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Banner Engineering Corp.

9714 Tenth Avenue North
Minneapolis, Minnesota 55441
763-544-3164 • 1-888-373-6767
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more sensors, more solutions



2014

The Complete Solution

Banner solves problems for most of the manufacturing companies in the Fortune 500, who rely on innovative automation solutions.

Banner products help manufacture the cars you drive, the TVs you watch, the food you eat, the medicine you take and virtually every product you consume. Whatever the industry, Banner has a solution to help you automate your plants, improve efficiency and manufacture quality products.



Sensors

- Presence
- Absence
- Inspection
- Gating
- Counting
- Measurement
- Position



Vision

- Pattern Recognition
- Complex Part Inspection
- Multi-Component Gauging
- Part ID/Orientation
- Assembly Verification
- Print Verification
- Traceability (Bar Code and Text)



Lighting & Indication

- Bin & Part Picking
- Error Proofing
- Pick-to-Light & Call for Parts
- Visual & Audible Indication
- Operator Guidance
- Andon Indication
- Pilot & Stack Light Replacement
- Visual Management



Wireless

- Process Control & Monitoring
- Factory Automation
- Commercial & Consumer Monitoring
- Agriculture & Water Management
- Traffic Monitoring & Control



Machine Safety

- Safety Light Screens
- Safety Modules & Controllers
- Emergency Stop Devices
- Safety Interlocks
- Ergonomic Two-Hand Control & Run Bars

Who is Banner



Banner Sensor
Installed Every



3.5
Seconds

Somewhere
in the World

Manufacturing Specialists



30,000+
Products

Global Presence



Network of

3,000

Professionals

Customers First
Integrity Always
Quality in Everything
New Solutions — Every Day



Application

Solutions

Experts

Banner Specials



Rapid

Customization

Contact Us

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Machine Safety

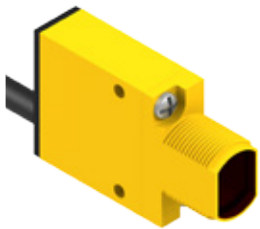
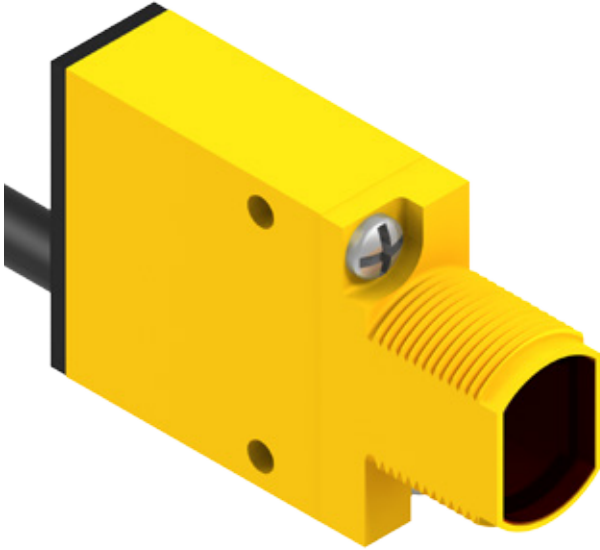
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MINI-BEAM[®]**Complete Line of Industry Standard Sensors**

Comprehensive sensor line with a series of LED colors, gain pots/TEACH modes and ac or dc models.

- Complimentary outputs and bipolar operation
- AC, DC or universal models available
- Infrared or visible red, green, blue or white sensing beam
- Industry standard mounting holes

**MINI-BEAM DC****page 114**

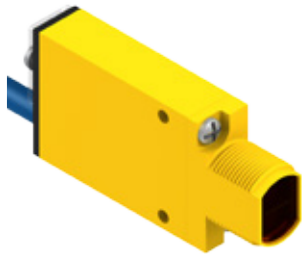
Eight sensing modes for solving most applications: opposed, retroreflective, convergent, diffuse, plastic and glass fiber optic, and adjustable-field and fixed-field. High-performance sensing with visible long-range Class 1 and 2 lasers with narrow effective beam for small object detection and precise position control.

**MINI-BEAM AC****page 116**

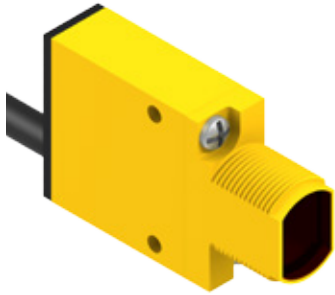
Single push-button programming of five advanced sensing options for reliable detection of reflective objects.

**MINI-BEAM Expert****page 118**

Sensing modes include opposed, retroreflective, convergent, diffuse and plastic and glass fiber optic.

**MINI-BEAM NAMUR****page 120**

Ideal for hazardous environments with approved switching amplifiers that have intrinsically safe input circuits.



MINI-BEAM[®]

DC-Operated Industry Standard Sensors

Comprehensive sensors with a series of LED colors.

- Complimentary outputs
- Available with opposed, retroreflective, diffuse and convergent modes
- Infrared or visible red, green, blue or white sensing beam
- Industry standard mounting holes
- Cordsets and brackets see page 122

Opposed MINI-BEAM[®], 10-30 V DC

Infrared LED Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|------------------------------|-------|---------------|--------------------|--------------------|
| OPPOSED | 3 m | 2 m | Bipolar NPN/PNP | SM31E Emitter |
| | | 4-Pin Euro QD | | SM31EQD Emitter |
| OPPOSED | 30 m | 2 m | Bipolar NPN/PNP | SM31R |
| | | 4-Pin Euro QD | | SM31RQD |
| CLEAR PLASTIC OPPOSED | 0.3 m | 2 m | Bipolar NPN/PNP | SM31EL Emitter |
| | | 4-Pin Euro QD | | SM31ELQD Emitter |
| | | 2 m | | SM31RL |
| OPPOSED | 0.3 m | 4-Pin Euro QD | Bipolar NPN/PNP | SM31RLQD |
| | | 2 m | | SM31EPD Emitter* |
| | | 4-Pin Euro QD | | SM31EPDQD Emitter* |
| OPPOSED | 0.3 m | 2 m | Bipolar NPN/PNP | SM31RPD* |
| | | 4-Pin Euro QD | | SM31RPDQD* |

Retro & Polar Retro MINI-BEAM[®], 10-30 V DC

Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|-----------------------------------|--------------|---------------|--------------------|-------------|
| RETRO | 5 m† | 2 m | Bipolar NPN/PNP | SM312LV |
| | | 4-Pin Euro QD | | SM312LVQD |
| POLAR RETRO | 50 mm - 2 m† | 2 m | Bipolar NPN/PNP | SM312LVAG |
| | | 4-Pin Euro QD | | SM312LVAGQD |
| EXTENDED RANGE POLAR RETRO | 10 mm - 3 m† | 2 m | Bipolar NPN/PNP | SM312LP |
| | | 4-Pin Euro QD | | SM312LPQD |

For more specifications see page 124.

Connection options: A model with a QD requires a mating cordset (see page 122).

For 9 m cable, add suffix **W30** to the 2 m model number (example, **SM312D W30**).

* Actual range depends on light transmission through the plastic being sensed. Some clear plastic materials may not be detected. When in doubt, ask your Banner representative to evaluate material samples.

† Retroreflective range is specified using one model BRT-3 retroreflector. Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories for more information.

Convergent MINI-BEAM®, 10-30 V DC

Infrared LED Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|----------------|-------|----------------------|--------------------|--------------------------|
| CONVERGENT | 16 mm | 2 m 4-Pin Euro QD | Bipolar NPN/PNP | SM312C SM312CQD |
| | 43 mm | 2 m 4-Pin Euro QD | | SM312C2 SM312C2QD |
| CONVERGENT | 16 mm | 2 m 4-Pin Euro QD | Bipolar NPN/PNP | SM312CV† SM312CVQD† |
| | 43 mm | 2 m 4-Pin Euro QD | | SM312CV2† SM312CV2QD† |

Diffuse MINI-BEAM®, 10-30 V DC

Infrared LED

| Sensing Mode | Range | Connection | Output | Models |
|-----------------------|--------|----------------------|--------------------|------------------------|
| DIFFUSE | 380 mm | 2 m 4-Pin Euro QD | Bipolar NPN/PNP | SM312D SM312DQD |
| | 300 mm | 2 m 4-Pin Euro QD | | SM312DBZ SM312DBZQD |
| DIVERGENT DIFFUSE | 130 mm | 2 m 4-Pin Euro QD | Bipolar NPN/PNP | SM312W SM312WQD |

Glass & Plastic Fiber MINI-BEAM®, 10-30 V DC

Infrared LED Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|-------------------|--|---------------|--------------------|------------------------|
| GLASS FIBER | Range varies by sensing mode and fiber optics used | 2 m | Bipolar NPN/PNP | SM312F SM312FQD |
| | | 4-Pin Euro QD | | |
| GLASS FIBER | Range varies by sensing mode and fiber optics used | 2 m | Bipolar NPN/PNP | SM312FV† SM312FVQD† |
| | | 4-Pin Euro QD | | |
| PLASTIC FIBER | Range varies by sensing mode and fiber optics used | 2 m | Bipolar NPN/PNP | SM312FP† SM312FPQD† |
| | | 4-Pin Euro QD | | |

For more specifications see page 124.

Connection options: A model with a QD requires a mating cordset (see page 122).

 For 9 m cable, add suffix **W/30** to the 2 m model number (example, **SM312D W/30**).

† Other LED colors available. Contact factory for more information.



MINI-BEAM® AC

AC-Operated Industry Standard Sensors

Comprehensive sensors with a series of LED colors.

- Available with opposed, retroreflective, diffuse and convergent modes
- Infrared or visible red, green, blue or white sensing beam
- Industry standard mounting holes
- Cordsets and brackets see page 122

Opposed MINI-BEAM®, 24-240 V AC

⇨ Infrared LED ⇨ Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|----------------------------------|-------|----------------|----------------------------|---------------------|
| <p>OPPOSED</p> | 3 m | 2 m | SPST Solid-State 2-Wire | SMA31E Emitter |
| | | 3-Pin Micro QD | | SMA31EQD Emitter |
| | | 2 m | | SM2A31R |
| | 30 m | 3-Pin Micro QD | | SM2A31RQD |
| | | 2 m | | SMA31EL Emitter |
| | | 3-Pin Micro QD | | SMA31ELQD Emitter |
| <p>CLEAR PLASTIC OPPOSED</p> | 0.3 m | 2 m | SPST Solid-State 2-Wire | SMA31EPD Emitter* |
| | | 3-Pin Micro QD | | SMA31EPDQD Emitter* |
| | | 2 m | | SM2A31RPD* |
| | | 3-Pin Micro QD | | SM2A31RPDQD* |

Retro & Polar Retro MINI-BEAM®, 24-240 V AC

⇨ Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|---------------------------------------|--------------|----------------|----------------------------|---------------|
| <p>RETRO</p> | 5 m† | 2 m | SPST Solid-State 2-Wire | SM2A312LV |
| | | 3-Pin Micro QD | | SM2A312LVQD |
| <p>POLAR RETRO</p> | 50 mm - 2 m† | 2 m | SPST Solid-State 2-Wire | SM2A312LVAG |
| | | 3-Pin Micro QD | | SM2A312LVAGQD |
| <p>EXTENDED RANGE POLAR RETRO</p> | 10 mm - 3 m† | 2 m | SPST Solid-State 2-Wire | SM2A312LP |
| | | 3-Pin Micro QD | | SM2A312LPQD |

For more specifications see page 125.

Connection options: A model with a QD requires a mating cordset (see page 122).

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **SM312D W/30**).

* Actual range depends on light transmission through the plastic being sensed. Some clear plastic materials may not be detected. When in doubt, ask your Banner representative to evaluate material samples.

† Retroreflective range is specified using one model BRT-3 retroreflector. Actual sensing range may differ, depending on the efficiency and reflective area of the retroreflector used. See Accessories for more information.

Convergent MINI-BEAM®, 24-240 V AC

Infrared LED Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|----------------|-------|-----------------------|----------------------------|------------------------------|
| CONVERGENT | 16 mm | 2 m 3-Pin Micro QD | SPST Solid-State 2-Wire | SM2A312C SM2A312CQD |
| | 43 mm | 2 m 3-Pin Micro QD | | SM2A312C2 SM2A312C2QD |
| CONVERGENT | 16 mm | 2 m 3-Pin Micro QD | SPST Solid-State 2-Wire | SM2A312CV† SM2A312CVQD† |
| | 43 mm | 2 m 3-Pin Micro QD | | SM2A312CV2† SM2A312CV2QD† |

Diffuse MINI-BEAM®, 24-240 V AC

Infrared LED

| Sensing Mode | Range | Connection | Output | Models |
|--------------|--------|-----------------------|----------------------------|----------------------------|
| DIFFUSE | 380 mm | 2 m 3-Pin Micro QD | SPST Solid-State 2-Wire | SM2A312D SM2A312DQD |
| | 300 mm | 2 m 3-Pin Micro QD | | SM2A312DBZ SM2A312DBZQD |
| | 130 mm | 2 m 3-Pin Micro QD | | SM2A312W SM2A312WQD |

Glass & Plastic Fibers MINI-BEAM®, 24-240 V AC

Infrared LED Visible Red LED

| Sensing Mode | Range | Connection | Output | Models |
|-------------------|--|----------------|----------------------------|--------------------------|
| GLASS FIBER | Range varies by sensing mode and fiber optics used | 2 m | SPST Solid-State 2-Wire | SM2A312F SM2A312FQD |
| | | 3-Pin Micro QD | | SM2A312FV SM2A312FVQD |
| GLASS FIBER | Range varies by sensing mode and fiber optics used | 2 m | SPST Solid-State 2-Wire | SM2A312FP SM2A312FPQD |
| | | 3-Pin Micro QD | | SM2A312FVQD |
| PLASTIC FIBER | Range varies by sensing mode and fiber optics used | 2 m | SPST Solid-State 2-Wire | SM2A312FP SM2A312FPQD |
| | | 3-Pin Micro QD | | SM2A312FPQD |

For more specifications see page 125.

Connection options: A model with a QD requires a mating cordset (see page 122).

 For 9 m cable, add suffix **W/30** to the 2 m model number (example, **SM312D W/30**).

* Actual range depends on light transmission through the plastic being sensed. Some clear plastic materials may not be detected. When in doubt, ask your Banner representative to evaluate material samples.

† Other LED colors available. Contact factory for more information.