamlessly into factory applications.

- Allows previously incompatible devices to be connected to a smart system
- Compact form factor
- Rugged over-molded design meets IP65, IP67, and IP68 standards
- Simple M12 connection for easy installation wherever needed in the circuit

### R45C Converters

Discrete sensors can now be added to PICK-IQ® and Modbus networks, enhancing pick-to-light installations and delivering the data you need for predictive maintenance and operational improvements.

- Compact, rugged, over-molded design meets IP65, IP67, and IP68 standards
- Connects directly to a sensor and anywhere in the serial network for ease of use
- Dual configurable input/output ports allow for full control and compatibility
- Incorporate a variety of discrete devices, such as array products, for pick-to-light



### S15A Adapters

S15A in-line wiring adapters are small plug-in accessories designed to connect directly to a sensor, indicator, or other device to redirect wiring for any function, operation, or utilization. They fit seamlessly into factory applications and begin operating immediately.

- Adapters re-route wiring to match specific application requirements
- Match outputs to inputs and isolate select signals
- Rugged over-molded design meets IP65, IP67, and IP68 standards
- Simple M12 connection for easy installation where needed in the circuit
- Custom options are available

### S15F Filters

S15F in-line filters are small plug-in accessories designed to connect directly to a sensor, indicator, or other device. They fit seamlessly into factory applications and begin operating immediately to suppress or filter electrical noise and transients.

- Protect devices from electrical noise and transients
- Rugged over-molded design meets IP65, IP67, and IP68 standards
- Simple M12 connection for easy installation where needed in the circuit
- Improve signal integrity, reduce troubleshooting time, and install wiring more quickly







# Banner SmartSolutions® Starter Kits

Validate with Data. Provide Savings. Increase Value.

- Products with proven wireless communication and integrated cellular connectivity
- Automatic dashboards and default alarms assist in data-driven decisions and solutions
- Battery-powered devices for convenient installation
- Durable IP-rated sensors and gateways; wireless sensor nodes are included with kits (see table below)
- Connect as many as 10 sensor nodes to scale and adapt the solution for specific needs; mix and match additional sensor options (see page 54)

Related Product



## Expansion Kits

For customers that want to deploy a comprehensive monitoring solution from the start or expand on the basic system they may already have, this kit allows them to add up to 40 sensors with automated dashboards and alerts using Banner's Cloud software. Nodes purchased separately, mix and match any from the Q45 sensor node family. See page 54.

## Starter Kit Components



DXM 700 or DXM1200



Vibration Sensor



Ultrasonic Sensor



Temp and Humidity Sensor



Pressure Sensor



Prepaid Cellular and Banner Cloud Data Services

	DXM 700 or DXM1200	Vibration Sensor		Ultrasonic Sensor	Temp and Humidity Sensor	Pressure Sensor	Prepaid Cellular and Banner Cloud Data Services
Condition Monitoring	✓	✓		✓	✓	✓	✓
Pressure Monitoring	✓					✓	✓
Vibration Monitoring	✓	✓					✓
Tank Level Monitoring	✓			✓			✓
Temperature and Humidity Monitoring	✓				✓		✓



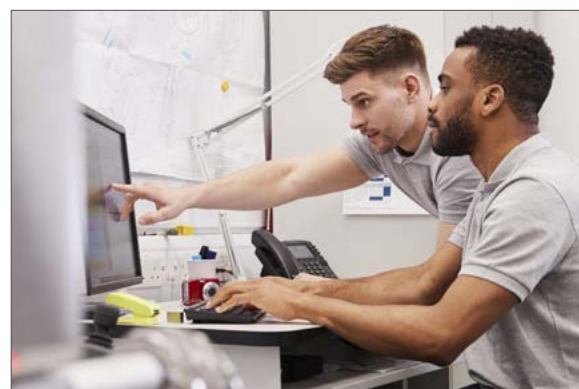
## Call-for-Parts, Pick Up, or Service

Communicate Status. Empower Operators. Alert Supervisors.

- Workstations are equipped with a K70 Touch Button Node, making them capable of andon, call-for-parts, pallet pick up, or other light-guided applications
- Direct Select™ Operator Interfaces can be used to respond to requests; each device can be placed on a forklift/Hi-Lo, carried by a mobile responder, or left with a supervisor for fast and simple communication
- Count the number of times each station sends a request and the number of times each mobile responder completes a request
- Produce efficiency metrics with provided data
- Push data to Cloud Webserver or PLC (via LAN or cellular connection) for remote viewing, generating alerts, and logging data

When you need parts or help, press the button.

- Button is wireless and provides clear indication
- Installs easily



A supervisor is alerted to the request and can dispatch someone to help.

- Alerts visualized with a battery-powered wireless display
- Analytics may be viewed from a web dashboard
- Many options exist to create other types of alerts for supervisors

Help arrives without the operator ever leaving their workstation.

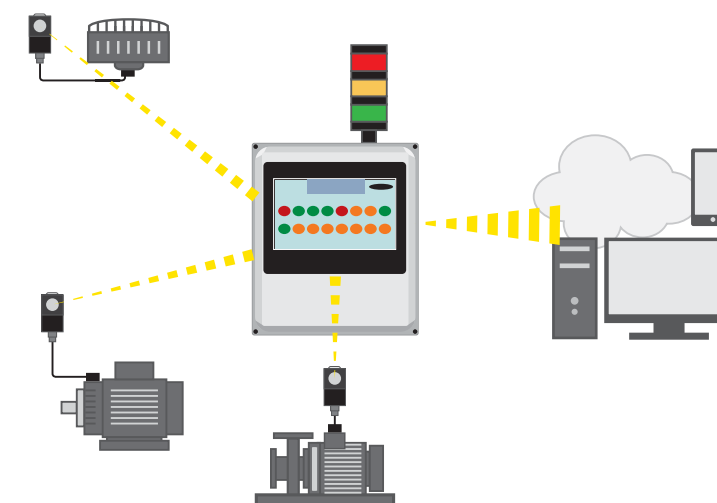
- Improve productivity and reduce idle time
- Streamline your process to call for and dispatch help
- Gather meaningful data on who needs what and when
- Use data to drive continuous improvement efforts



## Wireless Solutions Kits

Fully Integrated and Easy-to-Use Solutions for Monitoring Assets

- Available for a variety of applications such as vibration, temperature, humidity, tank level, and pressure monitoring
- No programming is required. Plug in the box, bind the nodes through the HMI screen, install the sensors and nodes, and start collecting data
- Includes pre-programmed DXM700 wireless controller, pre-programmed 25.5 cm (10.1 in.) touchscreen HMI, and 5-port industrial Ethernet switch
- HMI provides graphical displays of collected data, baselines, thresholds, warnings, and alarms
- Access raw data right on the HMI or via the cloud from any network accessible location
- View up to 7 days of data history on HMI screen and archive over 30 days of logged data in CSV files
- Increase productivity by using warnings and alarms to quickly identify and resolve potential issues

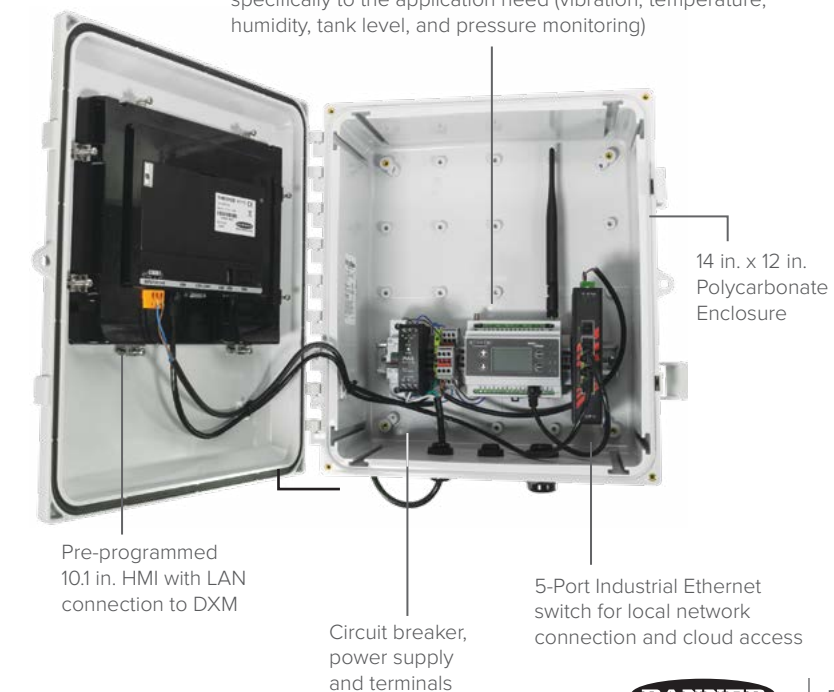


HMI shows dashboard with a "check engine light" for each asset



Touch an asset icon to view raw data, baselines and thresholds

Pre-programmed DXM wireless controller programmed specifically to the application need (vibration, temperature, humidity, tank level, and pressure monitoring)







## DEK Wireless Kits

### Simplifies Setup of Standalone Monitoring Systems

- Cellular-enabled gateway controller with battery power supply and optimized solar-charging circuit
- Kit includes environmentally rated enclosure, solar panel, battery, antennas, and mounting and cabling hardware
- Data inputs include analog and discrete signals with modbus, SDI-12, and wireless data communication
- Prepaid 90-day trial for Banner Cloud Data services with cellular service management provided by the Banner Cell Data web portal



## Direct Select™

### Multifunction Operator Interface

- Battery-powered or DC-powered devices install easily on mobile and stationary assets, machines, or equipment where adding or altering wired infrastructure would be impractical or not cost-effective
- Two-way communication between devices over a secure, robust wireless network
- Versatile operator interface can be used as an input or output device in a wide range of applications
- Quick, easy setup using onboard DIP switches



DXM Enclosure Kit



5 Watt Solar Panel



Banner Cloud Data Services



Banner Cell Data

#### LCD Screen

- 0–999 numerical display
- Can be used with or without backlight

#### Capacitive Touch/Indicator

- Capable of 8 standard colors
- Works with gloves

- Banner Industrial Wireless
- 900 MHz or 2.4 GHz performance series
  - Internal Antenna



QD Option for  
10–30 V DC power

#### (4) Tactile Push Buttons

- Adjust number if missing parts to complete a pick
- Provide feedback to a central location
- Used for binding without removing the base

#### Direct Select™ Housing

- 4 screws are retained on the cover
- Battery is in cover; it can be replaced without needing to unmount the device.



Mining and Aggregate Operations



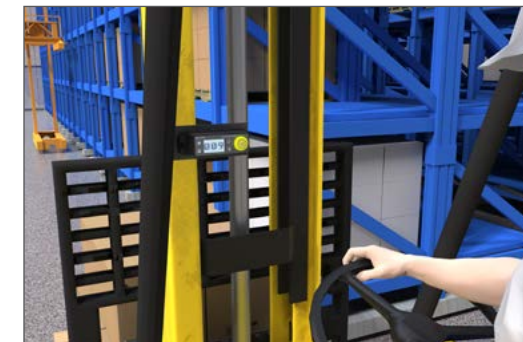
Industrial Dust Collection



Farm Irrigation



Water Supply and Wastewater Management



Operator Guidance



Dock Door Monitoring



## Q45 Series Wireless Sensors

- All-in-one design eliminates the time, labor, and expense of installing separate sensors and nodes
- Use with Cloud Data Services software to create an end-to-end IIoT solution that will help you identify and resolve problems more quickly and make better, data-driven decisions



### Q45 Photoelectric Sensors

Combine a sensor, a wireless node, and an internal battery in a single device, making it easy to solve challenging factory applications or add sensing to existing industrial systems.

- Truly self-contained with no need for cables, cord sets, or external power
- Designed for fast installation and ease of changeovers
- Up to 4 years of battery life with new D-cell version; up to 2 years battery life with standard version

### Q45 All-in-One Series for Predictive Maintenance

Q45 Series all-in-one devices combine a wireless node, a sensor, and a battery power supply in one easy-to-deploy device that monitors assets and equipment in remote and hard-to-access locations.

### Q45 Nodes for Predictive Maintenance

Q45 Series 1-wire serial nodes are preconfigured to work with Banner's 1-wire serial sensors, simplifying setup and deployment. This variety of compact sensors with integrated lithium batteries make remote monitoring easy.



The Q45DT all-in-one wireless dual thermistor node measures two separate thermistors and the differential for air and liquid handling applications



The Q45CT all-in-one current transformer and wireless node measures current draw, helping to reveal issues with critical motor performance



The Q45VA all-in-one vibration and temperature sensor and wireless node monitors the health and performance of motors, pumps, and similar equipment with rotating motion; mounting kit with magnetic and non-magnetic brackets available



The Q45UA all-in-one ultrasonic sensor and wireless node monitors the level or position of fluid or dry assets in tanks, totes, and containers



The Q45TA all-in-one thermistor node measures temperature in key areas or processes



The Q45THA all-in-one temperature, humidity, and wireless node monitors environmental conditions in a variety of applications



The Q45VTP works with the QM30VT1 Vibration and Temperature Sensor to monitor a variety of vibration characteristics on rotating equipment for preventative maintenance applications



The wireless Q45UPSD pressure monitoring node and cabled transducer accessories monitor pressurized systems in remote locations without human intervention



The Q45TH connects directly to the M12FTHQ Temperature and Humidity Sensor to monitor environmental conditions in a broad range of applications



The Q45U is a universal 1-wire serial node that reads any of Banner's 1-wire serial sensors such as the K50U Ultrasonic Level Sensor for distance and level monitoring applications

Purchase any of the above All-in-One sensors to add to your Banner SmartSolutions® Starter Kits on page 48.

Purchase any of the above Q45 nodes for predictive maintenance to add to your Banner SmartSolutions® Starter Kits on page 48.





**R45C**  
See Page 47



**S15C**  
See Page 47



**DXMR90**  
See Page 46

# **SNAP SIGNAL**

