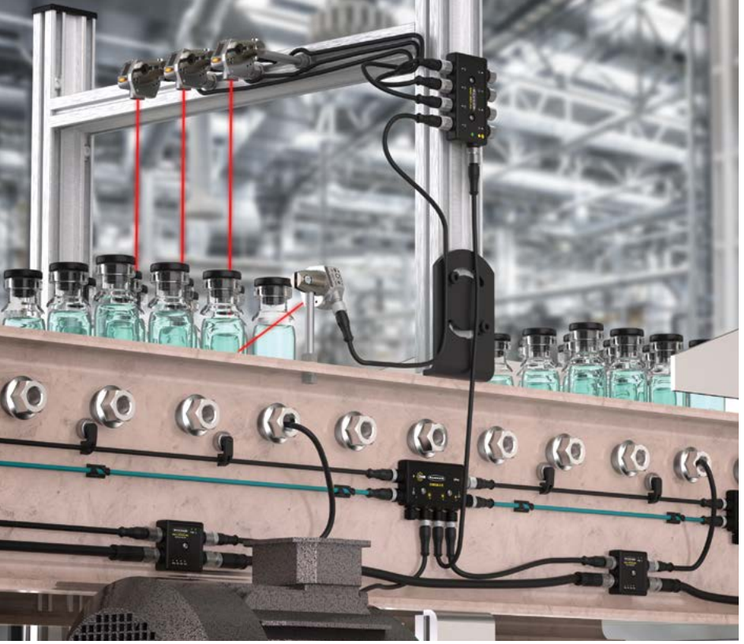
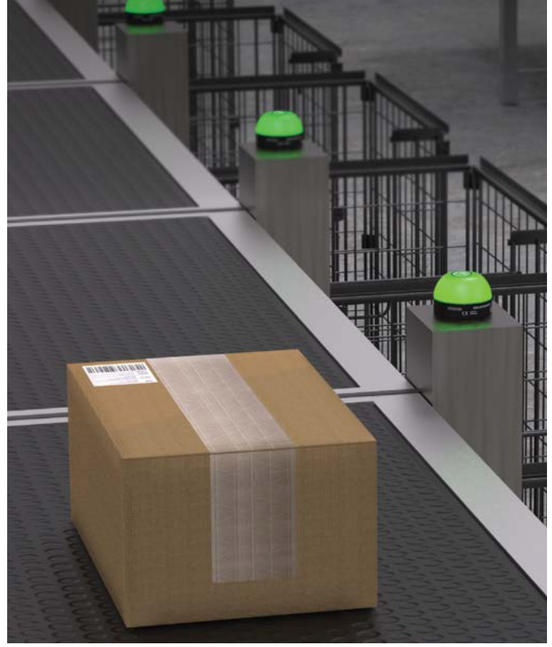
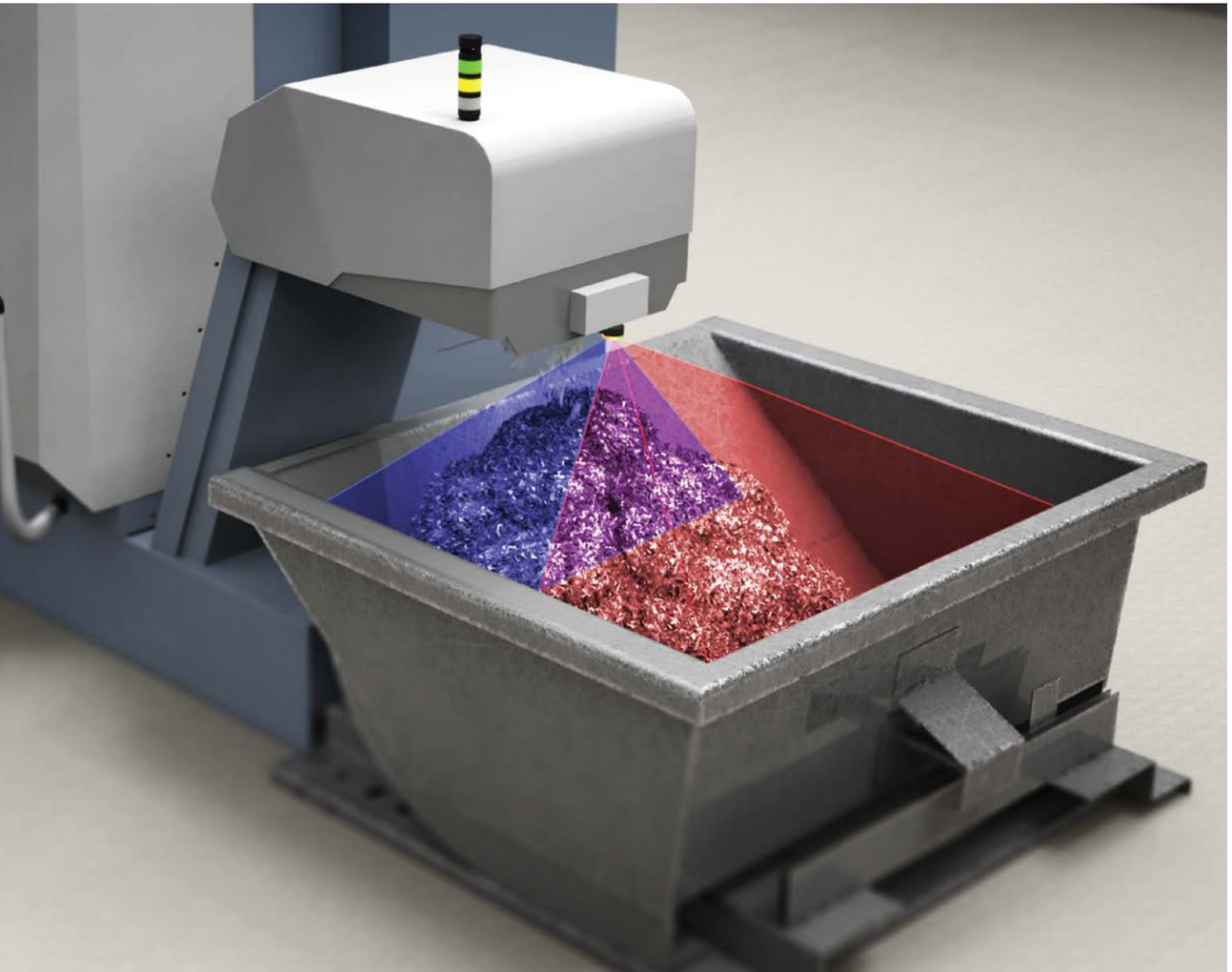
New Products

BANNER®







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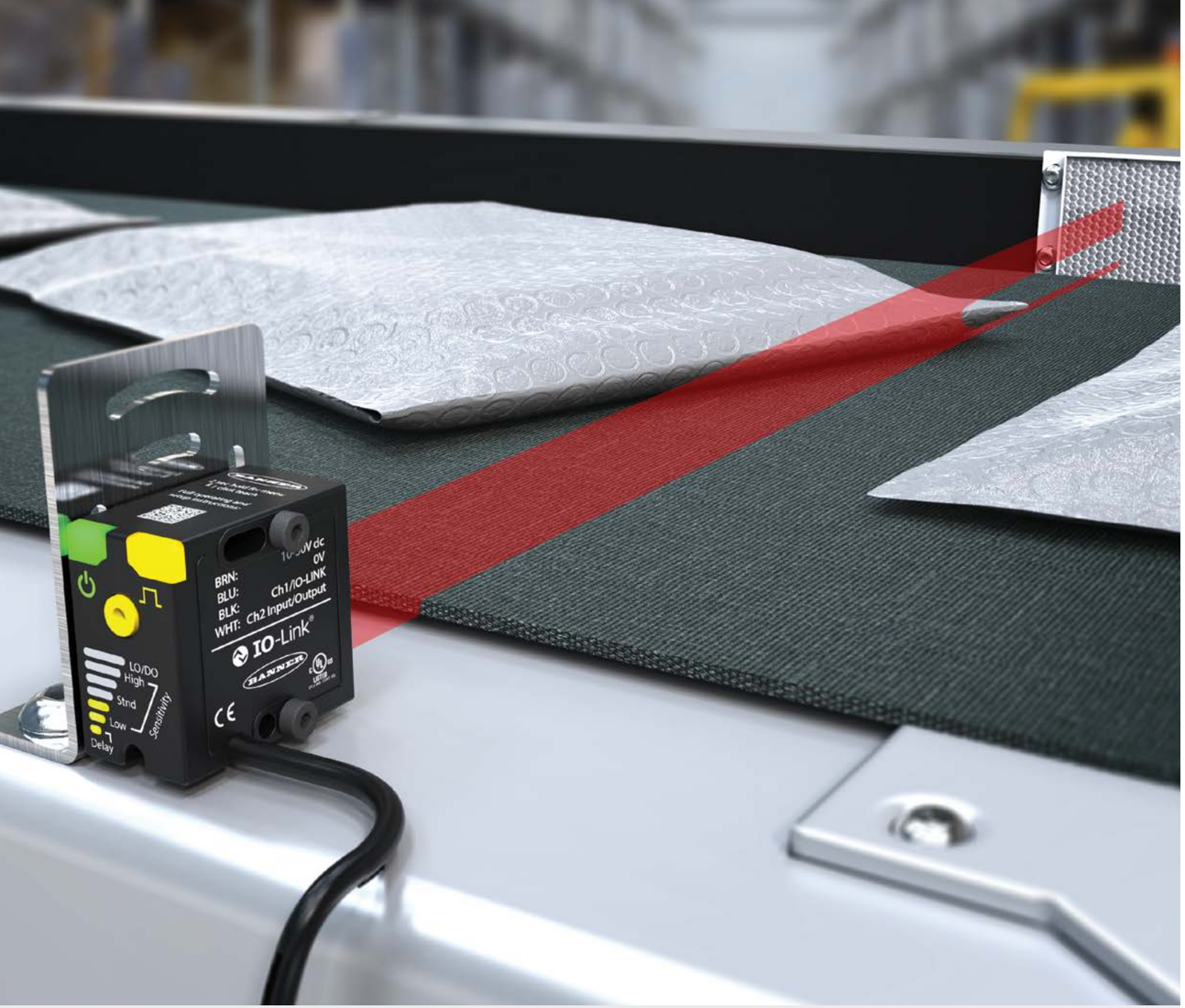
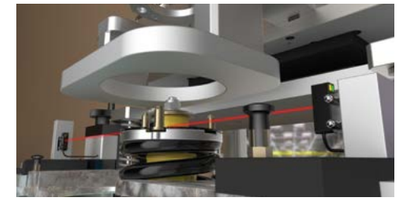


Sensors

Banner Engineering has a wide variety of innovative sensors that excel in the most challenging industrial applications. These new devices can be used for clear object detection, distance measurement, object presence or absence, temperature and vibration detection, pick-to-light, and ultrasonic sensing.



Q2X Series
Miniature Photoelectric Sensors

Powerful and simple sensing in a miniature package makes the Q2X ideal for installation in very precise machinery and tight industrial spaces.

B25 Wide Beam Sensors

The B25 delivers superior detection across a wide beam regardless of target shape, position, or material.

EG24 Series
Precision Edge Sensors

The EG24 is designed for fast measurement at a resolution of less than 10 microns to ensure precise material positioning, which improves downstream yield and minimizes waste.

K50Z Series
Multipoint Sensors

The K50Z is equipped with 3D time of flight technology and a wide 45 x 45 degree beam angle, improving efficiency and reducing hardware needs.

Q90R Series Radar Sensors

The Q90R Series radar sensors are versatile, powerful, robust, and intuitive, offering reliable detection across a broad vertical and horizontal field of view.

ZMX Series
3D Time of Flight Sensors

The ZMX Series 3D Time of Flight Sensor measures and monitors a three-dimensional area. It provides a single-sensor solution for filling applications by measuring both the peak height and average fill volume.

K50R Series Radar Sensors

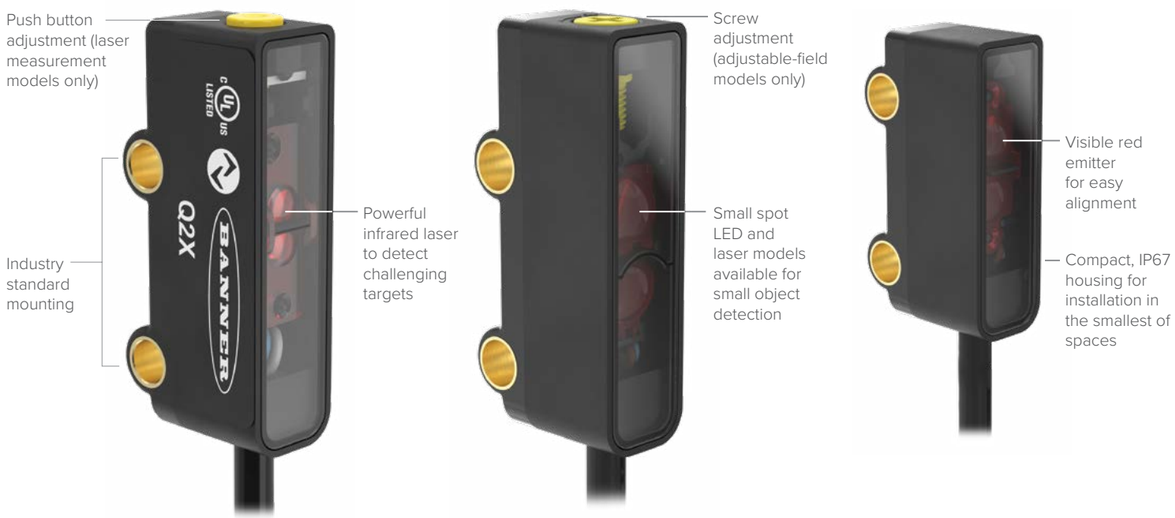
The K50R series of radar sensors provides a durable, cost-effective solution for short-range detection applications, particularly in challenging environments.

Q2X Series

Miniature Photoelectric Sensors

Space-saving photoelectric sensor with short- and long-range models.

- Install in small or constrained spaces, due to the sensor's compact housing design
- Precisely detect small objects using short-range models
- Sense across a larger area or mount the sensor up to 3.3 m away from the target using long-range models
- Solve challenging problems in many applications by consolidating to one sensor family with an array of sensing modes available
- For model information, see page 60



Fixed-Field

- Accurately detect targets while ignoring objects beyond a fixed cutoff distance
- Fastest commissioning with no configuration or setup required
- Simplify installation with fewer components and less wiring; no retro target or receiver required

Adjustable-Field

- Accurately detect targets while ignoring objects beyond a user-settable cutoff distance
- Simplify installation with fewer components and less wiring; no retro target or receiver required

Opposed

- Detect almost any target regardless of shape, color, or finish and as small as 4.3 mm
- With high excess gain and no dead zone, reduce false and missed detections

Polarized Retroreflective

- Reliably detect dark and shiny targets over long ranges
- Ideal for reliable leading-edge detection with its fast, 600 µs response time

Laser Measurement

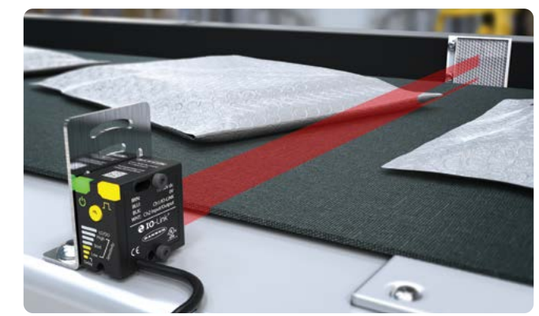
- Solve challenging problems in many applications with a full-featured sensor that offers a 3 m range for detection and measurement
- Sense the most challenging targets like dark or shiny poly bags with a powerful infrared laser with best-in-class excess gain

B25 Series

Reliable Wide-Beam Detection

- Reliably detect leading edges of polybags, mailers, and boxes
- Delivers superior detection across a wide beam regardless of target shape, position, or material
- Avoids chatter caused by targets with folded edges, holes, or open flaps
- Perform quick setup and configuration using a single button, remote input wire, or IO-Link interface
- For model information, see page 61

Mountable below belts; intelligently learns belt characteristics and optimizes sensing to filter out flutter and seams



Detects leading edges of packages anywhere within the wide 25-millimeter beam

Consistently and reliably detects totes with holes because of wide sensing area

EG24 Series

Precision Edge Sensors

- High-resolution measurement ensures material is properly positioned to avoid scrap
- Retroreflective sensor's wide sensing beam delivers precision measurement over a large area
- A selection of measurement modes precisely track edges across a broad variety of moving materials, including a wide range of opacity and texture
- For model information, see page 60

K50Z Series

Multipoint Sensors

- Multipoint sensing with one device
- Detect more reliably across a wide area
- Use less hardware and save commissioning time
- For model information, see page 60

High-Resolution Sensing

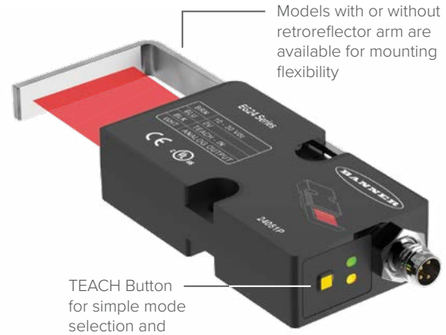
- Less than 10-micron resolution precisely monitors edge movement to maximize process control and reduce wasted material
- 2 kHz measurement frequency rapidly measures edge location, enabling quick corrections to material position

Wide Retroreflective Sensing Area

- 40-millimeter sensing range measures with the same resolution at any distance, allowing for edge movement between the sensor face and reflector
- 24-millimeter wide beam allows for variation in target presentation, which reduces fixturing complexity and provides more reliable detection than a single-point sensor

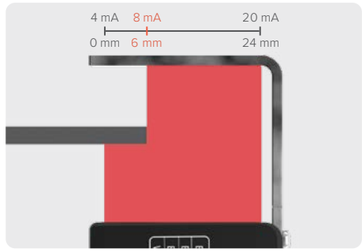
Sensing Modes for Application Flexibility

- Single Edge for tracking and positioning of web and sheet edges with materials such as foils, films, metals, plastics, or paper
- Width or Gap for confirming quality of a product or in process dimension verification



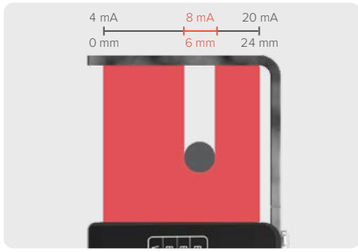
EG24 Precision Edge Sensors

Multiple measurement modes precisely track edges across a broad variety of moving materials, including a wide range of opacity and texture.



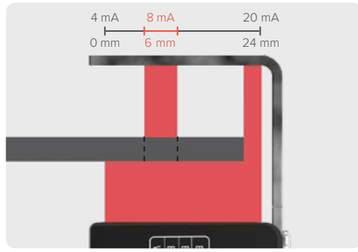
Single Edge Tracking

For tracking and positioning of web and sheet edges with materials such as foils, films, metals, plastics, or paper



Width Mode

For confirming quality of a product or in process dimension verification

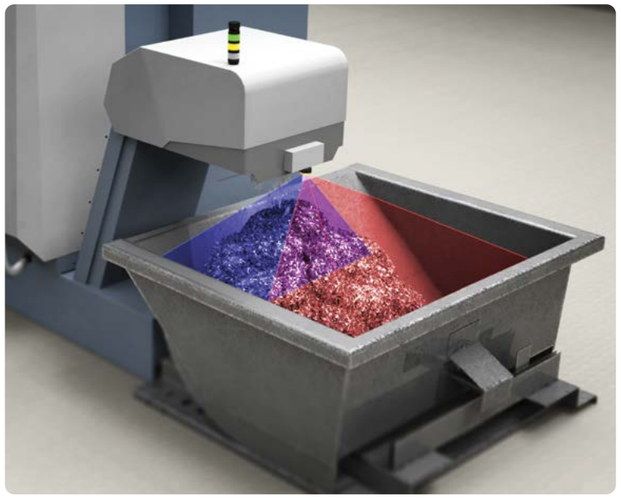


Gap Mode

For confirming quality of a product or in process dimension verification

Multipoint Sensing with One Device

- Detect more reliably across a wide area
  - 45° x 45° beam angle and 2 meter range allow for detection in a large area
  - 64 measurement points can capture the nearest distance and average height over a large area, yielding more information than a single sensor
  - 3D time of flight technology measures angled targets more reliably than other methods, including ultrasonic
- Use less hardware and save commissioning time
  - Two independently configured outputs let operators monitor two separate areas
  - Less hardware is required by replacing two sensors with one
  - Sensor configuration can be customized to fit the application



See Complete Bin Fill Levels with Two Measurements

Challenge

Metal shavings from machining automotive parts fill up a scrap bin. The area nearest the outlet fills up faster than other parts of the bin. Multiple sensors are needed to monitor different areas of the bin to prevent overfilling, plus another sensor that monitors the fill level and alerts an operator to spread out the shavings.

Solution

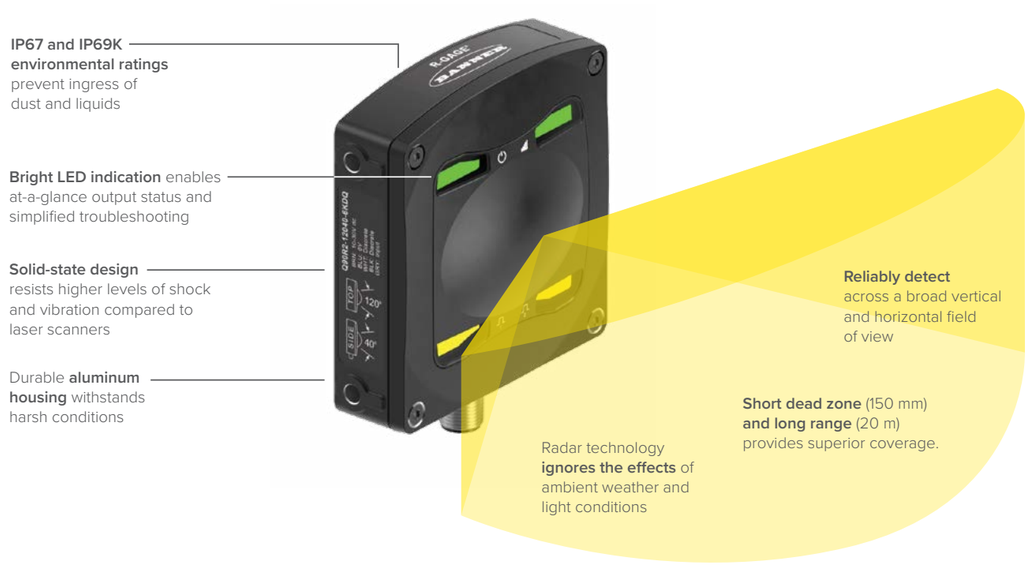
Rather than multiple sensors, a single K50Z has a large 45 x 45 degree viewing area, 64 measurement points, and two independently configured outputs. One output can track peak height and monitor for overfill protection at the outlet, while the other output can track average height and monitor the fill level in the rest of the bin. During setup, these outputs are visualized in the PC GUI so the operator can see exactly what the sensor sees, simplifying configuration.

Q90R Series

Radar Sensors

- Robust design for superior and consistent operation in any environment
- Versatility to outperform optical and ultrasonic technologies in demanding conditions
- Intuitive interface enables simple integration and streamlines troubleshooting
- Enhance equipment performance with advanced configuration and detection
- For model information, see page 61

Robust Design and Versatile Performance

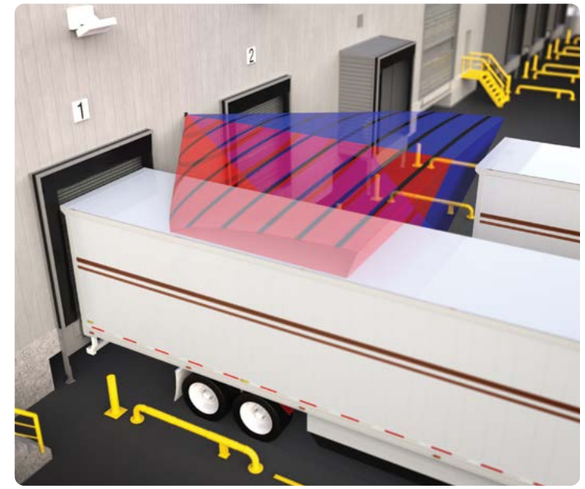


Intuitive Interface

Configure the sensor with the easy-to-use PC GUI

Access advanced diagnostics

Connect to Banner lights to provide immediate visual feedback



Accurate Vehicle Detection at Loading Docks

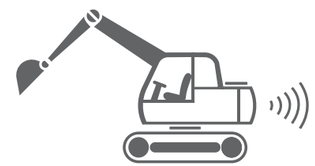
Challenge

Accurate vehicle detection at loading docks is crucial for businesses to sustain productivity, safety, and environmental standards. Inaccurate detection can lead to inefficiency and hazardous situations.

Solution

The Q90R's broad field of view and robust signal strength provides flexible mounting options in various orientations to accommodate customer requirements. The Q90R2 can track two different targets, effectively taking the place of two sensors and offering even more application flexibility.

Collision Awareness



Prevent hazardous collisions to ensure the smooth operation of processes

Measurement and Positioning

Ensure consistent performance and outcomes, track processes, and make incremental improvements

Equipment Monitoring

Dependable monitoring or control of equipment for increased process efficiency

Reliable Collision Awareness

Challenge

Forklifts used in manufacturing settings can pose a risk of damaging nearby equipment. Many obstructions in the environment may not be accurately detected by optical or ultrasonic technologies. Additionally, other sensing technologies struggle in the diverse environments where forklifts operate, particularly outdoors.

Solution

The Q90R2 is an effective solution for driver collision awareness. When used in conjunction with a light or audible indicator, the Q90R2 can detect almost any potential hazard and provide clear communication to operators or bystanders, keeping operations running smoothly and preventing damage to assets.

ZMX Series

3D Time of Flight Sensor

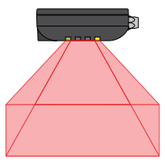
- Container fill monitoring made easy
- Detects peak height or volume over a large sensing area
- One unit offers more reliability than multiple single-point sensors
- Easy setup—simple integration, completely self-contained
- Requires no external lighting
- High ambient light immunity
- For model information, see page 61

K50R Series

Robust Detection, Industrial Package

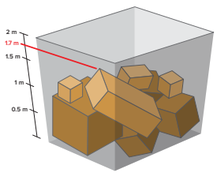
- Superior and consistent operation in any environment by ignoring ambient environmental and lighting conditions
- Cost-effective alternative to long range ultrasonic sensors
- Effortlessly set up and configure sensors using the Banner Measurement Sensor Software
- Satisfy different installation needs with base or flush mounting options and discrete and analog outputs
- Visually communicate detailed measurement information with programmable LED indication on the sensor and via direct integration with Banner Pulse Pro lighting
- For model information, see page 61

Measure and Monitor the Contents of an Entire Container with One Sensor



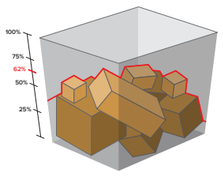
Large field of view

- Monitor a large 60° x 45° field of view
- View entire container, not just a single position



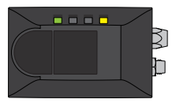
Peak height

- Continually monitor height
- Send an alarm when peak heights are reached
- 2.5 m range



Percent fill

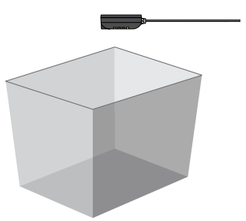
- Determine overfill of contents or packages
- Use the output to track the fill rate or container statistics



All-in-one design

- Logic is integrated into the sensor
- No PC or controller needed after initial setup
- No external lighting required

Easy Setup and Integration

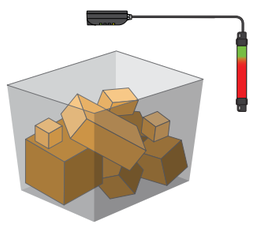


1. Mount the sensor and connect

- Built-in mounting holes
- Variety of mounting brackets to choose from
- Connect to a PC to begin using Banner's 3D Time of Flight configuration software

2. Define sensing conditions

- Define the anchor point at the bottom of the container
- Define the size of the sensing region
- Choose the sensing criteria for the application: peak height or percent fill (shown above)



3. Begin sensing

- Monitor within the entire 60° x 45° field of view
- Does not require any external controllers or PC

Cost effective alternative to long range ultrasonic sensors

Ideal for outdoor applications

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

Ideal for challenging indoor applications

- Immune to dust, dirt, and steam
- Replace ultrasonic in tank level measurement applications

Temperature stability

- Temperature interferes with ultrasonic (sound wave) sensors, but it does not affect radar (which uses radio waves)

Accurate measurement

- Short dead zone of 50 mm
- 5 m range

No crosstalk

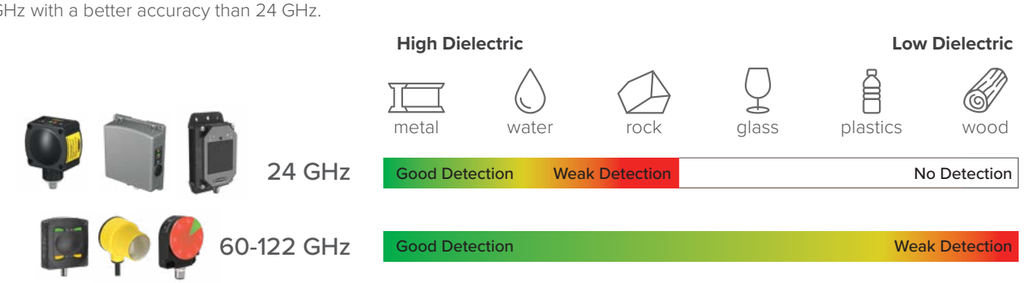
- No problem mounting multiple sensors close together

Wide beam angles

- 40° x 30° models closely match ultrasonic's performance
- 80° x 60° models offer a broad coverage to detect targets

Operating Frequency

Different radar frequencies affect not only the range of the sensor, but also what materials it can detect. 24 GHz radar has a long range and ignores ambient weather like heavy rain and snow. However, its detection is limited to stronger radar targets. 122 GHz radar provides greatly increased accuracy and can see a much wider range of materials compared to 24 GHz. 60 GHz conveniently falls between 24 GHz and 122 GHz in terms of performance. It has remarkable resistance to ambient weather and can detect a similar range of materials to 122 GHz with a better accuracy than 24 GHz.



Metal, water, and other high-dielectric materials provide a stronger return signal than plastic, wood, or other organic materials.

Machine Safety

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.

S4B Safety Light Curtains

S4B Heavy-Duty Type 4 Safety Light Curtains provide durable, dependable machine safeguarding.

SI-RF Series RFID Safety Switches

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.

SI-GL42 Series Safety Locking Switches

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 Controllers 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.

XS26-ISDd Series Expandable Safety Controllers with ISD

The XS26 Series has the ability to scale with your machine while offering advanced diagnostics with ISD and network access for live view and configurability

Easy-to-Implement Diagnostic Capabilities for Complex Safety Systems

Banner In-Series Diagnostics (ISD)

In-Series Diagnostics allows connection of 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.

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.

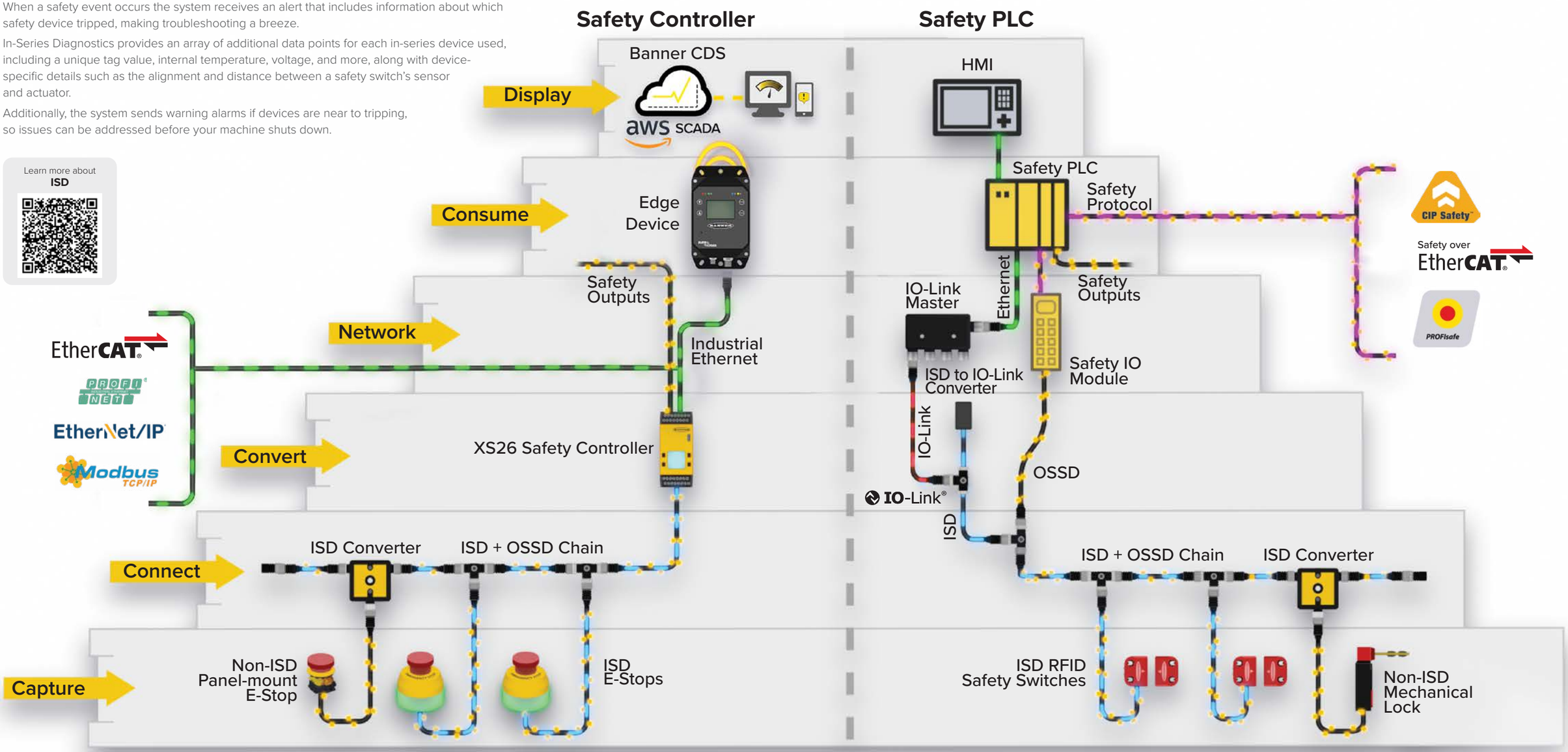
Additionally, the system sends warning alarms if devices are near to tripping, so issues can be addressed before your machine shuts down.

Learn more about **ISD**

Cut costs

Simplify installation and troubleshooting

Prevent and reduce downtime



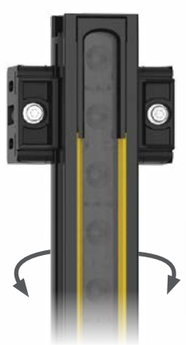
S4B Series

Heavy-Duty Type 4 Safety Light Curtains

- Optimized auto cascade saves installation and setup time
- Specially designed cordsets simplify installation and maintenance
- 14- and 30-millimeter resolution options offer safety protection for different applications
- Zone indication and weak beam strength indicators reduce commissioning time and help identify maintenance needs
- Available muting accessories refine system design and installation
- Save installation and setup time with auto cascading
- Endcap mounting and center mount brackets enable greater installation flexibility
- For model information, see page 62

Simple installation

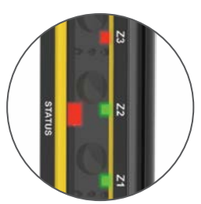
The S4B gives you more flexibility when deciding how to mount light curtains on your machine. Choose from either center-mount brackets or endcap brackets, both offering up to 15 degrees of freedom to align the emitter and receiver. Once the light curtains are mounted, alignment is further simplified with the onboard alignment zone Indicators as shown below.



Center mount brackets

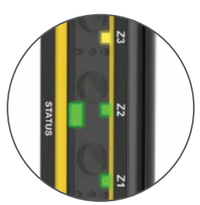
Endcap mounting brackets

Alignment Zone Indicators



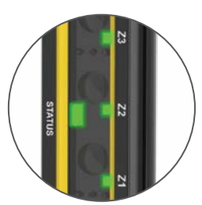
Misaligned

Red indicates a loss of signal due to a blocked beam or significant misalignment



Weak

Yellow indicates a weak signal due to a slight misalignment



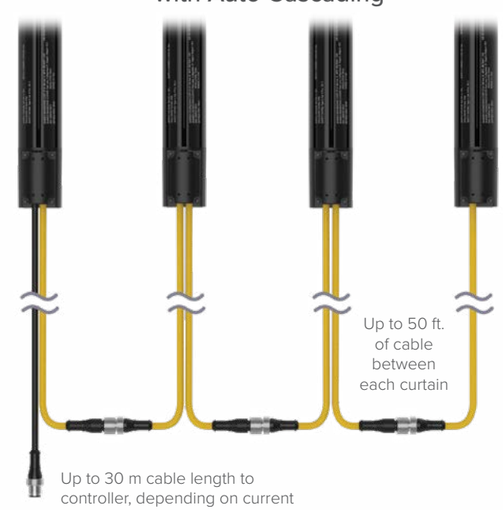
Aligned

Green indicates a strong signal, proper alignment, and clear of obstruction

Predict and Prevent Downtime

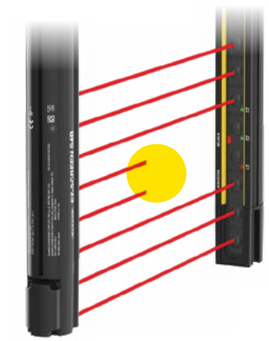
Don't let a challenging environment with dust or dirt stop your machine from operating. The S4B detects when the beam strength is low and will send this signal via pin 5 on the connector to your PLC or HMI to notify maintenance teams that the lens needs to be cleaned.

Save Installation and Setup Time with Auto Cascading



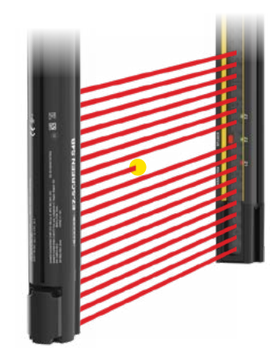
Intuitive Setup and Swap-out

Select and save scan code setting without a PC for easy setup and swap-out



Reliable Hand Detection

The S4B is available with 30-millimeter resolution for reliable hand detection



Reliable Finger Detection

The S4B is available with 14-millimeter resolution for reliable finger detection

SC10 Series

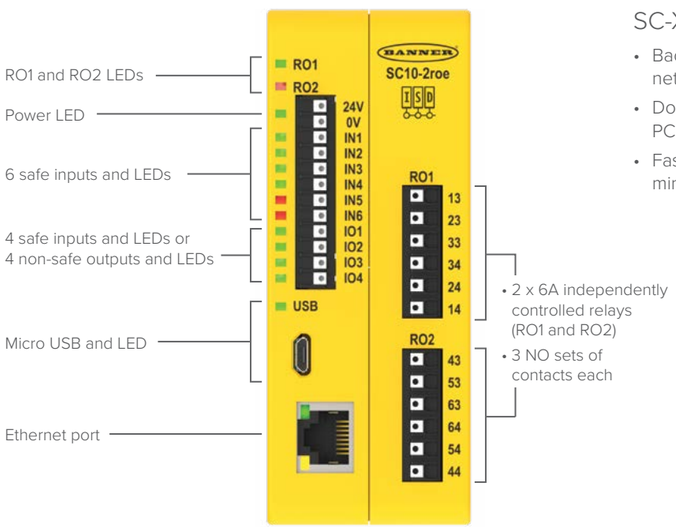
Compact Safety Controllers with ISD

- PC configurable: flexible and easy to use
- Safety inputs: up to 70 with ISD
- Safety outputs: two independently controlled relay outputs 6A each
- Connects up to 64 ISD devices
- EtherNet/IP, PROFINET, Modbus
- For model information, see page 62

XS26-ISDd Series

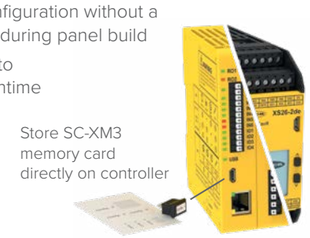
Expandable Safety Controllers with ISD

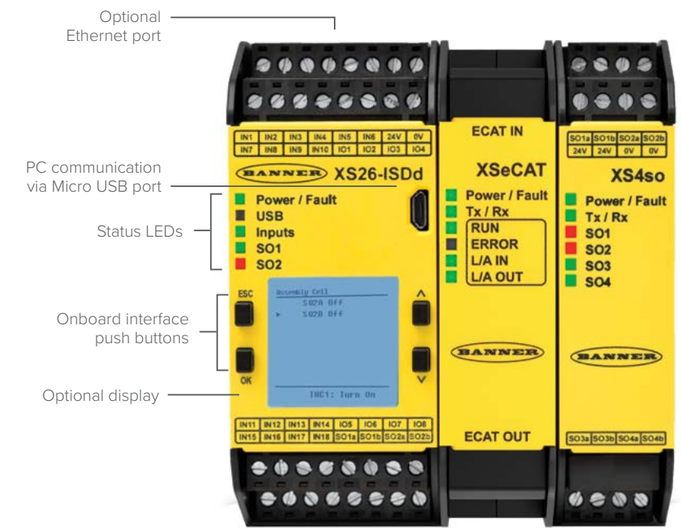
- Safety controller plus ISD to PLC gateway
- Easy to configure with free PC software
- Network accessible: configure and live view via an Ethernet connection (Ethernet-enabled XS26 models only)
- Connects up to 256 ISD devices
- Expandable up to 394 total safety devices and 68 safety outputs
- PROFINET, EtherNet/IP, Modbus TCP, EtherCat
- For model information, see page 62



SC-XM3—Fast Programming and Swapout

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

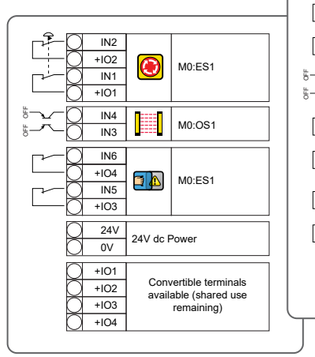




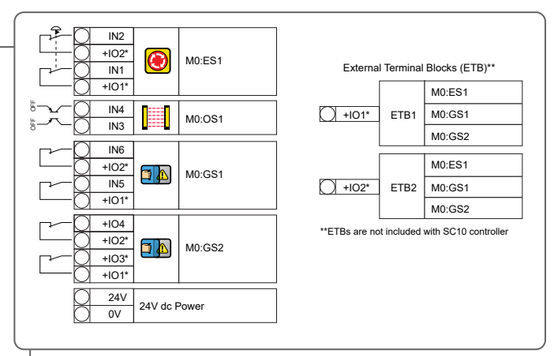
- Base Controller allows 8 of the 26 inputs to be configured as outputs for efficient terminal use
- Two independent pairs of safe outputs at 0.5A each
- In-Series Diagnostics (ISD) provides detailed status and performance data
- Up to 256 devices on 8 chains

Automatic Terminal Optimization (ATO)

Allows for an increase from ten to fourteen inputs



Wire diagram view for ten inputs without ATO



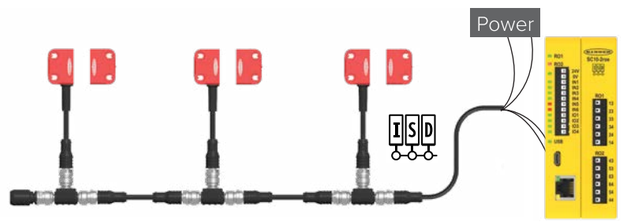
Wire diagram view for fourteen inputs with ATO

- Optional display screen allows local diagnostics for efficient troubleshooting
- Up to eight expansion I/O modules can be added as automation requirements grow or change
- Choose from seven expansion module models with a variety of safety inputs, solid-state safety outputs, safety relay outputs, and communication protocols
- Controller and input modules allow safety inputs to be converted to status outputs for efficient terminal use
- Fast programming and swapout using the SC-XM3 memory card

SI-RF Series

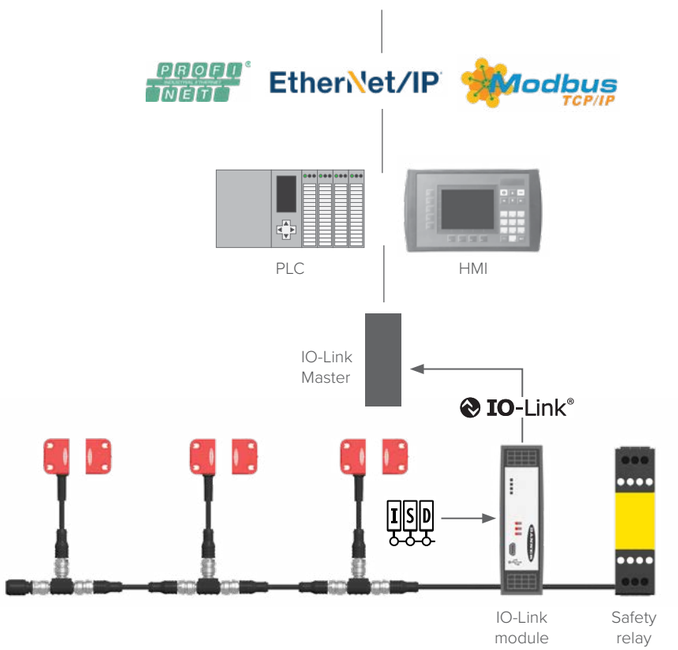
RFID Safety Switches with ISD

- Two-piece design in which the 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
- For model information, see page 62



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
- Door status and sensor health sent to PLC/HMI for simple troubleshooting



SX5 Series

Safety Laser Scanners

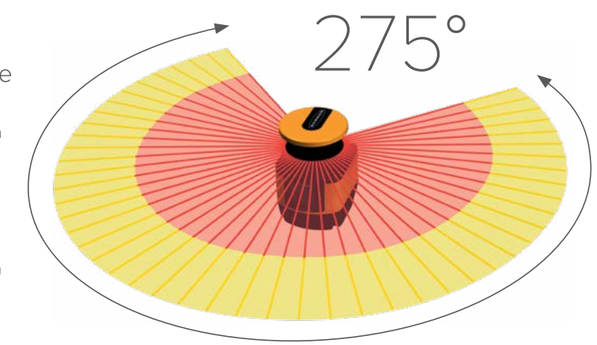
- Master and remote functionality with simplified setup and wiring
- Protects personnel and equipment with three independent safety outputs
- Features 70 unique safety zone sets, encoder inputs, and advanced measurement data—ideal for complex applications
- Cost-effective, compact, one-piece design with 275° of monitoring
- Horizontal or vertical detection zones to reliably safeguard mobile vehicles, access points, work areas, and more
- For model information, see page 63

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



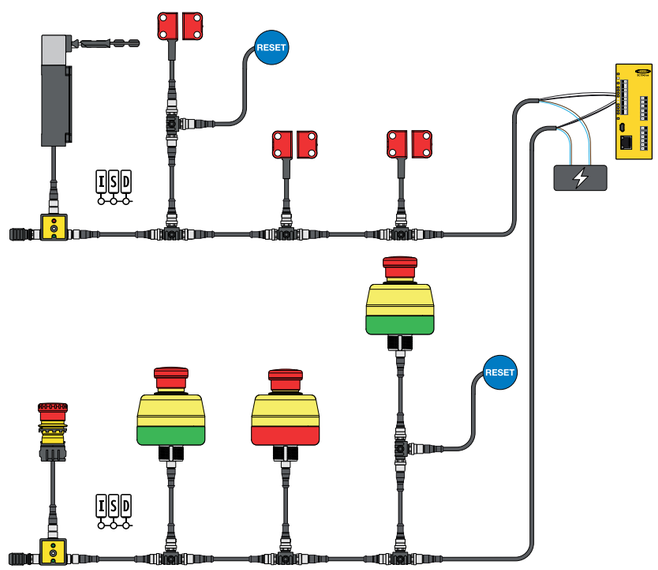
Monitor up to three safety areas simultaneously

Three independent safety outputs allow you to monitor up to three distinct safety areas, simplifying wiring, setup, and installation. It's like having three scanners in one.

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
- 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
- For model information, see page 63



Related Product

ISD Connect

T-Connector

- Connects a non-ISD-enabled safety device with 2 normally closed sets of contacts, such as a panel-mount E-stop or safety switch, to an ISD chain
- IP67-rated and 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
- For model information, see page 63

SI-GL42 Series

Safety Locking Switches

- Lightweight, 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
- For model information, see page 62

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

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

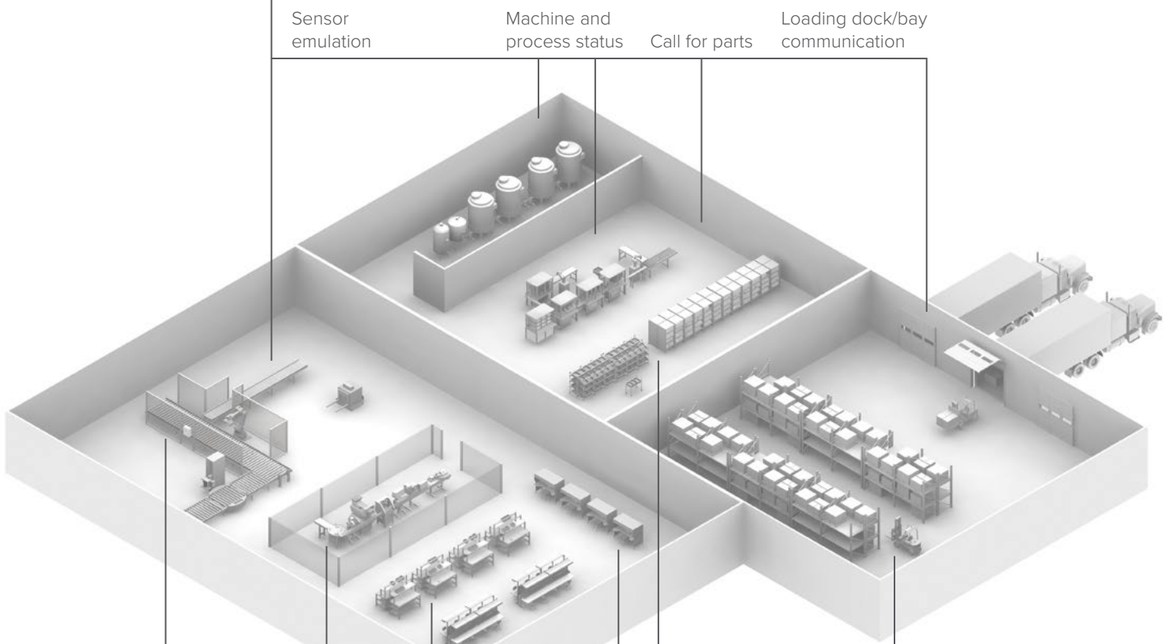
- Flexible actuator for small hinged guards 400 mm or larger

Lighting and Indication

Banner's expanding selection of lighting, tower lights, indicators, audible alarms, and actuators 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.

Communicate Status

- Empower operators
- Alert supervisors
- Accelerate resolution
- Plant-wide



Increase Efficiency with Light-Guided Part Picking

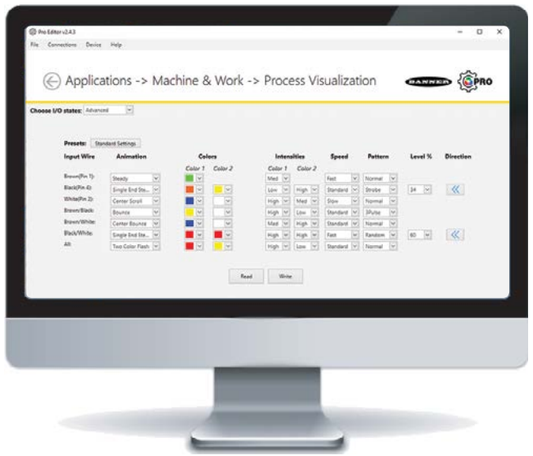
- Reduce cycle time
- Error-proof assembly
- Streamline training

Illuminate the Work Area with LED Lighting

- Boost worker productivity
- Improve product quality
- Reduce energy costs

Pro Series Configurable Lighting

The Pro Series configurable multicolor LED devices from Banner Engineering offer limitless possibilities for advanced indication of dynamic machine states, operator interaction, and process status. The Pro Series is ideal if you are looking for advanced capabilities or flexibility beyond a traditional factory indicator. Whether you have discrete or protocol controlled devices, the Pro Series use Discrete I/O, IO-Link, Ethernet, or Modbus for real-time communication across your factory.



Software for Configurable Devices

Banner's free Pro Editor Software allows users to configure device status, colors, animations, and much more for control via discrete inputs, bringing intuitive indication and interaction to the visual factory. Configurable RGB devices make supply chains more efficient by allowing you to standardize on one model that can be customized as needed. 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, or communicating multiple machine states.

	S15L Pro	S22 Pro Indicator and Touch Button	K30 Pro Indicator, Touch, and Optical	K50 Pro Indicator, Touch, Optical, and Audible	**GS60 Pro**	**LCA130T**	CL50 Pro	TL50 Pro
PRO	✓	✓	✓	✓	✓	✓	✓	✓
IO-Link®			✓	✓		✓	✓	✓
Modbus	✓		✓	✓			✓	✓
PICK-IQ®								
EtherNet/IP								
PROFINET								
Banner Wireless						✓		

Technologies

PRO allows control via discrete inputs with advanced software configuration of colors, logic, modes, and more.

IO-Link® is an open standard serial communication protocol that allows for the bi-directional exchange of data from IO-Link supported devices, lights, or indicators that are also connected through a master.

Modbus is a serial data communication protocol that is based on a request-response model.

PICK-IQ® is a purpose-built, Modbus-compatible serial bus protocol that uses a Common ID to reduce the typical latency that results from polling multiple devices.

EtherNet/IP is an industrial network protocol that adapts the Common Industrial Protocol to standard Ethernet.

PROFINET® is an industrial network protocol for data communication over Industrial Ethernet

Modes and Applications

Equipment Status	Translate machine outputs to actionable information
Assembly Instructions	Step through sequential operator guidance
Measurement	Convert and display dynamic sensor outputs like distance, level, and more
Timer	Start, stop, and reset the timer to display takt time and more
Counter	Increase or decrease the count value based on input pulses

	TL70 Pro	**K90 Pro**	K100 Pro	TLF100 Pro	WLF12 Pro	WLS15 Pro	WLS27 Pro	RLS27 Pro	WLS28 Pro	SD50	PTL110
PRO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IO-Link®	✓	✓		✓	✓	✓	✓		✓	✓	
Modbus	✓				✓	✓				✓	✓
PICK-IQ®											
EtherNet/IP	✓										
PROFINET	✓										
Banner Wireless	✓									✓	

PRO

Programmable LED indicators offer multiple color choices in a single housing

Pro Series Programmable Lighting

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 fourteen colors, five different sizes for machine or panel mount
- Pro Editor models offer simple wiring, enabling easy setup and reduced installation time
- 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, Modbus 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 3000 mm
- Visually communicate distance and other sensor measurements with Pulse Pro I/O™

Tower Lights

- Fourteen 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, IO-Link communication, Modbus, or Ethernet/Profinet

Displays

- Industrial LED message displays quickly and clearly communicate critical status, process, and other machine information
- Touch buttons and scrolling displays combine text, color, and indication to enhance productivity and efficiency for numerous applications, providing operator guidance that improves speed, quality, and reduces cost

WLF12 Series

Flexible LED Strip Lights

- Durable, cut-to-length, silicone-encapsulated housing enables placement in industrial environments
- Simple installation with M12 connector and self-adhesive backing for curved or flat surfaces
- Custom and creative indication with numerous colors and animations
- Available LC25C LED Controllers enable simple discrete I/O, IO-Link, or Modbus operation and no-code configuration
- For model information, see page 64

GS60 Series

Guide Spotlights

- Reduce errors, improve productivity, and enhance operator interaction with increased visibility provided by the bright, focused spot
- Enhance worker comfort and safety by easily setting lighting levels to match the environment and application needs
- Reliably use in harsh environments with the long-lasting, impact resistant, durable anodized aluminum housing and polycarbonate window
- Communicate operational information with seven-color Pro models
- For model information, see page 64

- Cut in 50 mm increments to fit exact application specifications
- Display the colors and animations needed to communicate various AGV states to people nearby

- Provides bright illumination in workspaces, cabinets, and machines with 285 lumens per foot/300 mm
- Peel-and-stick installation using high-strength adhesive backing ensures quick and secure mounting

Related Product

LC25C

LED Controller

- Enables the WLF12 to be controlled via discrete I/O, IO-Link, or Modbus, depending on model
- Direct M12 connection to WLF12 Pro LED Strip Light
- Dynamic control and advanced animations
- DC operation from 12 to 30 V
- IP65, IP67, and IP68 rated to simplify installation
- For model information, see page 64

Pallet Pick and Place Indication

Challenge

- Workers used forklifts to pick up pallets and place them in vacant spaces
- Remembering which pallets needed to be transported or where to drop them off proved challenging, prompting the search for a solution to indicate the correct pallets and placement

Solution

- Installing GS60 Guide Spotlights above the pallet spaces enabled workers to quickly identify which pallets to pick and where to place them
- The incorporation of indicators boosted efficiency and speed in staging loads within the warehouse

TL70 Pro with Ethernet

Modular Multicolor RGB Tower Lights

- Provides full access to color, flashing, and intensity settings
- Simplify installation with Power over Ethernet (PoE) models that use just one cable to connect directly to a PoE-equipped Ethernet switch, eliminating the need to have a separate power supply
- Configured to communicate via Modbus RTU without the need to connect the device to a computer for setup
- For model information, see page 66

K50 Pro Select Series

Indicators, Touch Buttons, and Optical Sensors

- Cost-efficient, lightweight design and bright, clear colors solve indication and feedback challenges across many industries and applications
- Delivers long-lasting performance in industrial environments with its rugged, sealed IP66-, IP67-, and IP69K-rated laser welded assembly
- Consolidate inventory and simplify ordering processes by purchasing and configuring one part that does the job of multiple devices
- Easily control and configure additional colors, animations, and other parameters with Banner's free, PC-based Pro Editor software
- For model information, see page 65

Modes and Animations

Audible and Alerts

	Frequency*	Maximum Intensity
Tone 0	1.7 kHz	81 dB at 1 m (3.3ft)
Tone 1	2.2 kHz	100 dB at 1 m (3.3ft)
Tone 2	2.7 kHz	104 dB at 1 m (3.3ft)

Workstation Status Indication with PoE

Challenge

A manufacturing facility lacked a clear system for displaying workstation efficiencies and operational status at several assembly stations, making it difficult to quickly identify and address issues. The team decided that tower lights would be effective for visual status indication but had no way to control them.

Solution

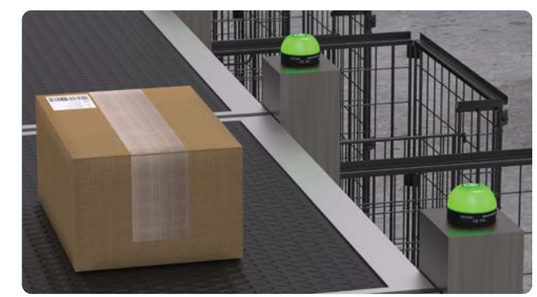
They connected TL70 Pro tower lights with Power over Ethernet (PoE) to each workstation via an ethernet switch, reducing wiring complexity and installation costs, no power supply needed.

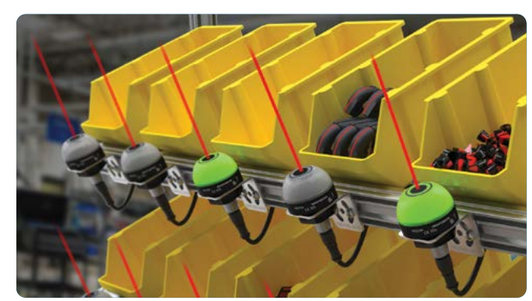
Simplify Machine Panel Design and Specifications

- K50 Pro Select Indicators can be quickly programmed to meet the needs of any application, requiring stocking and use of only one part
- Banner's Pro Editor software facilitates easy configuration of each device, enabling clear status indication through colors and animation
- Easily apply the same configuration to multiple indicators using the Pro ID feature in Pro Editor. Simply enter the unique ID, connect the device, and use the Write function to apply the configuration

Optimizing Operator Visibility and Control on Conveyor Lines

- K50 Pro Select Touch Buttons provide both highly visible 360° indication and configurable touch detection in one convenient device for clear operator guidance from any angle
- Advanced touch technology is reliable with no moving parts to wear out, minimizing downtime
- Programmable colors and animations give machines a voice, helping operators quickly identify problem types and locations





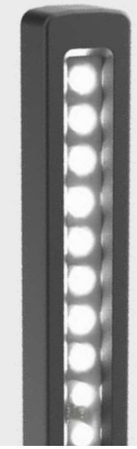
Improve Assembly Time and Accuracy with Indication and Optical Sensing

- The K50 Pro Select Optical Touch Button combines a bright, multicolor indicator with an optical sensor that requires no physical touching of a button
- Optical sensing technology is ideal for pick-to-light applications, reliably detecting both bare and gloved hands in many different environments
- Bright, clear LEDs turn green to indicate pick location, turn yellow to confirm a correct pick, and turn red to show a mispick

SD50 Series

Status Display

- Easily configurable, versatile display can be installed nearly anywhere, making it a simple yet powerful alternative to complex HMIs and other displays
- Great for displaying takt time, equipment status, assembly sequences, counts, and measurements where they are most useful
- Discrete and IO-Link models integrate into many different systems and applications, especially Banner sensing, safety, and monitoring solutions
- Quick and easy configuration—define the desired text and call it via discrete control or process data
- Bright white LED display and multicolored status LEDs legible from 10 meters away inform operators about exactly what is going on so they can respond quickly and accurately
- For model information, see page 65



BL60 Series

Sealed LED Bar Lights

- Helps vision systems identify defects and scan targets by completely illuminating objects in front of the camera with bright, lensed LEDs
- Provides long-lasting performance and minimal replacement costs with sealed, IP67/IP69K-rated aluminum housing; -40° to +50° temperature range; and three window options: clear or diffused polycarbonate and borosilicate glass
- Delivers ideal application intensity with adjustable PWM/strobing and 1 to 10 V dimming control
- Enables comprehensive inspection capabilities with multiple color options: red, green, blue, white, UV, and IR
- For model information, see page 65

Communicate Critical Information

Equipment Status

Translate machine outputs to actionable information

Assembly Instructions

Step through sequential operator guidance

Measurement

Convert and display dynamic sensor outputs like distance, level, and more

Timer

Start, stop, and reset the timer to display takt time and more

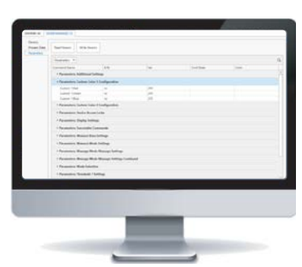
Counter

Increase or decrease the count value based on input pulses

How It Works

Discrete Model

Configure text and indication via Pro Editor and control what is displayed via the discrete inputs (Pro converter cable sold separately)



IO-Link Model

Choose a mode and advanced functionality in parameter data, then use process data to send strings and values for dynamic indication and display updates

Bottle Cap Inspection

Challenge

- On a bottling line, a bar light was used to create contrast so a vision camera could inspect bottle caps
- A sealed, waterproof light was needed to withstand washdown environments

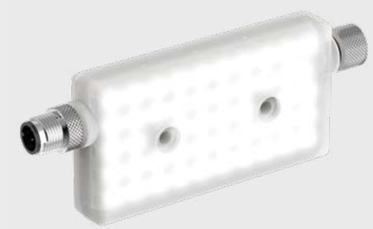
Solution

- A BL60 Sealed LED Bar Light was installed above the bottling line with high output red light
- The red light provided enough contrast for the camera to identify defects on the blue caps
- Its rugged, sealed design rated IP67/IP68/IP69K ensured long-term performance in washdown environments

LCA130 Series

Andon Light Control Boxes

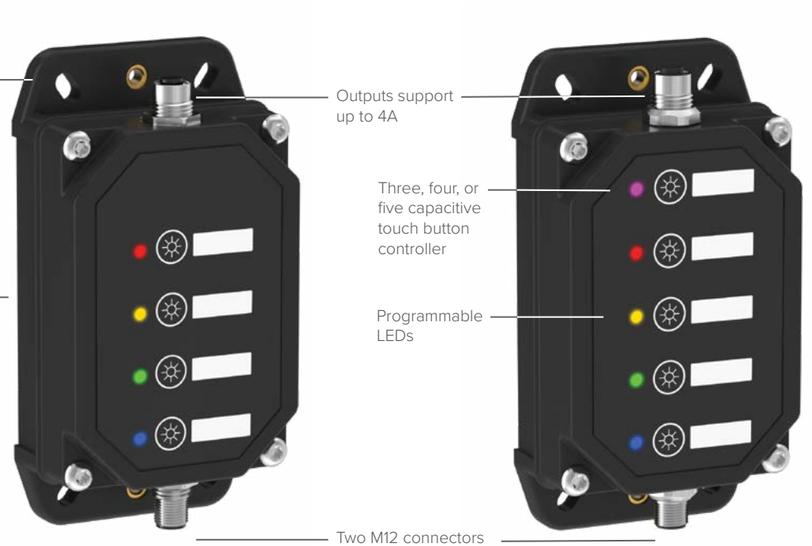
- Make informed decisions that boost productivity by using data collected from IO-Link and wireless models to pinpoint delays and performance issues
- Customize status LED colors, flashing, and intensity settings to enhance operator interaction in assembly, workstation, and other manufacturing applications
- Mimic the connected light's status for added indication with programmed status LEDs
- Reduce installation time with plug-and-play M12 connections that do not require hard-wiring
- Depend on long-lasting durability provided by the IP65-rated design and capacitive touch buttons that eliminate moving parts
- Support a variety of lights with the LCA130T's 4-Amp rated outputs, allowing users to select the ideal light for their application
- For model information, see page 66

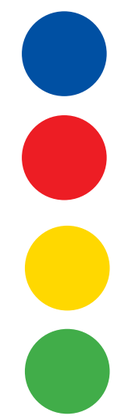


WLR95 Series

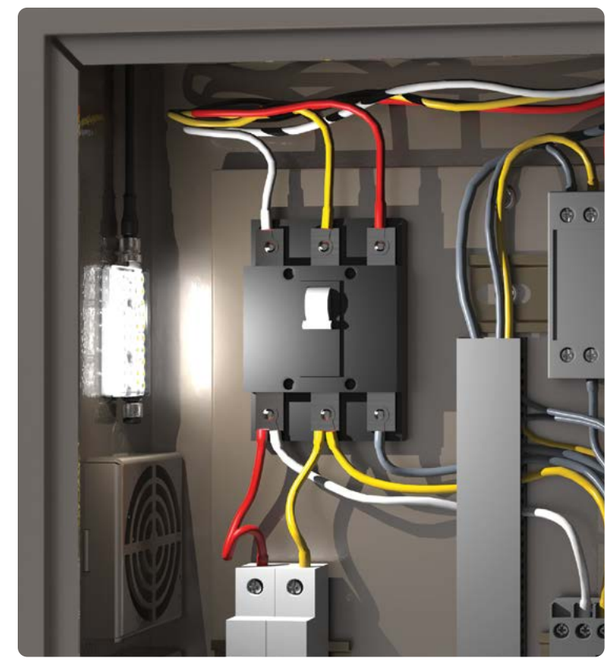
Compact Area Lights

- Compact footprint delivers exceptional illumination for enclosures, conveyors, machines, and vision applications
- Daisy chain multiple units effortlessly with the unique double-ended cascade feature
- When it comes to lumens per dollar spent, it outshines the competition, making it the perfect fixer for any lighting oversight
- Featuring an impressive output relative to its size, this small, affordable light fits effortlessly into any space
- Engineered with a rugged, overmolded exterior and built to withstand harsh conditions
- For model information, see page 65





Now available in blue, red, yellow, and green.



Problem-Solving Illuminator for Tough Environments

From cabinets to conveyors, machines, and workstations, get the light you need where you need it!

IO-Link®

IO-Link models enable users to configure the LEDs and button functionality remotely, as well as monitor andon light status.

Configure the LEDs and button functionality with Banner's Pro Editor PC software. Simply connect the LCA130T to your computer via the PRO-KIT cable (see accessories section), build your configuration, and send it to the LCA130T.

Easily control andon lights and remotely monitor their status with a built-in wireless radio for connecting to Banner wireless gateways. Access andon light data to create dashboards or send notifications to inform workers and management remotely.

WLB32 PoE

LED Workstation Lights

- Connect directly to a Power over Ethernet (PoE)-enabled port on a managed or unmanaged Ethernet switch for easy installation without an electrician
- Eliminate IT security and setup concerns because no data is transmitted
- Reduce errors and scrap by providing proper lighting for assembly and inspection tasks
- Dial in the perfect amount of light for operators, machine vision, or both with the 11-position rotary knob
- For added worker comfort and performance, models are available with eye shield windows
- Seamlessly integrate into workspaces with a full line of brackets and accessories
- For model information, see page 67

Illuminate Areas Where Traditional Power Sources Are Not Available

- Simply connect the WLB32 directly to a PoE-enabled port on an Ethernet switch
- Ethernet switches are commonplace in many factories, and no qualified electrician is needed
- Improve worker performance and ergonomics in assembly, inspection, and other manufacturing tasks
- Reduce errors and scrap by providing proper lighting for assembly and inspection tasks
- Or pick other favorites from existing WLB32 sell sheets

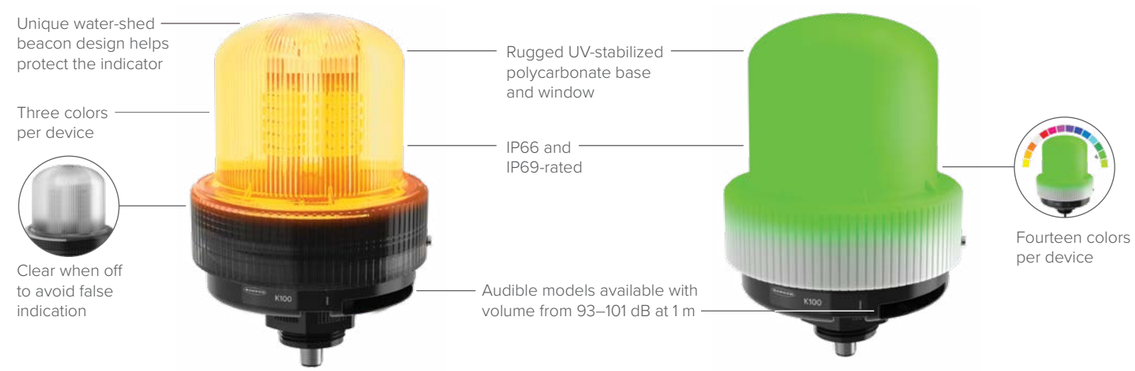
K100 Pro

Programmable Multicolor Beacons

- Industrial beacon delivers bright, configurable indication for OEMs and users who need visible status information
- Daylight Visible models provide bright light, even in direct sunlight
- Rugged construction provides years of uninterrupted operation
- Multiple colors in one device
- Programmable using Banner's Pro Editor software and Pro Converter Cable (DC models)
- Rugged UV-stabilized polycarbonate base and window
- Hazardous Location certified models for added protection in demanding environments
- For model information, see page 67

Daylight Visible Beacon for indoor or outdoor applications

Programmable Indicator Beacon for traditional applications

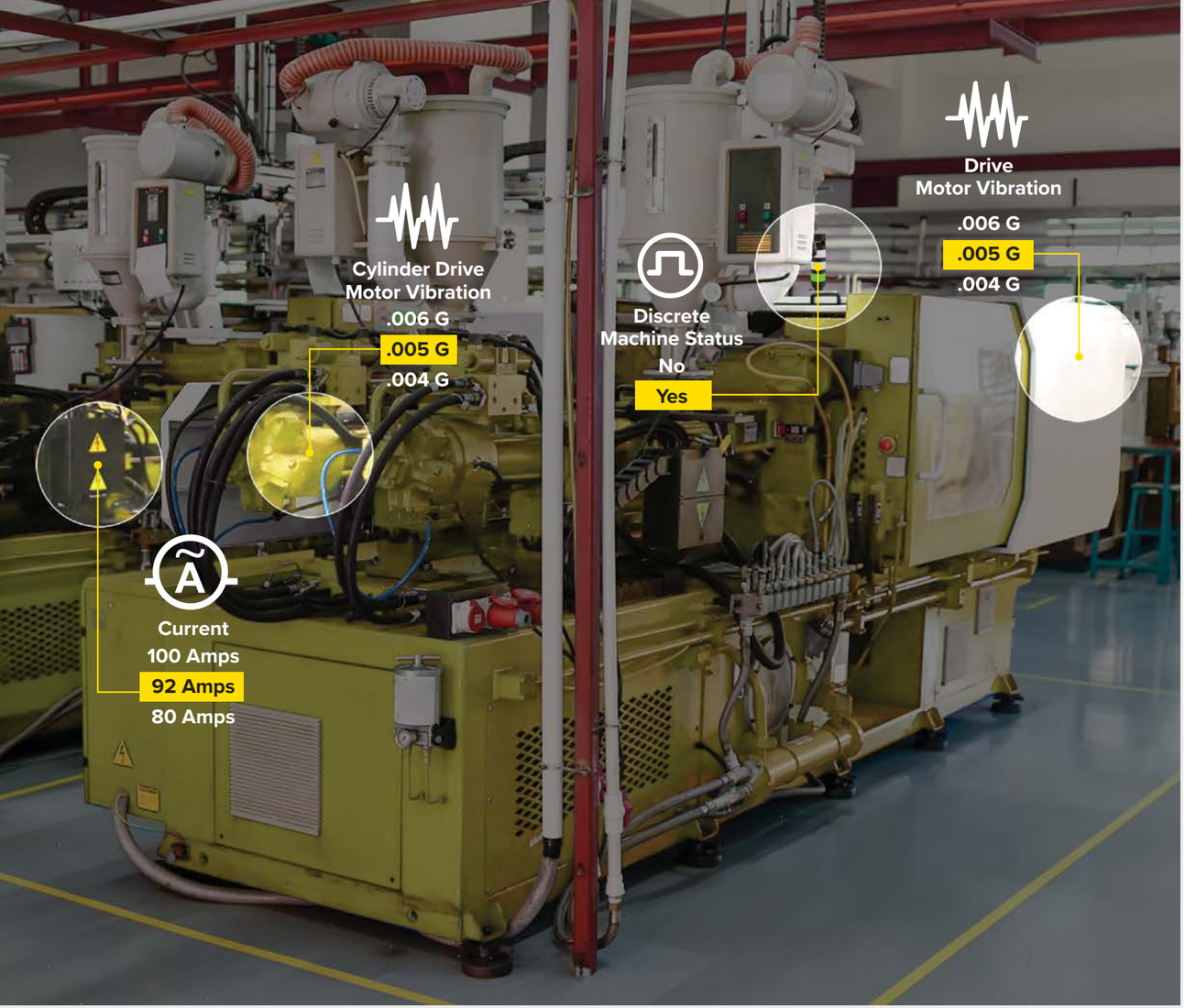


Related Product

K100

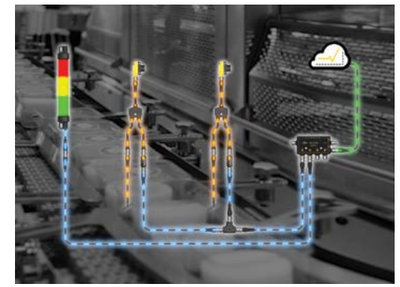
100 mm Basic Beacons

- Daylight Visible beacon provides critical signaling in indoor and outdoor environments
- Single-color device with five colors to choose from
- Clear lens avoids false indications
- Easy installation with brackets or on conduit and M12 quick disconnect
- Four unique animations enable intuitive indication
- Sealed audible model with continuous audible tone at 101 dB



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.

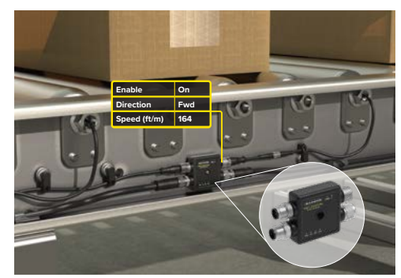
IO-Link Hardware

IO-Link is an open standard serial communication protocol that allows for the bi-directional exchange of data from IO-Link-supported sensors that are also connected through a master.

There are many advantages to using an IO-Link system, including standardized wiring, remote configuration, simple device replacement, advanced diagnostics, and increased data availability.

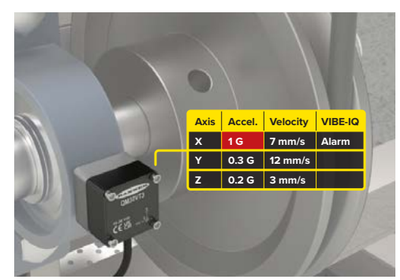
Monitoring Solutions

Are you doing enough to optimize and protect your plant's critical assets? Monitoring Solutions from Banner Engineering provide data you can use to ensure your equipment continues to deliver consistent, high-quality output with maximum uptime and optimal performance. Prevent unexpected maintenance issues from interrupting production.



R50C Motor Driven Roller Controller

The R50C MDR Controller helps keep control of conveyors and other equipment in one system and gives system designers more efficient control of motor driven rollers using a PLC.



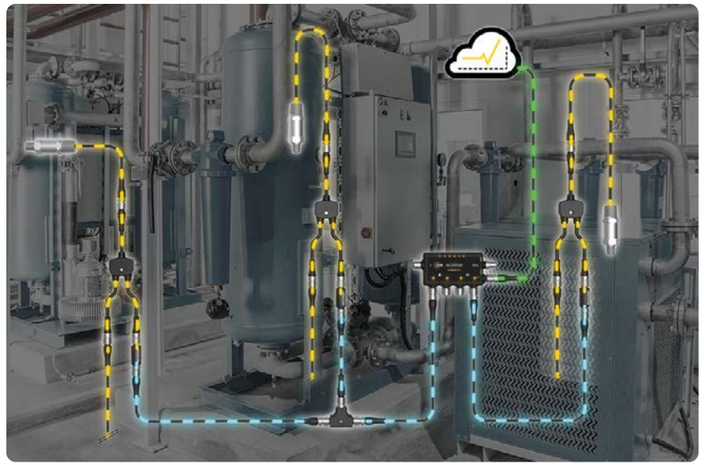
QM30VT3 Vibration Sensors

The QM30VT3 High-Performance 3-Axis Vibration Sensor delivers the real-time data and alerts that keep maintenance teams one step ahead of downtime.

SNAP **SIGNAL**

Customers use Banner's Snap Signal hardware and software to instantly unlock valuable data from their equipment and increase productivity. This smart-factory portfolio forms an overlay network by capturing signals from existing and new devices, converting them to a unified protocol, and then distributing them to monitoring platforms, such as SCADA systems, the cloud, or a local PLC/HMI for consumption. The solution deploys easily by leveraging available information without disrupting your existing controls. This helps save you money, reduces downtime, and optimizes your operations.

Snap Signal Application Examples



Tap into pressure sensor data for immediate insights

Maximize throughput and reduce downtime by harnessing sensor data from your equipment

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. They can simply tee into existing discrete sensors using a splitter to gather enriched machine-level data without disrupting the existing control systems. New sensors and devices can also be added to this overlay network. 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.

IIoT Made Easy

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. Whether you are retrofitting existing machines or building new infrastructure, designing and implementing with Snap Signal is easy and cost-effective.

The DXM1200 IIoT Gateway Series can collect condition monitoring data from nearly anywhere in your facility using wired and wireless devices, process it at the edge, and send it to Banner's cloud platform or any enterprise SCADA or PLC system. All models have a wired Ethernet connection and can operate with 900 MHz or 2.4 GHz ISM radio bands for robust, long-range communication. The DXM1200-X2 models have four Modbus RTU ports for connecting wired devices.

DXMR90-X1E Industrial Controller

DXMR90 controllers are a central component of Banner's Snap Signal system for device monitoring. The industrial controllers house a processor that receives signals from sensors and other connected devices, through four dedicated Modbus ports. As a centralized hub, the DXMR90 combines all of these signals into one unified stream of insightful data, which can be exported out through industrial Ethernet protocols. For model information, see page 68

DXM1200-X2 IIoT Gateway

- Harness the installation benefits and remote monitoring capability of wireless devices along with the fast sample rates and conversion ability of SNAP SIGNAL wired devices
- Monitor more assets by connecting up to 200 devices to one gateway
- Quickly install the IP67-rated gateway anywhere with its rugged and sealed design
- Transform data at the edge with our DXM configuration tool or customize further with ScriptBasic or MicroPython
- Get your data where you need it by connecting to networks via Ethernet or Cellular
- For model information, see page 69

Rogowski Coil Current Sensor

- Monitors AC current of motors, panels, and facilities
- Pre-scaled and pre-configured sensor with a Modbus output
- Sensing loop can be opened, allowing for simple installation
- For model information, see page 70

R95C Discrete and Analog Input-Output Modbus Hub

- Compact Modbus converter with the ability to send 4 ports of discrete input and 4 ports of analog input data (voltage or current) to a Modbus client
- The modbus converter can also output discrete values and analog outputs (voltage or current) through any of the respective sets of 4 ports
- Rugged overmolded design meets IP65, IP67, and IP68
- For model information, see page 69

R95C Analog In to Modbus Hub

- Compact analog to Modbus device converter that connects up to eight analog sources (either current or voltage) and converts to Modbus
- R95C Modbus hubs are a quick and economical way to integrate device signals into a Modbus system
- Rugged overmolded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use
- For model information, see page 69

R95C Discrete Bimodal to Modbus Hub

This device connects two discrete channels to each of the eight unique ports, providing access to monitoring and configuring those ports via Modbus registers. Host mirroring is available where a selected port input/output discrete signal can be routed to Pin 5 (male) on the PLC/Host connection. For model information, see page 69.

AC Voltage Sensor

- Pre-configured and pre-scaled to help users accelerate the commissioning process and eliminate scaling errors
- Sensor data is easily accessed via the Modbus RTU interface
- Includes plug-and-play functionality within the Snap Signal ecosystem
- Provides a comprehensive view of equipment and overall machine health and improves the accuracy of power consumption calculations when used with the SNAP ID-enabled Asset Monitoring Gateway
- For model information, see page 68

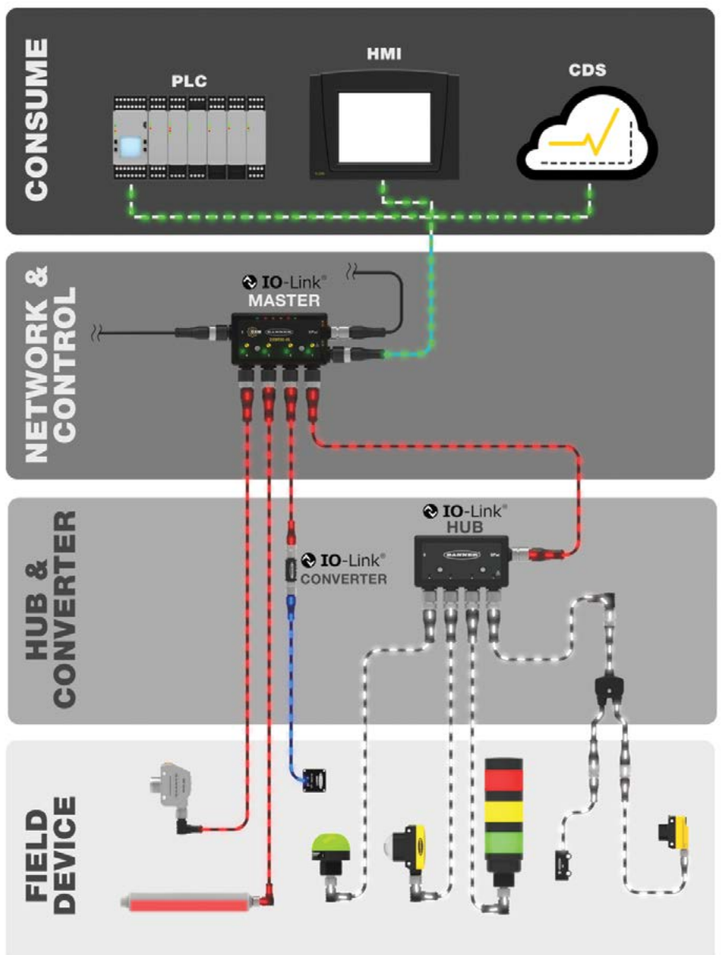
IO-Link Hardware

In recent years, IO-Link systems have become widespread within industrial automation. IO-Link is an open-standard serial communication protocol that allows for the bi-directional exchange of data from sensors and devices that are connected to a master. The IO-Link master can transmit this data over various networks, fieldbuses, or backplane buses, making the data accessible for immediate action or long-term analysis via an industrial information system (PLC, HMI, etc.). Banner IO-Link products reduce wiring, increase data availability, enable remote configuration and monitoring, simplify device replacement, and provide extended diagnostics. Banner Engineering offers a variety of IO-Link products for industrial applications including sensors, lighting products, converters, hubs, and IO-Link masters.

DXMR110-8K

IO-Link Master

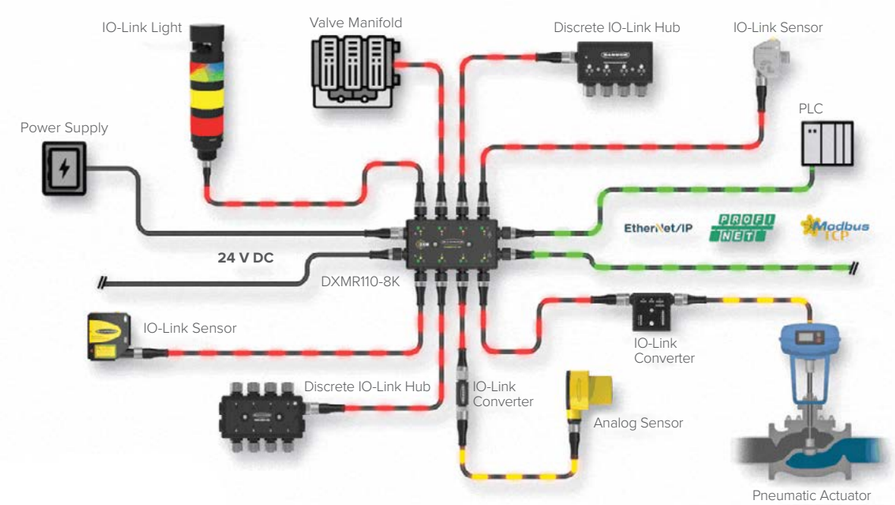
- Local control or connectivity with automation protocols, including EtherNet/IP, Modbus/TCP, and PROFINET
- Logic processing and problem-solving capable of deploying solutions to process and control data from multiple devices
- IP67 housing simplifies installation in any location by eliminating the need for a control cabinet
- Consolidate cable runs to minimize cabling and associated weight, especially in weight-critical applications such as robotics
- Flexible and customizable—expanded internal logic controller with action rules and ScriptBasic programming
- For model information, see page 68



Streamline Your IO-Link Network

The compact DXMR110-8K allows for the connection and control of up to eight IO-Link devices such as sensors, indicator lights, IO-Link hubs, and more. The DXMR110-8K can communicate with higher-level control systems via EtherNet/IP, Modbus/TCP, and PROFINET. The DXMR110-8K also has the ability to push IO-Link data to cloud platforms.

DXMR110-8K System Diagram



DXMR90-4K

Four-Port IO-Link Master with Ethernet

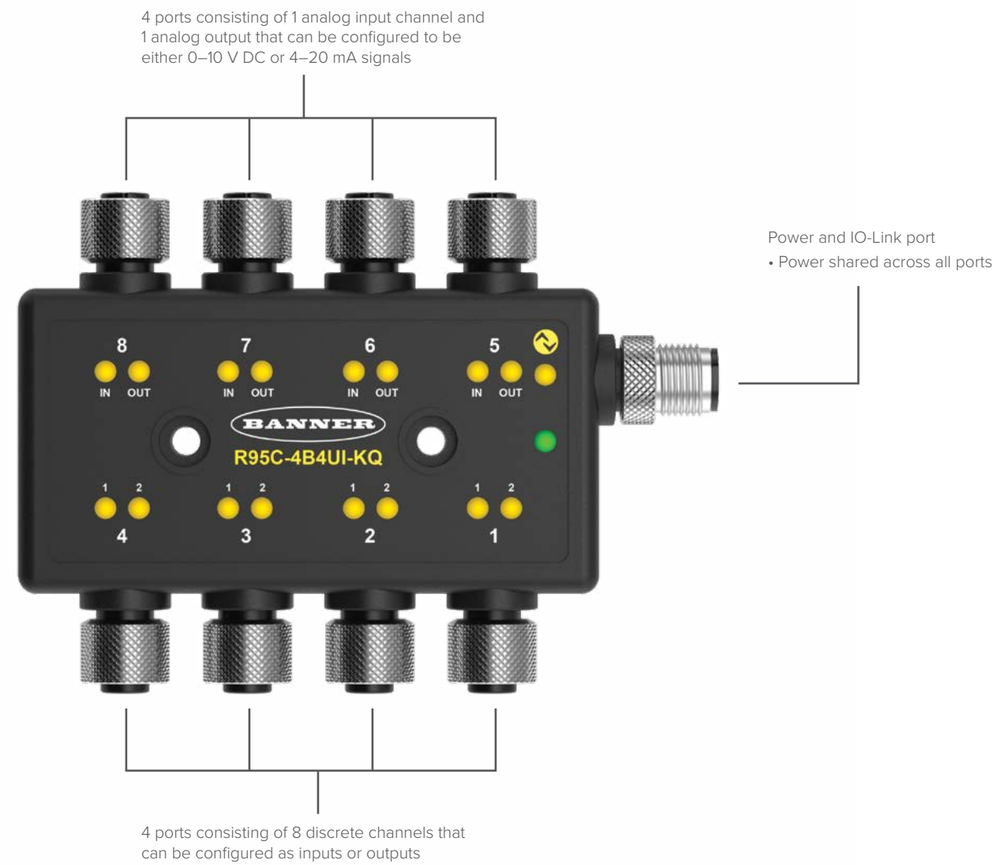
- Connects IO-Link devices to traditional PLC systems or sends data directly to the cloud
- Saves space and weight compared to traditional block-style form factors
- Rugged IP67/IP68 housing simplifies installation by eliminating the need for a control cabinet
- Communicates over EtherNet/IP, PROFINET, Modbus TCP, and Modbus RTU
- For model information, see page 68

R95C and R90C

IO-Link Hubs

IO-Link hubs are a quick, easy, and economical way to integrate non-IO-Link devices into an IO-Link system.

- Eight- or four-port discrete PNP or NPN to IO-Link Hub
- Innovative form factor allows for use in areas with limited space
- Rugged design; easy installation requiring only minimal assembly or individual wiring
- Two configurable I/O pins per port support PNP or NPN inputs and outputs
- Uses industry-standard M12 connectors
- Compatible with any IO-Link Master
- For model information, see page 68



R130C Discrete IO-Link Hub

- Cost-efficiently integrate up to 16 devices into an IO-Link system
- Simplify wiring and installation with M12 QD cables
- Minimize the size of the control panel by locating I/O remotely on the machine, closer to sensors and other devices
- Provide power to lighting products and other devices that draw higher current with 4 amps shared across ports
- Streamline troubleshooting with I/O status LEDs viewable from top or side of device
- For model information, see page 68

S15S Temperature and Humidity Sensor

- Monitors temperature, humidity, and dew point in one device
- Ships with aluminum grill filter cap
- Optional stainless steel 10 µm sintered filter available separately
- Connects to any IO-Link network for easy setup and communication
- Discrete output for high or low temperature, humidity and dew point thresholds and communication
- For model information, see page 70

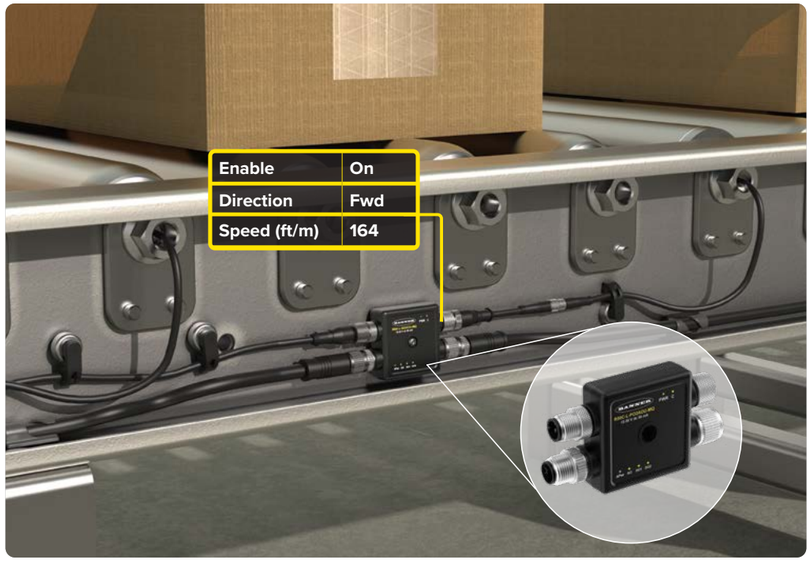
Bring in IO-Link Sensor Data for Tank Level Applications Wirelessly

Combining Banner's serial IO-Link Masters and R70 serial data radios, IO-Link sensor data can be sent wirelessly. Using T30R IO-Link radar sensors, Banner's R90-4K-MQ IO-Link Master, R70 serial data radios, and the DXMR90 industrial controller, we can develop a wireless monitoring system for multiple tank level measurements that is easy to set up, interpret, and monitor locally and through a cloud-based system. This setup makes it easy to transmit IO-Link sensor data from remote clusters of IO-Link sensors. Information can be sent to the cloud where tank levels can be monitored over time and text and email alerts can be configured if tank levels fall below established thresholds. Data can also be sent directly to a PLC or SCADA via Modbus TCP, EtherNet/IP, and PROFINET.

R50C

Motor Driven Roller Controller

- Easily control motor driven rollers from a PLC using Modbus® communication
- Simplify installation of multiple R50Cs on a conveyor using standard A-coded M12 connectors for signals and L-coded M12 connectors for daisy chaining up to 16 amps of motor power
- Can be used in refrigerated, wet, and other challenging environments with IP67-rated fully sealed housing and -40° to 70° C operating range without an additional protective enclosure
- Effortlessly monitor status and troubleshoot via LED indicators
- For model information, see page 70



Compact Plug-and-Play Motor Driven Roller Control

Many modern conveyor systems use motor driven rollers (MDR) instead of separate motors and gearboxes. Traditional MDR controllers are often bulky with limited control options. The new R50C MDR Controller offers a compact, plug-and-play design that uses the widely available Modbus RTU protocol, simplifying control from a PLC. Its sealed construction and wide temperature operating range make it suitable for various environments, including refrigerated spaces. Additionally, integrating the R50C with Banner's DXMR90-X1 allows PLCs to use common industrial Ethernet protocols for even easier control.

Asset Monitoring Gateway with SNAP ID™

Asset Monitoring Gateway with CLOUD ID™

Monitoring Solutions

Monitoring Solutions from Banner Engineering provide data you can use to ensure your equipment continues to deliver consistent, high-quality output with maximum uptime and optimal performance. Prevent unexpected maintenance issues from interrupting production.

- Automatically recognizes an array of compatible sensors—deploys in mere minutes
- No programming or coding required
- Performance monitoring of almost any equipment in your facility via customizable dashboards
- Manage locally with the onboard touchscreen display or remotely via Banner Cloud Data Services

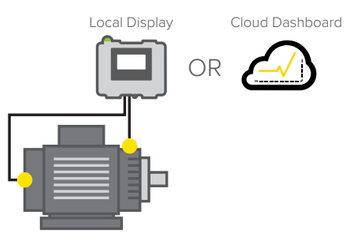
QM30VT3

3-Axis Vibration Sensors

- VIBE-IQ®: Built-in machine learning detects vibration baselines and generates warning and alarm thresholds so anyone can monitor assets—no gateway or expertise required
- High-Frequency Enveloping (HFE): Also known as demodulation mode, HFE detects early-stage low-amplitude, high-frequency faults like bearing and race wear, which are often masked by dominant low-frequency vibrations
- Wide Frequency Range: Detect more faults, from shaft misalignment in conveyor motors to gear mesh impacts in high-speed gearboxes
- High-Speed Sampling: Higher sample rates capture finer vibration details, improving early fault detection across a wide range of assets
- Frequency Max (Fmax): Balance frequency range and resolution to zoom in on low-frequency faults like pulley drive misalignment or monitor the full range at default resolution
- For model information, see page 70

Monitoring gateways gather data from our compatible sensors to give you a comprehensive understanding of how well equipment is performing. Banner offers monitoring gateways that connect to either wired sensors via our SNAP ID technology, or our wireless sensors via our CLOUD ID technology.

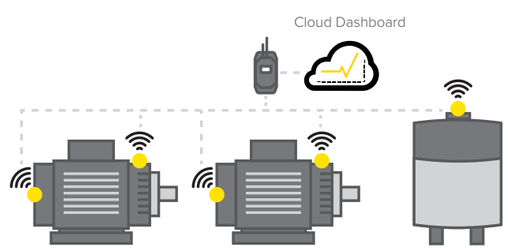
Asset Monitoring Gateway with SNAP ID™



For wired monitoring of one or more local assets in your facility.

- Serves as a hub for up to 20 wired condition monitoring sensors to track a variety of components
- Touchscreen display provides easy access to data, sensor alerts, and alarms
- Local operators can view critical system information or send data to the cloud for remote monitoring
- Banner Cloud Data Services offers preconfigured online dashboards that users can easily customize

Asset Monitoring Gateway with CLOUD ID™

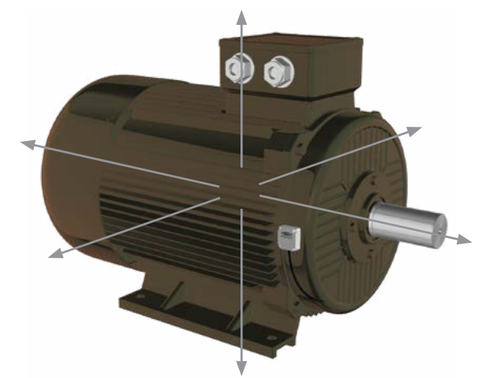


For wireless monitoring of multiple remote assets in your facility.

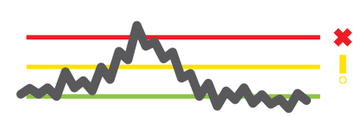
- Serves as a hub for up to 40 wireless condition monitoring sensors to track machine performance
- Banner CDS enables access to data, sensor alerts and alarms, and setup via preconfigured (yet customizable) online dashboards
- Set condition-based alerts in the cloud to notify users via email or SMS

3-Axis for Complete Coverage, Deeper Diagnostics, and Flexible Mounting

Ultra-low noise vibration monitoring on all three axes—X, Y, and Z—ensures a more complete view of machine health and greater installation flexibility compared to 2-axis sensors and most 3-axis MEMS sensors, which have up to three times more noise on their third axis. The QM30VT3 delivers ultra-low noise performance across all three axes, capturing vibration patterns that indicate critical early-stage faults that others miss, including shaft misalignment and rotational imbalance. Understanding how the sensor's axes correspond to the machine's axes allows you to mount it in the orientation that fits the application, detecting everything from subtle imbalance to early-stage bearing wear—regardless of orientation or mounting position.



VIBE-IQ® Takes the Complexity out of Vibration Monitoring



Built-in VIBE-IQ vibration monitoring software runs directly on the QM30VT3 sensor, using machine learning to establish baselines, set warning and alarm thresholds, and detect changes in vibration across all three axes. By continuously monitoring assets like motors and gearboxes, it provides early fault detection without requiring specialized manual setup or external processing, simplifying predictive maintenance and making it accessible to teams at every level of experience.

Connectivity

Whether you are making standard connections or updating your industrial system, Banner's connectivity technologies will ensure you get the signal you need, where you need it, quickly and reliably.

R95 I/O Junction Block

Easily distribute I/O from a homerun cable with Banner's new R95 I/O Junction Block. Streamline device access for functional checks, maintenance, service, and replacement. Molded Junction Blocks easily consolidate wires from different sources into one convenient, customized central hub.

M23 Cordsets

Banner now offers 19-pin and 12-pin male, female, and double-ended M23 cordsets in various lengths for high-density I/O cables. They deliver up to 8 amps of power with 19-pin cordsets and 4 amps with 12-pin cordsets.

CSB Splitters

Used to power multiple devices with one cable.

Top Mount I/O Junction Blocks

JB Series Top Mount I/O Junction Blocks simplify I/O distribution and wiring. Multiple port, pinout, and output configurations provide application scalability and flexibility, allowing many different types of field devices to be connected including sensors, lights, and valves. This collected I/O is distributed via single homerun connection.

R95

I/O Junction Blocks

Streamline device access for functional checks, maintenance, service, and replacement. Molded Junction Blocks easily consolidate wires from different sources into one convenient, customized central hub. They can be installed in extremely wet, dusty, hot, or cold environments by virtue of their compact, overmolded design.

- Conjoin multiple devices together into one connector
- Easy installation with no assembly or individual wiring required
- 5-pin M12 male quick disconnect homerun connector
- Multiple 5-pin M12 female quick disconnect connectors
- Save time installing models with flying leads; all wires come ready to install, pre-stripped and tinned
- For model information, see page 71

Rugged overmolded design meets IP65, IP67, and IP68

M23 Cordsets

- Choose from single-ended or double-ended models in different lengths and conductor counts to match your specific requirements
- For model information, see page 71

CSB Splitters

- Splits into two connectors
- Male M12 trunk, female M12 branches
- For model information, see page 71

Top Mount I/O Junction Blocks

- 4- and 8-port configurations provide efficiency and scalability, fulfilling application needs without wasting space and cost on unused ports
- NPN, PNP, and discrete models are available to meet system requirements
- Power and signal LEDs on NPN and PNP models indicate status at a glance and simplify troubleshooting
- Rugged housing is IP67 rated for use in many challenging environments
- For model information, see page 71

Sensors

Q2X Miniature Sensors

Polarized Retro and Opposed Models

Series	Output State	Output	Mode		Connector
Q2X	A	P	LPF	–	2M
	A = Light Operate **R** = Dark Operate **Blank** = No Output	**P** = PNP **N** = NPN **B** = Bipolar **NA** = No Output	**E** = Emitter **R** = Receiver **LPF** = Fixed gain polarized retroreflective		**2M** = 2 m Cable **Q** = 6 in. 4-pin M8 Pigtail **Q3** = 6 in. 3-pin M8 Pigtail **Q5** = 6 in. 4-pin M12 Pigtail

Adjustable-Field Models

Series	Output State	Output	Mode	Range		Connector
Q2X	A	P	LAF	100	–	2M
	A = Light Operate **R** = Dark Operate	**P** = PNP **N** = NPN **B** = Bipolar	**LAF** = Laser Adjustable-Field **AF** = LED Adjustable-Field	**100** = 18–100 mm **150** = 18–150 mm		**2M** = 2 m Cable **Q** = 6 in. 4-pin M8 Pigtail **Q3** = 6 in. 3-pin M8 Pigtail **Q5** = 6 in. 4-pin M12 Pigtail

Laser Measurement Models

Series	Housing Style	Mode	Range	Beam Color		Connection
Q2X	K	LAF	3	IR	–	Q5
	K = IO-Link with discrete	**LAF** = Laser adjustable-field	**3** = 3 m **2** = 2 m	**IR** = Infrared		**Q** = 150 mm (6 in) M8 pigtail QD **Q5** = 150 mm (6 in) M12 pigtail QD QD models require mating cordset

EG24 Precision Edge Sensors

Series	Beam Width		Output	Sensing Mode		Connection	Analog Wire
EG	24	–	I	LVA	–	Q7	B
	24 = 24 mm		**I** = 4-20 mA	**LVA** = Attached retroreflective **LVX** = Detached retroreflective		**Q7** = Integral 4-pin M8	**Blank** = White wire (pin 2) **B** = Black wire (pin 4)

K50Z Multipoint Sensors

Series		Housing Style	Field of View	Sensing Range	Communications	Output		Connector
K50Z	–	F	A	2000	K	D	–	Q8
		F = Flush mount	**A** = 45 x 45 degree	**2000** = 2000 mm	**K** = IO-Link	**D** = Dual discrete		**Q8** = 5-pin integral M12

B25 Wide Beam Sensors

Series	Output State	Output	Mode	Connection
B25	K	6	LP	Q5
	K = Push/pull with IO-Link, PNP	**6** = 10 to 30 V DC	**LP** = Polarized retroreflective	**Q5** = 4-pin M12 integral QD QD models require mating cordset

K50R Radar Sensors

Series	Type	Housing		Beam Angle		Range	Output	Connector
K50R	P	F	–	8060	–	L	D	Q
	Blank = Standard **P** = Pro	**F** = Flush mount		**8060** = 80° x 60° beam		**L** = Long range	**D** = Dual discrete	**Q** = Integral M12 QD QD models require mating cordset

Series	Type	Mounting		Beam Angle		Range	Output	Connector
K50R	P	F	–	4030	–	L	D	Q
	Blank = Standard **P** = Pro	**F** = Flush mount **B** = Base mount		**4030** = 40° x 30° beam		**L** = Long range	**D** = Dual discrete **I** = 4–20 mA analog **U** = 0–10 V analog	**Q** = 5-pin integral M12 QD QD models require mating cordset

ZMX 3D Time of Flight Sensors

Series		Sensing Mode	Output	Sensing Range	Field of View	Function		Connector
ZMX	–	3D	E	2500	H	F	–	Q7
		3D = 3D time of flight	**E** = Industrial Ethernet/PNP/NPN/PFM	**2500** = 2500 mm	**H** = 60 x 45 degrees	**F** = Fill level		**Q7** = 4-pin integral M8

Q90R Radar Sensors

Series		Beam Pattern		Operating Frequency	Communication	Output Configuration	Connection
Q90R	–	4040	–	6	K	D	Q
		4040 = 40° x 40°		**6** = 60 GHz	**K** = IO-Link	**D** = Dual discrete **I** = 4-20 mA analog **U** = 0-10 V analog	**Q** = 5-pin M12 integral QD QD models require mating cordset

Series		Beam Pattern		Operating Frequency	Communication	Output Configuration	Connection
Q90R2	–	12040	–	6	K	D	Q
		12040 = 120° x 40°		**6** = 60 GHz **7** = 77 GHz	**K** = IO-Link	**D** = Dual discrete	**Q** = 5-pin M12 integral QD QD models require mating cordset

Machine Safety

SC10 Safety Controllers

Housing H x W x D	Inputs/Convertible	Independently Controlled Safe Outputs	Maximum Safety Output Rating	Features	Models
115 x 45 x 100 mm	10/4	2 Dual Channel Relays	2x 3 NO: 6A 250 V AC/24 V DC	ISD, Ethernet	**SC10-2roe**

XS26-ISDd Expandable Safety Controllers

Housing H x W x D	Inputs/Convertible	Independently Controlled Safe Outputs	Maximum Safety Output Rating	Features	Models
110 x 45 x 128 mm	26/8	2 Dual Channel PNP	0.5A at 24 V DC	ISD	**XS26-ISDd**

SI-RF Safety Switches

Series: **SI-RF**
- **RFID Safety Door Switch**

System Type: **D**
- **D** = Cascade with (ISD)

Reset: **T** – Coding: **U**
- **T** = Automatic (Trip)
- **L** = Manual (Latch)
- **L** = Low
- **H** = High
- **U** = Unique

Connection: **P8**
- **P8** = 250 mm 8-pin M12 pigtail QD

S4B Safety Light Curtains

Series: **S4B** – Device Type: **E** – Resolution: **30** – Defined Area: **900** – Termination: **S**

- **E** = Emitter only
- **R** = Receiver only
- **14** = 14 mm
- **30** = 30 mm
- **300** = 300 mm
- **450** = 450 mm
- **600** = 600 mm
- **750** = 750 mm
- **900** = 900 mm
- **1050** = 1050 mm
- **1200** = 1200 mm
- **1350** = 1350 mm*
- **1500** = 1500 mm*
- **1650** = 1650 mm*
- **1800** = 1800 mm*
- **S** = Single Emitter or Receiver (S4B Bracket(s) and S4B Cordset(s) sold separately)

*Only available in 30 mm resolution

Note: S4B brackets and S4B cordset are required for both emitter and receiver. Sold seprately.

SI-GL42 Safety Locking Switches

Series: **SI-GL42D**

Lock/Unlock: **S**
- **S** = Power to Unlock
- **M** = Power to Lock

Actuator Contacts: **01**
- **01** = 1 NO
- **10** = 1 NC
- **11** = 1 NC/1 NO
- **20** = 2 NC
- **21** = 2 NC/1 NO
- **30** = 3 NC

Solenoid Monitors Contacts: **10**
- **10** = 1 NC
- **11** = 1 NC/1 NO
- **20** = 2 NC
- **21** = 2 NC/1 NO

Connection:
- **Blank** = Screw terminals
- **Q13** = M12 bottom connector; ISD Connect compatible and M12 side connector for lock/unlock function (SI-GL42DM01-20Q13 and SI-GL42DS01-20Q13 only)

Illuminated E-Stops

Series: **SSA–E** – Version: **B1** – Button Body: **M** – LED Function: [ ] – Options: [ ] – Interface/Contact Configuration: **02** – Enclosure: **EC** – Termination: [ ] – Connection: [ ] – Extension: [ ]

- **B1** = Palm button, 40/44 mm button, 30 mm hole
- **B2** = Palm button, 60 mm button, 30 mm hole
- **Blank** = none
- **L** = OFF/red solid
- **LYR** = yellow/red
- **LGR** = green/red
- **LXR** = OFF/red flashing
- **L2** = Illuminated push button; Push = ON
- **Blank** = Standard
- **P** = Padlock capable
- **S1** = Shroud style 1
- **EC** = Compact OTB-style enclosure, 30 mm mounting
- **ED** = DX80-style enclosure
- **M** = Metal lockable base button
- **P** = Plastic base button
- **02** = 2 NC
- **04** = 4 NC
- **11** = 1 NO/1 NC
- **12** = 1 NO/2 NC
- **13** = 1 NO/3 NC
- **22** = 2 NO/2 NC
- **0D** = 2 Solid-state with ISD
- **Blank** = Bottom exit (1x QD)
- **1** = One side exit (1x male QD if used)
- **Blank** = Connection with terminals
- **Q#** = number of pins/conductors
- **Blank** = none
- **A** = AB 1732DS Safety I/O
- **B** = Siemens ET200pro/Turck
- **R** = External manual reset for solid-state outputs

*Not all combinations are orderable. Visit bannerengineering.com for available models.

ISD Connect

Series: **SSA-ISD** – Device Input Type: **TC** – Input Pin Configuration: **A**

- **ISD Connect**
- **TC** = 2 NC Sets of Dry Contacts
- **A** = 5-Pin Config A

Pin					
Config	**1**	**2**	**3**	**4**	**5**
A	Ch1a	Ch1b	N/C	Ch2a	Ch2b

SX5 Laser Scanners

Housing H x W x D	Range	Max Zone Sets	Master Remote	Models
152 x 102 x 112 mm	30 mm = 2.5 m 40 mm = 3 m 50 mm = 4 m 70/150 mm = 5.5 m	6		**SX5-B6**
		10	Master	**SX5-M10**
		70	Master	**SX5-M70**
		70	Master	**SX5-ME70**
		Depends on master	Remote	**SX5-R**

Lighting and Indication

WLF12 Flexible Strip Lights

Series	Cascadable	Color	Lighted Length	Construction	Voltage	Connection
WLF12	**X**	**W**	**300**	**S**	**24**	**QP**
	X = Non-cascadable	**W** = Daylight white	**300** = 300 mm **600** = 600 mm **1200** = 1200 mm **2000** = 2000 mm **3000** = 3000 mm **4000** = 4000 mm	**S** = Sealed	**24** = 24 V	**QP** = 150 mm PVC-jacketed cable with 4-pin M12 male quick disconnect

WLF12 Pro Flexible Multicolor Strip Lights

Series	Style	Cascadable	Color*	Lighted Length	Construction	Connection
WLF12	**P**	**X**	**RGB**	**300**	**S**	**QP**
	P = Pro	**X** = Non-cascadable	**RGB** = RGB multicolor	**300** = 300 mm **600** = 600 mm **900** = 900 mm **1200** = 1200 mm **2000** = 2000 mm **3000** = 3000 mm	**S** = Sealed	**QP** = 150 mm PVC-jacketed cable with 4-pin M12 male quick disconnect

*LC25 Pro LED Controller required for discrete I/O, IO-Link, or Modbus operation

LC25 LED Controller

Description	Models
Pro LED Controller	LC25C-WLF12-RGB7Q
Pro LED Controller with IO-Link	LC25C-WLF12-KQ
Pro LED Controller with Modbus	LC25C-WLF12-SQ

GS60 Guide Spotlights

Pro Model

Color	Control	Model
Multicolor (Red, Yellow, Green, Blue, Cyan, Magenta, White)	Constant power plus three inputs	GS60PRGBWL9Q

Single Color Models

Color	Control	Models
Daylight White - 5000K	High/low/off	GS60WL4Q
Red		GS60RL4Q
Green		GS60GL4Q
Blue		GS60BL4Q
Yellow		GS60YL4Q
Infrared (IR)		GS60IL4Q
Ultraviolet (UV) - 395 nm		GS60UV395L8Q
Daylight White - 5000K	Adjustable PWM/strobe and 1 to 10 V dimming	GS60WL4AQ
Infrared (IR)		GS60IL4AQ
Ultraviolet (UV) - 395 nm		GS60UV395L8AQ

K30 Pro Select

Indicator Models

Series	Style	Color and Input	Connection
K50	**PSL**	**RGB7**	**Q**
	PSL = Pro Select Indicator	**RGB7** = RGB multicolor (7 colors)	**Q** = 5-pin M12 integral male QD

Touch Models

Series	Style	Color and Input	Connection
K50	**PST**	**GRY3**	**Q**
	PST = Pro Select Touch	**GRY3** = RGB multicolor (3 colors)	**Q** = 5-pin M12 integral male QD

Optical Models

Series	Style	Color and Input	Connection
K50	**PSAF1000**	**GRY3**	**Q**
	PSAF1000 = Adjustable field sensor	**GRY3** = RGB multicolor (3 colors)	**Q** = 5-pin M12 integral male QD

BL60 Sealed LED Bar Lights

Series	Color	Length (mm)	Window	Lensing	Control	Sealed	Connection
BL60	**W**	**340**		**L14**	**A**	**S**	**Q**
	W = Daylight white (5000K) **R** = Red **G** = Green **B** = Blue **I** = Infrared **UV365** = 365 nm Ultraviolet **UV395** = 395 nm Ultraviolet	**340** **640**	**Blank** = Clear polycarbonate **D** = Diffused polycarbonate **G** = Borosilicate glass	**L14** = 14-degree FWHM narrow lenses **L30** = 30-degree FWHM wide lenses	**A** = Adjustable PWM/strobe and 1 to 10 V dimming	**S** = Sealed	**Q** = 5-pin M12 integral male quick disconnect QD models require mating cordset

SD50 Status Display

Description	Display Length	Control	Connection	Models
SD50 Pro Status Display	300 mm	Discrete	150 mm PVC-jacketed cable with 4-pin M12 male QD	SD50P300WD15QP
		IO-Link		SD50P300WKQP

WLR95 In-Line Work Lights

Color	Cascadable	Control	Connection	Models
Cool White - 6500K	Cascadable	High/low/off	4-pin M12 integral QD	WLR95WQ
Red				WLR95RQ
Green				WLR95GQ
Blue				WLR95BQ
Yellow				WLR95YQ
Cool White - 6500K	Non-cascadable		2m cable with wire lead	WLR95XWX

Lighting and Indication

TL70 Pro Tower Lights with Ethernet

Select Power over Ethernet Base

Family	Control		Connection
B-TL70	**POE**	–	**QPD**
Base Module	**POE** = Power over Ethernet		**QPD** = Single D-code pigtail

or

Select an Ethernet Base

Family	Control	Connection
B-TL70	**PE**	**Q2PE**
Base Module	**PE** = Pro Ethernet	**Q2PE** = Dual pigtail (1 A-code and 1 D-code)

Select up to Five Light Segments

Family		Type
SG-TL70P	–	**L**
TL70 Segment		**L** = RGB LED

Select an Optional Audible Segment

Family		Type
SG-TL70P	–	**A**
TL70 Segment		**A** = Audible

TL70 Pro Tower Lights with Modbus

Select a Base

Family		Connection
B-TL70PM	–	**Q**
Base Module		**Q** = 4-pin M12 Integral QD

Select up to Five Light Segments

Family	Style		Color
SG-TL70	**P**	–	**L**
TL70 Segment	**P** = Pro		**L** = RGB Configurable

Select an Optional Pro Audible Segment

Family	Style		Audible
SG-TL70	**P**	–	**A**
TL70 Segment	**P** = Pro		**A** = Audible

LCA130 Andon Control Boxes

Discrete I/O and IO-Link

Series	Activation Method	Number of Touch Inputs	Control	Input Connection
LCA130	**T**	**4**	**K**	**Q**
	T = Touch	**3** **4** **5**	**Blank** = Discrete I/O **K** = IO-Link	**Q** = 5-pin M12 integral male quick-disconnect (5-pin female output for 4 input, 8-pin female output for 5 input)

QD models require mating cordset

Wireless Monitoring and Control

Series	Activation Method	Number of Touch Inputs	Frequency	Input Connection
LCA130	**T**	**4**	**DXN2**	**Q**
	T = Touch	**3** **4** **5**	**DXN2** = 2.4 GHz ISM band **DXN9** = 900 MHz ISM band	**Q** = 4-pin M12 integral male quick-disconnect input 5-pin M12 integral female quick-disconnect output (5-pin female output for 4 input, 8-pin female output for 5 input)

QD models require mating cordset

K100 Indicators

Basic Models

Series	Style		Type	Voltage	Color	Audible Alarm	Connection
K100	**B**	–	**BL**		**G**	**A**	**Q**
	B = Basic		**BL** = Beacon	**Blank** = DC **Z** = AC	**G** = Green **Y** = Yellow **R** = Red **B** = Blue **W** = White	**Blank** = None **A** = Audible	**Q** = 5-pin M12 integral QD (DC models) or 5-pin 1/2 in. 20 UNF male M12 integral QD (AC models)

QD models require mating cordset

Pro Models

Series	Style	Type	Voltage	Colors	Audible Alarm	Connection
K100	**P**	**L**		**RGB7**	**A**	**Q**
	P = Pro	**L** = Indicator	**Blank** = DC **Z** = AC	**RGB7** = RGB multicolor	**Blank** = None **A** = Audible	**Blank** = 2 m integral cable **Q** = 5-pin M12 integral QD (DC models) or 5-pin 1/2 in. 20UNF male M12 integral QD (AC models) **QP** = 150 mm M12 integral QD

QD models require mating cordset

Pro Hazardous Models

Series	Style	Type	Classification	Voltage	Colors	Audible Alarm	Connection
K100	**P**	**L**	**N**		**RGB7**	**A**	**Q**
	P = Pro	**L** = Indicator	**N** = Haz area (Class I Div 2)	**Blank** = DC **Z** = AC	**RGB7** = RGB multicolor	**Blank** = None **A** = Audible	**Blank** = 2 m integral ITC-ER PVC cable **Q** = 5-pin M12 Integral QD (DC models) or 5-pin 1/2 in. 20UNF male M12 Integral QD (AC models)*

QD models require mating cordset
*Must be enclosed with a protected conduit or a suitable enclosure

WLB32 PoE LED Workstation Lights

Lighted Length (mm)	Lumens	Window	Connector	Models
285	750	Standard	Integral 4-pin M12 quick-disconnect	WLB32EX285PQ
570	1500			WLB32EX570PQ
850	2250			WLB32EX850PQ
1130	3000			WLB32EX1130PQ
285	750	Eye shield		WLB32EX285EPQ
570	1500			WLB32EX570EPQ
850	2250			WLB32EX850EPQ
1130	3000			WLB32EX1130EPQ

Industrial Wireless

DXMR90 Controllers

Ethernet Connection	Master Connections	Other Connections	Models
Two female M12 D-Code Ethernet Connector	Four female M12 connections for Modbus client connections	One male M12 (Port 0) for incoming power and Modbus RS-485, one female M12 for daisy chaining Port 0 signals	DXMR90-X1E
One female M12 D-code Ethernet connector	Four female M12 connections for IO-Link master connections		DXMR90-4K

DXMR110-8K IO-Link Master

Ethernet Connection	IO-Link Master Connections	Other Connections	Models
Two female M12 D-Code Ethernet connectors for daisy chaining and communication to a higher-level control system	Eight female M12 connections for IO-Link	One male M12 for incoming power, one female M12 for daisy chaining power	DXMR110-8K

R130C Discrete IO-Link Hub

Housing	Function		Converter		Control	Connector
R130	C	–	8P22	–	K	Q

C = Converter
8P22 = 8-port, PNP with 2 inputs/outputs per port
K = IO-Link
Q = M12 integral quick disconnect

R90C and R95C IO-Link Hubs

Housing	Function		Converter		Control	Connector
R90	C	–	4B21	–	K	Q

R90 = 4-port
R95 = 8-port
C = Converter
4B21 = 4-port, bimodal, 2 inputs, 1 output*
8B21 = 8-port, bimodal, 2 inputs, 1 output**
8B22 = 8-port, bimodal, 2 inputs, 2 outputs**
K = IO-Link
Q = M12 integral quick disconnect

*Available only with R90
**Available only with R95

AC Voltage Sensor

Input	Output	Connection	Models
Voltage transformer	Modbus	M12 integral quick disconnect	S15C-UT460-MQ-1

DXM1200-X2 IIoT Gateway

Series	Radio Configuration
DXM1200-X2	R1

Blank = None
R1 = 900 MHz, 500 mW PE5 Performance Radio (North America)
R2 = 900 MHz, 500 mW HE5 MultiHop Data Radio (North America)
R3 = 2.4 GHz, 65 mW PE5 Performance Radio (Worldwide)
R4 = 2.4 GHz, 65 mW HE5 MultiHop Data Radio (Worldwide)

R95C Discrete and Analog Input-Output Modbus Hub

Housing	Function		Converter		Control	Connector
R95	C	–	4B4UI	–	M	Q

C = Converter
4B4UI = 4-port, bimodal, 2 inputs/outputs per port
4-port, analog, 4 inputs and 4 outputs
M = Modbus
Q = M12 Integral quick disconnect

R95C Discrete Bimodal to Modbus Hub

Housing	Function		Converter		Control	Connector
R95	C	–	8B21	–	M	Q

C = Converter
8B21 = 8-port, bimodal, 2 inputs, 1 output
M = Modbus
Q = M12 Integral quick disconnect

R95C Analog In to Modbus Hub

Housing	Function		Converter		Control	Connector
R95	C	–	8UI	–	M	Q

C = Converter
8UI = 8-port, analog, 1 input per port
M = Modbus
Q = M12 integral quick disconnect

Industrial Wireless

R50C Motor Driven Roller Controller

Function	Control	Connectors	Model
2 discrete outputs and 1 analog 0-18 V output	Modbus	1 Pair: 5-pin M12 A-Code male quick-disconnect connector (power/comms) 5-pin M12 A-Code female quick-disconnect connector (MDR control) and 1 Pair: 5-pin M12 L-Code male quick-disconnect connector (motor power) 5-pin M12 L-Code female quick-disconnect connector (motor power)	**R50C-L-B22AOU-MQ**

Rogowski Coil Current Sensors

AC Current Range (A)	Coil Diameter (mm)	Models	AC Current Range (A)	Coil Diameter (mm)	Models
500	50	S15S-R500-MQ	3000	200	S15S-R3000-MQ
1000		S15S-R1000-MQ	6000		S15S-R6000-MQ

S15S Temperature and Humidity Sensor

Housing	Function		Female		Male	Connector
S15	S	–	TH	–	K	Q

S = Sensor
TH = Temperature and humidity
K= IO-Link
Q = M12 integral quick disconnect

QM30VT3 Vibration and Temperature Sensors

Description	Housing	Connection	Models
Vibration and temperature via RS-485 Modbus	Aluminum	150 mm cable with 5-pin M12 male QD	QM30VT3-MQP
	316L Stainless Steel		QM30VT3-SS-MQP

Connectivity

R95 I/O Junction Blocks

Description	Branch Cable Lengths (Female)	Trunk Cable Length	Models
5-Pin	8 x No Branch/Integral QD	1 m with Flying Leads	R95-8M125-C1-D24P
		0.3 m 19-pin M23 Male QD	R95-8M125-0.3M23-D24P
		1 m with Flying Leads	R95-8M125-C1-D24
		0.3 m 19-pin M23 Male QD	R95-8M125-0.3M23-D24

M23 Cordsets

Single-Ended Models

Series		Connector Type	Gender	Pin	Connector Modifier		Jacket Color	Jacket Type	AWG		Length		Modifier
BC	–	M23	F	12		–			22	–	L	–	

F = Female
M = Male

12
19

Blank = Straight
A = Angled 90°

Blank = black

Blank = PVC

1822 = 3x18 + 16x22
22 = 12x22

Blank = None
SF = Foil or braided shield-floating
SFP = Shield, drain to pin

Double-Ended Models

Series		Connector Type	Gender (female first)	Pin	Connector Modifier		Connector Type	Gender (female first)	Pin	Connector Modifier		AWG		Length		Modifier
BC	–	M23	F	12		–	M23	M	12		–	22	–	L	–	

F = Female
M = Male

12
19

Blank = Straight
A = Angled 90°

F = Female
M = Male

12
19

Blank = Straight
A = Angled 90°

1822 = 3x18 + 16x22
22 = 12x22

Blank = None
SF = Foil or braided shield-floating
SFP = Shield, drain to pin

Top Mount I/O Junction Blocks

Description	Output	Models
4 Port 3-Pin to 8-Pin	PNP	JB-4M8-M12-P4
	NPN	JB-4M8-M12-N4
	Discrete	JB-4M8-M12-4
8 Port 3-Pin to 12-Pin	PNP	JB-8M8-M12-P4
	NPN	JB-8M8-M12-N4
	Discrete	JB-8M8-M12-4

Description	Output	Models
4 Port 5-Pin to 12-Pin	PNP	JB-4M12-M23-P24
	NPN	JB-4M12-M23-N24
	Discrete	JB-4M12-M23-24
8 Port 5-Pin to 19-Pin	PNP	JB-8M12-M23-P24
	NPN	JB-8M12-M23-N24
	Discrete	JB-8M12-M23-24

CSB Splitters

Description	Branch Cable Lengths	Trunk Cable Length	Models
4-pin	2 x Integral branch (female)	Integral trunk (male)	CSB-M1240M1240
	2 x 0.3 m (female)	Integral trunk (male)	CSB-M1240M1241
	2 x 0.3 m (female)	0.3 m (male)	CSB-M1241M1241

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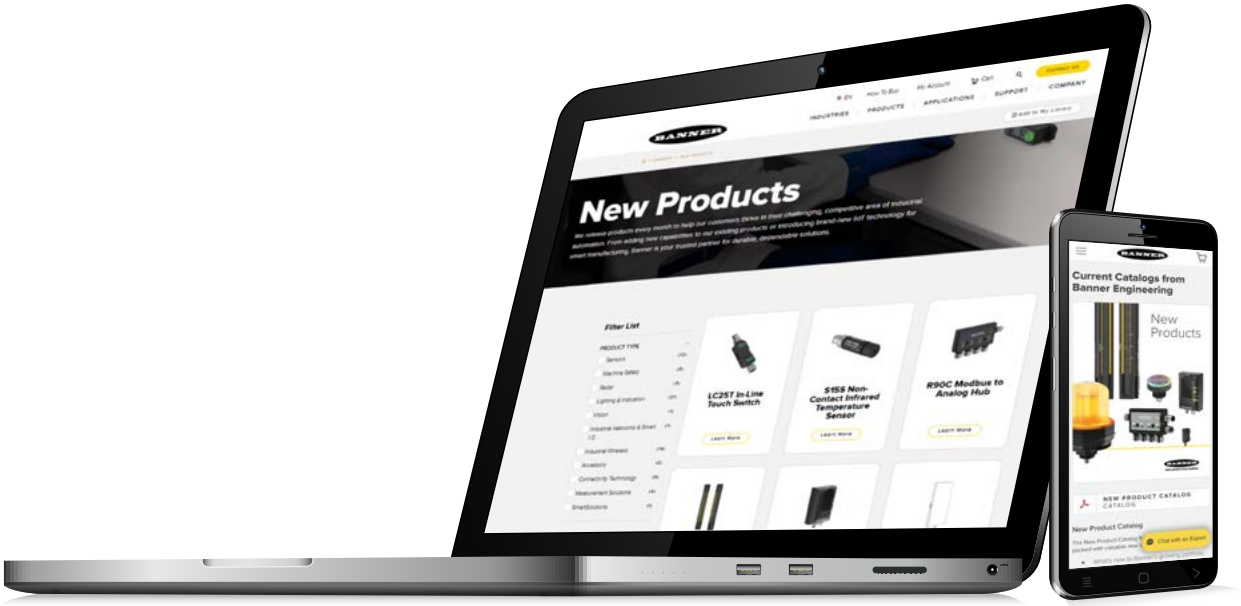

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