PHOTOELECTRIC SENSORS

From an ultra-miniature flat pack the size of a small coin to an industrially rugged, self-contained full-sized model, nobody offers a wider selection of photoelectric sensors than Rockwell Automation.
When Form is a Factor

MiniSight™
Photoelectric Sensors

Get a popular photoelectric sensor housing style that meets the Allen-Bradley standard of ruggedness. The MiniSight photoelectric sensor is an exact match for one of the industry’s most popular form factors, but with many additional important features without the additional price.

Like a more robust housing. The ability to withstand repeated 1200 psi (8,270 kPa) washdowns. Separate indicators for power, output and margin. and short-circuit protection on both DC and AC/DC versions. We’ve even labeled it on both sides to make identification simple no matter how you mount it.

If your application already uses this style sensor, you won’t have to make changes to upgrade to the MiniSight. The dimensions and mounting considerations are the same, and it can be mounted with either the 18mm threaded cylindrical nose or by side-mounting it with the through-holes. So it’s easy to start reaping the benefits of using a better sensor.
RightSight™

The right photoelectric sensor for your application.

RightSight™ Sensors
When your application requires the durability and performance of a full-featured photoelectric sensor, but distances are shorter and space is tight, take a 90° turn to RightSight photoelectric sensors. RightSight takes many of the features of the Series 9000 and puts them in a smaller, more adaptable package:

- Superior housing design for mounting flexibility
- Short-circuit protection
- 1200 psi (8,270 kPa) washdown capability
- 360° visible power, output and margin indicator LEDs

These photoelectric sensors deliver excellent detection capabilities where size and shape matter. And only Allen-Bradley offers photoelectric sensors that combine universal voltages (24-240V AC/DC) and short-circuit protection across the full voltage range.

Standard/DeviceNet Sensing Modes
- Polarized retroreflective
- Standard diffuse
- Sharp cutoff diffuse
- Background suppression
- Transmitted Beam
- Infrared glass fiber optic

Right angle enclosure fits easily into small spaces.

Bright LEDs let you monitor power, output and margin from 360 degrees.

Sealed housing can withstand washdown environments up to 1200 psi.

Multiple mounting options make these sensors easy to install.
Material Handling Applications

Many applications can be solved with a smaller sensor, but don’t be fooled—this durable and rugged sensor is quickly becoming the standard in many warehouses. The polarized retroreflective has a maximum sensing range of 3m (9.8’). It also requires much less space for mounting.

Packaging Applications

Background suppression diffuse sensing can allow for simple detection of target objects while ignoring background reflections. These precision sensors offer calibrated 50mm (2”) or 100mm (4”) sensing distances to eliminate troublesome field adjustments.
ColorSight™ 9000

For complex applications that require true color detection, the ColorSight 9000 Color Recognition Photoelectric Sensor is the sensor of success. These sensors detect the presence of a target based on a match with a learned reference color, with precision that is adjustable through an eight-position switch. Fast response time makes them ideal for high-speed applications, while the local and remote self-teach operation provides superb flexibility. Fiber optic operation increases application flexibility by reducing valuable installation space occupied by the sensor. Select our long range lensed cable or choose from our extensive line of fiber optic cables.

LaserSight™ 9000

Rockwell Automation/Allen-Bradley introduces a LaserSight to the industry standard Series 9000. This product is for tough sensing applications which require a longer range, when the environment is dusty or dirty, or when the object to be sensed is small. The maximum sensing distances are 39.6m (130ft) for the polarized retroreflective sensor and 304.8m (1000ft) for the transmitted beam. The Class II laser source provides a visible red beam for easy alignment even at these distances.

It’s just the right sensor when the application calls for precision, ease of alignment and maximum sensing range.
For clear object detection, innovative optics make the ClearSight 9000 a clearly superior solution. Coaxial optics and circular polarization maximize the contrast achievable with clear objects, increasing reliability and productivity.

ClearSight is at home in a wide range of industries and suits a variety of applications, including:

- Clear label presence on clear packages
- Count verification of clear bottles
- Jam detection on production lines
- Detection of gaps or separations
- Clear web and edge guiding
- Filling clear containers with clear liquids

**ClearSight™ 9000**

Allen-Bradley’s ClearSight technology leads the market in clear object detection. Using innovative optics of the ClearSight 9000 described above, along with superior advances incorporated in the Series 10,000 make this sensor the most advanced in the industry for clear material applications.
Teflon Coated Liquid Level Fiber Optic Cables and Teflon Coated Sensors

These liquid level cables will detect the level of harsh liquids such as chemical washdown solutions in a tank or container. The teflon coated miniature sensors are best suited for caustic environments and are fully encased in teflon.

Features for the individual teflon coated fiber optic cables include:

- Angled sensing end for detection of a liquid level
- Teflon coating in various lengths for application flexibility

Teflon Coated Sensor

Features for the teflon coated sensors include:

- Both transmitted beam and diffuse modes
- Teflon coating that covers entire sensor as well as part of the cable
- External sensitivity adjustment and PNP options
- Infrared LED
- 12-24V DC
- 350 µs response time

Teflon Coated Fiber Optic Cables

Modes
- Transmitted beam
- Diffuse

Fiber Characteristics

- Ferruled sensing end-tip
- 2 meters of Teflon coated fiber optic cable
- 1mm diameter fiber bundle size
- 2.2mm diameter cut to length jacket size
### Bulletin 42KL Minisight

- Universal 18mm cylindrical mounting
- Available in DC and 2-wire AC/DC versions
- Superior housing design with 1200 psi washdown rating
- Switch selectable L.O.D.O.
- Visible indicators for power, output and 2.5x margin/short circuit protection

#### Features
- Distance using 3" reflector
- Distance using white paper
- Direct connection to CAN high/CAN low
- Durab 10mm mounting
- Short circuit protection across entire voltage range
- Complementary output for DC compatible

#### Dimensions
- DC = 38.6 x 30.7 x 3.9mm (1.56 x 1.2 x 0.159"
- AC = 52.3 x 30.7 x 12.7mm (2.06 x 1.2 x 0.49"

#### Sensing Modes and Maximum Range for a 1:1 Margin
- **Retroreflective**: 5m (16') or 2.5m (8.2')
- **Polarized retroreflective**: 2m (6.6') or 1m (3.3')
- **Diffuse 380mm**: (15") or 190mm (7.5")
- **Wide angle diffuse**: 180mm (7") or 90mm (3.5")
- **Fixed focus diffuse**: 43mm (1.7") or 16mm (0.63"
- **Transmitted beam**: 30m (98') or 10m (33')
- **Transmitted beam**: Infrared glass and visible red, plastic

#### Operating Voltage
- 10.8-30V DC
- 21.6-250V AC/DC

#### Output Load Current
- Dual NPN/PNP 100mA
- NPN or PNP 100mA
- DeviceNet standard
- CAN high/CAN low
- NPN and PNP 250mA
- EM relay 2A
- Isolated NO solid state 300mA

#### Response Time
- DC = 1ms
- DC high speed = 300μs
- AC = 8.3ms

#### Connections
- 300V PVC cable 2m
- Micro and Pico quick-connects

#### Enclosure
- Noryl®, Acrylic
- NEMA 4X, 6P, IP67
- 1200 psi washdown

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### Bulletin 42EF Rightsight

- Universal 18mm mounting at base and nose
- Short circuit protection across entire voltage range
- Complementary output for DC compatible

#### Features
- **Superior housing design with 1200 psi washdown rating**
- **360° visible alignment** and diagnostic LED indicators
- **Advanced logic features**
- **Selectable LEDs** and strobing operating modes
- **Autoaud**
- **Selectable L.O.D.O.

#### Dimensions
- DC = 46.7 x 27 x 34.5mm (1.84 x 1.06 x 1.36"
- AC = 69 x 27 x 34.5mm (2.72 x 1.06 x 1.36"

#### Sensing Modes and Maximum Range for a 1:1 Margin
- **Retroreflective**: 9.14m (30')
- **Polarized retroreflective**: 3m (10')
- **Diffuse 500mm**: (2")
- **Background suppression 500mm**: (2''), 100mm (4")
- **Transmitted beam 20m**: (60', 4m (13')
- **Infrared fiber optic**:
- **Sharp cutoff diffuse**

#### Operating Voltage
- 10-40V DC
- 300V PVC cable 2m

#### Output Load Current
- 100mA
- DeviceNet standard
- CAN high/CAN low
- NPN and PNP 250mA
- EM relay 2A
- Isolated NO solid state 300mA

#### Response Time
- DC = 1-16ms
- 3m
- 2-15ms
- 5-18ms
- 3ms
- 2-15ms

#### Connections
- 300V PVC cable 2m
- Micro and Pico quick-connects

#### Enclosure
- Noryl®, Acrylic
- NEMA 4X, 6P, IP67
- 1200 psi washdown

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### Series 9000 On/Off

#### Features
- **Durable housing design with 1200 psi washdown rating**
- **360° visible alignment and diagnostic LED indicators**
- **Standard 30mm mounting**
- **Selectable light or dark-operate mode**
- **Direct connection to DeviceNet**
- **Same durable Series 9000 package**
- **Local and remote configuration**
- **COS and strobing modes**
- **Selectable L.O.D.O.

#### Dimensions
- **2m (6.6') or 1m (3.3')
- **3.5m (12") or 190mm (7.5")
- **10.8-30V DC
- **21.6-250V AC/DC

#### Operating Voltage
- 10-40V DC
- 10-40V DC
- 10-40V DC
- 45-260V AC
- 45-264V DC

#### Output Load Current
- NPN and PNP 250mA
- EM relay 2A
- Isolated NO solid state 300mA
- DeviceNet standard
- CAN high/CAN low
- Switch selectable NPN and PNP NO - NC 100mA
- EM relay: sensor - 2A diagnostic - 1A

#### Response Time
- 1-16ms
- 3m
- 2-15ms
- 5-18ms
- 3ms
- 2-15ms

#### Connections
- 300V PVC cable 2m
- Micro and Pico quick-connects

#### Enclosure
- Noryl®, Acrylic
- NEMA 4X, 6P, IP67
- 1200 psi washdown

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### Series 9000 DeviceNet

#### Features
- **Durable housing design with 1200 psi washdown rating**
- **360° visible alignment and diagnostic LED indicators**
- **Standard 30mm mounting**
- **Selectable light or dark-operate mode**
- **Direct connection to DeviceNet**
- **Same durable Series 9000 package**
- **Local and remote configuration**
- **COS and strobing modes**
- **Selectable L.O.D.O.

#### Dimensions
- **2m (6.6') or 1m (3.3')
- **3.5m (12") or 190mm (7.5")
- **10.8-30V DC
- **21.6-250V AC/DC

#### Operating Voltage
- 10-40V DC
- 10-40V DC
- 45-260V AC
- 45-264V DC

#### Output Load Current
- NPN and PNP 250mA
- EM relay 2A
- Isolated NO solid state 300mA
- DeviceNet standard
- CAN high/CAN low
- Switch selectable NPN and PNP NO - NC 100mA
- EM relay: sensor - 2A diagnostic - 1A

#### Response Time
- 1-16ms
- 3m
- 2-15ms
- 5-18ms
- 3ms
- 2-15ms

#### Connections
- 300V PVC cable 2m
- Micro and Pico quick-connects

#### Enclosure
- Noryl®, Acrylic
- NEMA 4X, 6P, IP67
- 1200 psi washdown

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### Series 9000 Diagnostic

#### Features
- **Selectatable dynamic or static diagnostic output**
- **Durable housing design with 1200 psi washdown rating**
- **360° visible alignment and diagnostic LED indicators**
- **Standard 30mm mounting**
- **Selectable light or dark-operate mode**

#### Dimensions
- **2m (6.6') or 1m (3.3')
- **3.5m (12") or 190mm (7.5")
- **10.8-30V DC
- **21.6-250V AC/DC

#### Operating Voltage
- 10-40V DC
- 10-40V DC
- 10-40V DC
- 45-260V AC
- 45-264V DC

#### Output Load Current
- NPN and PNP 250mA
- EM relay 2A
- Isolated NO solid state 300mA
- DeviceNet standard
- CAN high/CAN low
- Switch selectable NPN and PNP NO - NC 100mA
- EM relay: sensor - 2A diagnostic - 1A

#### Response Time
- 1-16ms
- 3m
- 2-15ms
- 5-18ms
- 3ms
- 2-15ms

#### Connections
- 300V PVC cable 2m
- Micro and Pico quick-connects

#### Enclosure
- Noryl®, Acrylic
- NEMA 4X, 6P, IP67
- 1200 psi washdown

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### Photoelectric Sensor

#### Selection Guide
- **Valex®**
- **Noryl®**, Acrylic
- NEMA 4X, 6P, IP67
- 1200 psi washdown
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**Important:** To select the appropriate sensor for your application, match the circled numbers in operating voltage and output characteristics. For example, under Bulletin 42BC Rectangular, the model with an Operating Voltage range of 11-26V DC a has a Maximum Load Current of 100mA (NPN and PNP). For complete selection criteria, please consult the sensors catalog. 

Valex and Noryl are registered trademarks of the General Electric Corporation.

*For additional information, please refer to the C113 Catalog pages indicated.*
### Features
- Intrinsically safe to worldwide standards
- Long-range, 106m (350') sensing distance
- Both NPN and PNP outputs
- 1200 psi washdown

### Dimensions
- Transmitted beam 106m (350')
- Retroreflective 9.14mm (3/8')
- Standard diffuse 0.91mm (3/32')
- Transmitted beam 30mm (1"

### Sensing Modes and Maximum Range for a 1:1 Margin
- 24V DC using suitable safety barrier
- 10-40V DC 70-264V AC/DC
- 10-40V DC 70-264V AC/DC
- 10-40V DC 70-264V AC/DC
- 10-40V DC 70-264V AC/DC
- 10-40V DC 70-264V AC/DC

### Operating Voltage
- NPN and PNP
- Bipolar output
- Transmitted beam 300mm (1000"
- Polarized retroreflective 19cm (4"
- ClearSight 1.2m (4"
- Retroreflective 9m (30"
- Polarized retroreflective 4.6m (15"
- Standard diffuse 2.7m (9"
- IR glass fiber optic
- VR plastic fiber optic
- Green fiber optic

### Output Maximum Load Current
- 10ms
- 2-23ms
- Selectable 1.5ms to 16ms
- Selectable 1.5ms to 16ms
- 500µs to 15ms
- 1-10ms
- Selectable 250µs to 4ms
- 100mA
- NPN and PNP 250mA
- SDPT EM relay 2A
- Isolated NO solid state 300mA
- NPN and PNP 250mA
- SDPT EM relay 2A
- Isolated NO solid state 300mA
- NPN and PNP 250mA
- SDPT EM relay 2A
- Isolated NO solid state 300mA

### Connections
- 300V PVC 2m
- Mini quick-disconnect
- Micro quick-disconnect
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Valox® Acrylic
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Valox® Acrylic
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Valox® Acrylic
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Polyethylene 1IP50

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- 300V PVC 2m
- Mini quick-disconnect
- Micro quick-disconnect
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Valox® Acrylic
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Valox® Acrylic
- NEMA 3, 4X, 6P, 12 & 13; IP67
- Polyethylene 1IP50
- www.ab.com/sensors

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* Distance using 3° reflector. + Distance using white paper. † Distance varies, depending on sensing mode and fiber selected. ‡ Additional fiber optic sensors are available in the 5000, 6000, 7000, 8000, 9000 and 10,000 product families. See “sensing modes.”

**Important:** To select the appropriate sensor for your application, match the circled numbers ① in operating voltage and output characteristics. For example, under Bulletin 42BT Rectangular, the model with an Operating Voltage range of 11-26V DC ① has a Maximum Load Current of 100mA (NPN and PNP).

For complete selection criteria, please consult the sensors catalog.

Valox and Noryl are registered trademarks of the General Electric Corporation.

For additional information, please refer to the C113 Catalog pages indicated.
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<td>NPN or PNP (digital version) 100mA</td>
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<td>C113 Catalog</td>
<td>Page 1-111</td>
<td>Page 1-200</td>
<td>Page 1-224</td>
<td>Page 1-228</td>
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* Distance using 3" reflector; † Distance using white paper. ◊ Distance varies, depending on sensing mode and fiber selected. ‡ Additional fiber optic sensors are available in the 5000, 6000, 7000, 9000 and 10,000 product families. See “sensing modes.”

Important: To select the appropriate sensor for your application, match the circled numbers in operating voltage and output characteristics. For example, under Bulletin 42BC Rectangular, the model with an Operating Voltage range of 11-26V DC ² has a Maximum Load Current of 100mA ² (NP and PNP). For complete selection criteria, please consult the sensors catalog.

Valox and Noryl are registered trademarks of the General Electric Corporation.

For additional information, please refer to the C113 Catalog pages indicated.
### Photoelectric Sensor Selection Guide

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<th>Series 5000 Red Line</th>
<th>Series 5000 Blue Line</th>
<th>Series 5000 Green Line</th>
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