Allen-Bradley® photoelectric sensors are recognized as the most robust in the industrial automation marketplace. Designed for reliable operation, our leading products boast feature sets aimed to satisfy mainstream applications found in many industries such as material handling, packaging, food processing, transportation...the list goes on and on.

**Bulletin 42JS and 42JT VisiSight™**
An easy-to-apply global sensing solution in a small rectangular package
- Visible light source offered on all models for ease of alignment
- Industry standard mounting hole spacing and optional snap-on 18 mm nose-mount adapter for optimal application flexibility
- Patented ASIC design offers linear sensitivity adjustment, stability indication and excellent noise immunity
- Compact sealed housing and cavity-free design minimize collection of dust and debris while allowing for easy sensor cleanup
- Additional transmitted beam models available with infrared light source for superior cross talk immunity
- IP69K rated for high pressure washdown environment (42JT only)

**Series 9000™**
The industry leading solution for harsh duty applications with high pressure washdown
- Variety of standard and specialty sensing modes
- Standard ON/OFF and timing outputs
- Universal 30 mm base, thru-hole and conduit mounting options with cable, micro (M12) QD or mini QD connections

**Bulletin 42EF RightSight™**
Compact, flexible and reliable
- Patented compact housing with high-pressure washdown rating
- Universal 18 mm base, nose and thru-hole mounting options
- Variety of sensing modes and connection options
- DeviceNet™-enabled models offer advanced diagnostic capabilities
- Available in AC or DC models

**Bulletins 42CF, 42CA, 42CS and 42CM Cylindrical Sensors**
A broad range of industry standard, globally accepted sensors
- Industry standard rugged 12 mm and 18 mm metal housings
- Industry standard plastic 18 mm models for general purpose applications
- Laser models for precise sensing
- IP69K enclosure rating and ECOLAB certification (42CS)
For your selection keep in mind...

Margin: defined as the measurement of the amount of light from the light source detected by the receiver, expressed as a multiple of the minimum amount of light level required to switch the sensor output. A margin of 2X is reached when the light level received is twice the minimum required to switch the output.

For minimizing maintenance the sensor should be operated at a margin greater than 2X.

Light Operate Output (LO): output is ON (energized) when the receiver can see sufficient light from the light source.

Dark Operate Output (DO): output is ON (energized) when the receiver cannot see light from the light source.

Photoelectric Sensors operate by sensing a change in the amount of light that is either reflected or blocked by an object to be detected (target). The change of light could be the result of the presence or absence of the target or as the result in the change of the size, shape, reflectivity or color of a target.

These sensors can be used in applications to detect targets at distances over 300 m.

To successfully apply a photoelectric sensor the following requirements must be clearly understood:

### Standard Sensing Modes

**Diffuse**
- Ideal for short-range applications
- No reflector required
- Easy installation/alignment

**Retroreflective**
- Moderate sensing distances
- Easy to align
- Requires mounting and wiring of only one emitter/receiver unit

**Transmitted Beam**
- High margin for contaminated environments
- Longer sensing ranges than other technologies
- Most reliable sensing mode for highly reflective objects

### Specialty Sensing Modes

**Polarized Retroreflective**
- Polarized light to overcome first surface reflections from shiny objects
- Visible red LED simplifies sensor alignment

**Sharp Cutoff Diffuse**
- Diffuse sensing that provides some degree of protection against sensing close backgrounds
- Offers longer range than background suppression sensors

**Background Suppression Diffuse**
- Ignores backgrounds beyond rated sensing distance regardless of reflectivity
- Designed to detect objects regardless of color at the specified distance

**Wide Angle Diffuse**
- Ideal for detection of objects not accurately positioned or for detection over a broad area
- Good at ignoring background reflections

**Fixed Focus Diffuse**
- Accurate detection of small objects at the sensor’s specified distance
- Color mark detection for high contrast applications

**Fiber Optics**
- Allows sensing of very small parts
- Fiber cables can be installed in very tight spaces
- Glass fibers for high temperature applications (up to 482 °C)
- Plastic fibers can be used for continuous flexing applications
- Shock, noise and vibration resistant
## GENERAL PURPOSE SOLUTIONS

### Product Highlights

<table>
<thead>
<tr>
<th>Product</th>
<th>Sensing Range</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>42JS VisiSight</strong></td>
<td></td>
<td>• Industry standard small rectangular (20 mm x 14 mm W x 33 mm H) enclosure • Visible red LED on all models for ease of alignment • Complementary LO and DO • IP67 enclosure</td>
</tr>
<tr>
<td><strong>42 JT VisiSight</strong></td>
<td></td>
<td>• Industry standard small rectangular (20 mm x 12 mm W x 34 mm H) enclosure • Push button teach for easy set up • Visible red LED or Laser (Class 1) on all models for ease of alignment • Auto Detection continuously monitors and configures the output automatically to PNP or NPN • LO or DO configurable on every model • IP69K enclosure rating suitable for harsh duty environments</td>
</tr>
<tr>
<td><strong>Series 9000</strong></td>
<td></td>
<td>• Universal 30 mm base and thru-hole mounting • High-pressure washdown (IP69K and 1200 PSI) enclosure • Standard ON/OFF, timing and diagnostics output models • Dual (PNP and NPN) with LO or DO selection • DC and AC/DC relay output</td>
</tr>
<tr>
<td><strong>RightSight</strong></td>
<td></td>
<td>• Universal 18 mm base, nose and thru-hole mounting • High-pressure washdown (IP69K and 1200 PSI) enclosure • Fixed, teachable and adjustable sensitivity • Dual (PNP and NPN) outputs or complementary (LO and DO) models • DC and AC/DC solid state outputs</td>
</tr>
<tr>
<td><strong>MiniSight™</strong></td>
<td></td>
<td>• Compact rectangular size with 18 mm nose and thru-hole mounting • High-pressure washdown (1200 PSI) enclosure • Selectable LO and DO • DC and AC/DC solid state outputs</td>
</tr>
<tr>
<td><strong>42CA</strong></td>
<td></td>
<td>• Industry standard 18 mm enclosure • Plastic housing suitable for corrosive environments • Complementary LO and DO • Fast response time (0.5 ms) models • IP67 enclosure</td>
</tr>
<tr>
<td><strong>42CS</strong></td>
<td></td>
<td>• Robust 316L housing material • Smooth barrel version minimizes build up and allows for easy clean up • Also available in threaded version • IP69K enclosure rating and ECRLAB certification make this ideal for harsh duty environments • Industry standard 18 mm barrel diameter • Extended temperature operating range • Ferromagnetic teach provides adjustability without compromising integrity • Two teach modes: standard and precision</td>
</tr>
<tr>
<td><strong>42CM</strong></td>
<td></td>
<td>• Industry standard 18 mm enclosure • Metal housing suitable for heavy duty environments • Complementary LO and DO • IP67 enclosure</td>
</tr>
<tr>
<td><strong>42CF</strong></td>
<td></td>
<td>• Industry standard 12 mm enclosure • Metal housing suitable for heavy duty environments • Local and remote teach • Selectable LO and DO • IP67 enclosure</td>
</tr>
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</table>
### Adjustable Background Suppression

**42JT VisiSight**
- 120 mm sensing range
- Auto detection continuously monitors and configures the output automatically to PNP or NPN
- Fast response time (500 μs)
- Selectable LO and DO
- IP69K enclosure rating suitable for harsh duty environments

**42BA**
- Wide variety of sensing range models (30 mm, 50 mm, 100 mm, 200 mm)
- Diagnostic output
- Selectable LO and DO
- Fast response time (350 μs)
- Compact NEMA 4, 6P, IP67 enclosure

**42BT**
- Long range background suppression (1 m and 2 m models)
- Slim flatpack housing design
- Infrared LED or Red LED depending on range
- Selectable LO and DO
- Dual (PNP and NPN) outputs
- 2 ms response time
- IP65 enclosure

**42CS**
- Robust 316L housing material
- Smooth barrel version minimizes build up and allows for easy clean up (also available in threaded version)
- Available in diffuse (800 mm), polarized retroreflective (4 m), transmitted beam (20 m), clear object detection (1 m), and adjustable background suppression (100 mm)
- IP69K enclosure rating and ECOLAB certification make this ideal for harsh duty environments
- Industry standard 18 mm barrel diameter
- Extended temperature operating range
- Ferromagnetic teach provides adjustability without compromising integrity
- Two teach modes: standard and precision

### Clear Object Detection

**Series 9000 ClearSight™**
- Optimized for harsh duty
- 1.2 m sensing range
- DC and AC/DC models available
- 1 ms response time (DC)
- NEMA 3, 4X, 6P, 12, 13, IP69K and 1200 psi enclosure

**ClearSight RightSight™**
- General purpose plastic film and stretch-wrap detection solution
- 1 m sensing range
- DC and AC/DC models available
- 1 ms response time
- NEMA 3, 4X, 6P, 12, 13, IP69K and 1200 psi enclosure

### Fiber Optic

**45FPL**
- General purpose contrast sensing
- Twice the sensing range of DIN rail fiber portfolio
- Large status indicator displays
- One touch multi-directional push buttons
- Status indicator displays light levels, operating modes and diagnostic information
- Two-programmable sensing modes: long range (1.8 ms) and high speed (190 μs)
- Threshold value and current value display

**45FVL/45FSL**
- General purpose contrast sensing
- Visible red, blue, green or white light source
- Automatic or manual sensitivity adjustment (45FVL)
- 30 μs response time (45FSL)
- IP40 enclosure

**RightSight™**
- General purpose long range fiber optic applications (up to 1.5 meters)
- Individual fiber cables for transmitted beam and bifurcated cable for diffuse applications
- Large aperture 4.6 mm glass fiber optic cable makes it an ideal solution for high temperature environments
- DC and AC/DC models

### Fork Sensors

**45LSP**
- 30, 50, 88, 120 mm gap sizes
- Detection of objects as small as 0.2 mm
- Highly visible power and output LED indicators with output indication along both sides of the fork
- Selectable LO and DO
- 3-pin and 4-pin pico (M8) OD models
- 290 μs response time
- IP67 polycarbonate enclosure

**45LST**
- 2, 15, 30, 50, 80, 120, 225 mm gap sizes
- Rugged industrial aluminum housing
- Selectable LO or DO outputs
- 1 ms response time (30 μs on 2 mm gap model)
- IP67 enclosure
### Discrete Laser Sensors

<table>
<thead>
<tr>
<th>42JT VisiSight</th>
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<tbody>
<tr>
<td>- Industry standard small rectangular (20 mm L x 12 mm W x 34 mm H) enclosure</td>
</tr>
<tr>
<td>- Available in diffuse (250 mm), polarized retroreflective (15 m), transmitted beam (18 m), and adjustable background suppression (120 mm)</td>
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<tr>
<td>- Auto Detection continuously monitors and configures the output automatically to PNP or NPN</td>
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<tr>
<td>- Class I laser</td>
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<tr>
<td>- IP69K enclosure rating suitable for harsh duty environments</td>
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<table>
<thead>
<tr>
<th>LaserSight™ RightSight</th>
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<tbody>
<tr>
<td>- Universal 18 mm base, nose and thru-hole mounting</td>
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<tr>
<td>- Small parts detection in light duty environments</td>
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<tr>
<td>- Available in diffuse (300 mm), polarized retroreflective (15 m) and transmitted beam (40 m)</td>
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<tr>
<td>- Dual PNP and NPN outputs</td>
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<tr>
<td>- IP54 enclosure</td>
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<table>
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<tr>
<th>LaserSight 42CM</th>
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<tbody>
<tr>
<td>- Industry standard 18 mm metal enclosure</td>
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<tr>
<td>- Metal housing suitable for heavy duty environments</td>
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<tr>
<td>- Available in diffuse (300 mm), polarized retroreflective (30 m) and transmitted beam (50 m)</td>
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<tr>
<td>- Small spot size beam (0.1 mm @ 100 mm) on diffuse for small object or contrast detection</td>
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<tr>
<td>- Complementary LO and DO</td>
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<td>- IP67 enclosure</td>
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<table>
<thead>
<tr>
<th>LaserSight 9000</th>
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<tbody>
<tr>
<td>- Universal 30 mm base and thru-hole mounting</td>
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<tr>
<td>- High pressure washdown (IP69K and 1200 PSI)</td>
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<tr>
<td>- For long sensing range applications (polarized retroreflective 40 m, transmitted beam 300 m)</td>
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<tr>
<td>- Dual (PNP and NPN) with LO or DO selection</td>
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<td>- DC and AC/DC relay output enclosure</td>
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### Laser Measurement

<table>
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<tr>
<th>45LMS</th>
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<tr>
<td>- Diffuse range: 8 m (Class 1 laser), 15 m (Class 2 laser)</td>
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<tr>
<td>- Retroreflective model range: 50 m</td>
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<tr>
<td>- Discrete and analog outputs</td>
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<tr>
<td>- IP65 enclosure</td>
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<table>
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<tr>
<th>45BPD/45BRD</th>
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<tbody>
<tr>
<td>- Class 2 visible laser</td>
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<tr>
<td>- IP67 enclosure</td>
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<tr>
<td>- 45BPD</td>
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<tr>
<td>- 300 mm or 100 mm sensing range</td>
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<tr>
<td>- One analog (4-20 mA) and one discrete output</td>
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<tr>
<td>- Laser disable input</td>
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<tr>
<td>- Teach button lock</td>
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<tr>
<td>- 45BRD</td>
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<tr>
<td>- 45-85 mm sensing range</td>
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<tr>
<td>- One analog (0 -10V) output</td>
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</table>
SPECIALTY SENSING

Rockwell Automation offers a full line of specialty Allen-Bradley sensors to solve your toughest applications using multiple sensing technologies such as clear object detection, parts verification, fork style sensing, optical label sensing, vision sensors, area array scanners and true color detection.

Discrete Laser Sensors
Laser sensors ideal for accurate detection of small targets such as weld nuts, mounting clips, holes and drill bits, etc.
- Visible light beam allows for easy sensor alignment and faster installation
- Small spot size
- Long sensing ranges
- Class 1 (eye safe) and Class 2 laser solutions

Adjustable Background Suppression Sensors
Background suppression sensors provide precise detection of objects near a background surface that should be ignored.
- Ideal for conveyor lines and vibratory bowl feeders
- Ranges up to 2 m
- AC/DC models with relay output available
- Adjustable foreground suppression for detection of irregular or shiny objects

ColorSight 45CLR
- True color sensing solutions
- Three channel color matching
- RS-485 models match up to five colors and communicate true RGB values

45LPT Optical Label Sensor
- Specifically designed for label sensing applications
- “One touch” local and remote teach capability
- User interface lockout feature
- Fast 50 μs response time

45LSP Fork Sensor
- Detection of objects as small as 0.2 mm
- Highly visible power and output LED indicators with output indication along both sides of the fork
- Remote teach and teach button lock feature

Fiber Optics
- Broad offering of fiber optic sensors
- Glass and plastic fiber optic cables in a wide variety of configurations
- Ideal for sensing very small objects, particularly in tight spaces
ADVANCED SENSORS

Bulletin 48MS MultiSight™ Vision Sensors
- Easy-to-use economical alternative to conventional vision systems
- Detects or differentiates objects by means of previously defined optical characteristics – great for separating “good” and “bad” parts
- Four different methods of evaluation (pattern matching, contrast, brightness, and contour matching)
- EtherNet/IP™ models feature an RSLogix™ 5000 Add-On Profile with pre-named data tags for simple integration into a control program

Allen-Bradley Light Arrays
Light Arrays offer greater sensing heights than traditional photoelectric transmitted beam pairs. The arrays feature multiple emitter or receiver elements in a single housing at a fraction of the cost of using multiple sensor pairs.
- Discrete Light Arrays (45DLA & 45AST)
- Measuring Light Arrays (45MLA)
- Bin Picking Light Arrays (45PVA)

Rockwell Automation offers a breadth of quality Allen-Bradley® components to fit your specific needs. In order to assist you with your component selection, we offer a variety of configuration and selection tools.

Local Distributor
Call 1.800.223.3354 to contact your local Distributor today.
http://www.rockwellautomation.com/distributor/

On-Line Product Directory
Our extensive product portfolio is designed to improve your processes through every stage of your manufacturing cycle.
http://www.ab.com

Product Selection Toolbox
Our powerful range of product selection and system configuration tools assist you in choosing and applying our products.

Catalogs
Within our catalogs you’ll find an extensive selection of essential Allen-Bradley component products.
http://www.ab.com/catalogs/

Rockwell Automation, Inc. (NYSE:ROK), the world’s largest company dedicated to industrial automation, makes its customers more productive and the world more sustainable. Throughout the world, our flagship Allen-Bradley® and Rockwell Software® product brands are recognized for innovation and excellence.

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Power, Control and Information Solutions Headquarters
Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleenlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1816

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