

RightSight Miniature Sensors Installation Instructions

Catalog Numbers 42EF-D2JBAK-A2, 42EF-D2JBAK-F4, 42EF-D2KBAK-A2, 42EF-D2KBAK-F4, 42EF-D2MPAK-A2, 42EF-D2MPAK-F4, 42EF-D2MPAK-Y4, 42EF-P2JBB-A2, 42EF-P2JBB-F4, 42EF-P2KBB-A2, 42EF-P2KBB-F4, 42EF-P2MPB-A2, 42EF-P2MPB-F4, 42EF-P2MPB-Y4, 42EF-R2JBB-F4, 42EF-R2JBBT-A2, 42EF-R2JBBT-F4, 42EF-R2KBB-A2, 42EF-R2KBB-F4, 42EF-R2KBB-Z31, 42EF-R2KBBT-A2, 42EF-R2KBBT-F4, 42EF-R2MEB-F4, 42EF-R2MNB-A2, 42EF-R2MNB-F4, 42EF-R2MNB-Y4, 42EF-R2MNB-A2, 42EF-R2MNB-F4, 42EF-R2MPB-A2, 42EF-R2MPB-A5, 42EF-R2MPB-A6, 42EF-R2MPB-F4, 42EF-R2MPB-Y4, 42EF-R2MPBT-A2, 42EF-R2MPBT-A5, 42EF-R2MPBT-F4, 42EF-R2MPBT-Y4

IMPORTANT SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

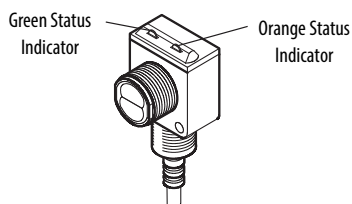
The 42EF RightSight™ family of photoelectric sensors offers high performance general purpose sensing in a compact, flexible package. They are designed for applications where simplified installation and maintenance are required. RightSight™ sensors provide a range of mounting options. The sensors can be through-hole mounted against a surface or can be installed using the threaded 18 mm base or nose mounting options.

Designed to withstand the rigors of food processing and material handling environments, the 42EF RightSight™ standard models can withstand repeated 1200 psi and IP69K high-pressure washdowns.

Features

- Compact right angle housing with universal 18 mm threaded nose and base mounting options
- Fixed, teachable, and adjustable sensitivity models
- 360° highly visible (status indicators helps operators verify proper operation regardless of sensor installation location)
- Visible status indicator light-source for ease of alignment
- Alignment aid helps ensure excellent reliability operating margin
- Dual (NPN and PNP), NPN or PNP only models
- Linear sensitivity adjustment
- IP67 with 1200 psi; IP69K rated enclosure
- IO-Link 1.1 Communication protocol that is offered in all standard modes

Status Indicator



The table below provides indicator status in the RUN mode, during operation. The sensor is always in run mode except when being taught.

Standard I/O (Auto PNP/NPN) Operating Mode Indication

Green	OFF	Power is off
	ON	Power is on
	Flashing (6 Hz)	Unstable light: 0.8 X < margin < 1.5 X
	Flashing (1.4 Hz)	Output short circuit protection active
Orange	OFF	Output de-energized
	ON	Output energized

IO-Link Operation Mode Indication

Green	OFF	Power is off
	Flash (1 Hz)	Power is on
Orange	OFF	Output de-energized
	ON	Output energized

See www.ab.com for additional details about the operation of the 42EF RightSight™ in IO-Link mode.

Sensor User Interface

The green status indicator can also serve as a set-up alignment aid that indicates that a margin of 1.5 has been reached. The sensor is receiving at least 1.5 times the signal strength back from the target that is required to trigger an output signal. In general, it is desirable to have a higher margin to help overcome any deteriorating environmental conditions, that is, dust build-up on the sensor lens. When aligning the sensor, the optimum performance can be obtained if this margin indicator is illuminated with the target in place. When aligning diffuse mode sensors, be sure that the sensitivity is set at its maximum setting; use the single-turn adjustment knob on the front panel. Pan the sensor left, right, up, and down to center the beam on the target. Decrease this setting to prevent the sensor from detecting a background object. If this problem persists, the application requires the use of a background suppression, sharp cutoff diffuse, or retroreflective sensing mode.

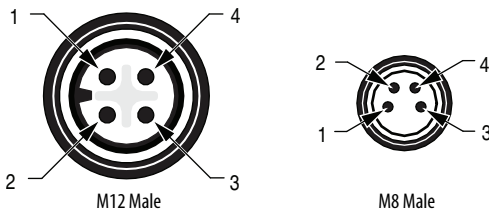
Connection Types

Description	Cat. No. Suffix
2 m cable	-A2
4-pin DC micro (M12) QD on 150 mm (6 in.) pigtail	-F4
4-pin DC pico (M8) QD on 150 mm (6 in.) pigtail	-Y4

Wiring Diagrams

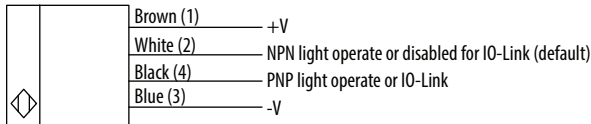
The quick-disconnect connector is shown in the following diagrams. The pin numbers correspond to male connectors on the sensor.

Micro (M12 Male QD on Pigtail and Integral Pico (M8) Male QD

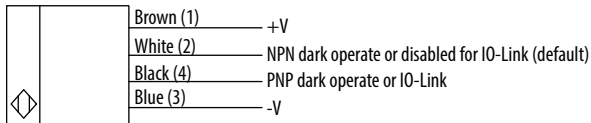


Output Wiring

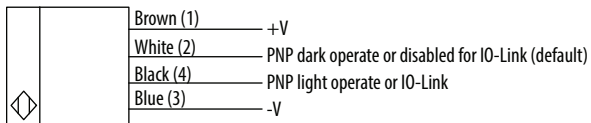
Light Operate PNP and NPN Models (42EF-D2JBAK⁻¹, 42EF-P2JBB⁻¹, 42EF-R2JBB⁻¹)



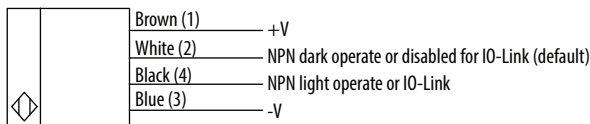
Dark Operate PNP and NPN Models (42EF-D2KBAK⁻¹, 42EF-P2KBB⁻¹, 42EF-R2KBB⁻¹)



PNP Complementary Models (42EF-D2MPAK⁻¹, 42EF-P2MPB⁻¹, 42EF-R2MPB⁻¹)



NPN Complementary Models (42EF-D2MNAK⁻¹, 42EF-P2MNB⁻¹, 42EF-R2MNB⁻¹)

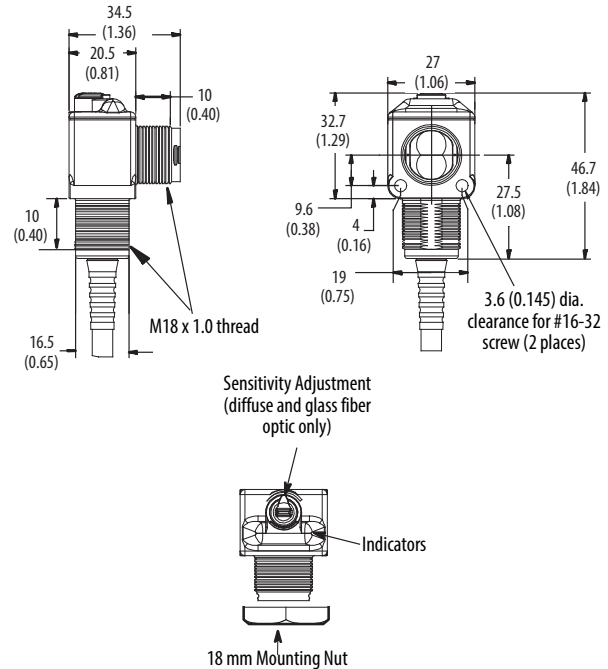


¹ See Connection Types table for cable lengths.

The IO-Link output pin four (black) does not support the connection of multiple sensors in series (for example, one sensor powering the next sensor). Connecting multiple sensors in series can be achieved when using pin two (white) outputs or by ordering a non-IO-Link catalog

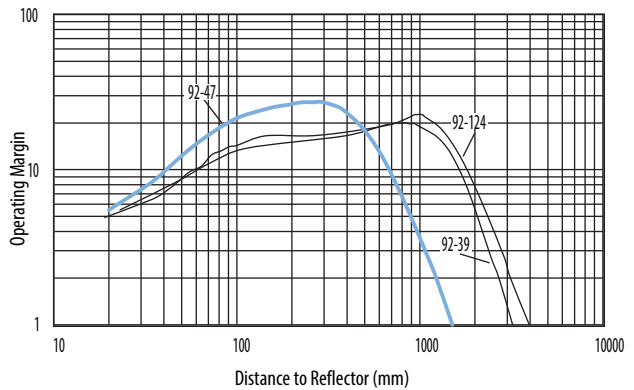
number. See the Rockwell Automation® Knowledgebase or contact your local distributor for specific ordering information. For additional information about sensor operation in IO-Link mode, refer to the 42EF RightSight™ IO-Link user manual available at <http://ab.rockwellautomation.com/>.

Dimensions [mm (in.)]

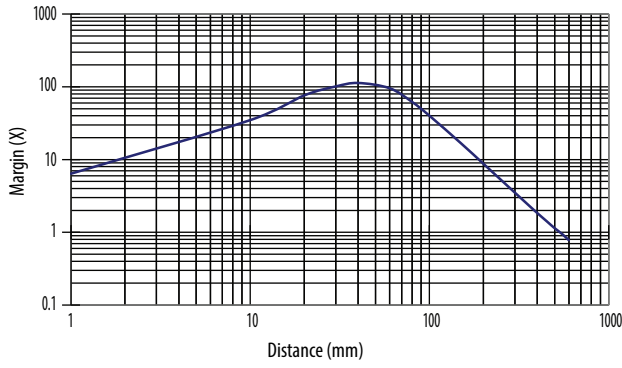


Typical Response Curves

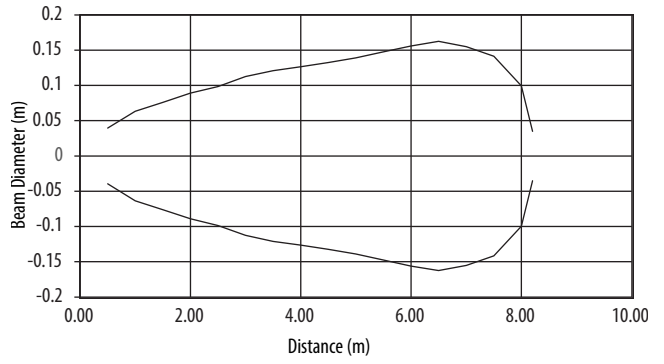
Visible Red Polarized Retroreflective— 3.0 m Margin Curve



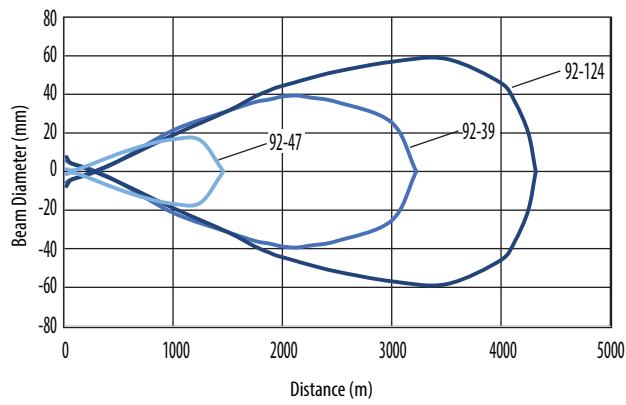
Visible Red Diffuse—500 mm Margin Curve



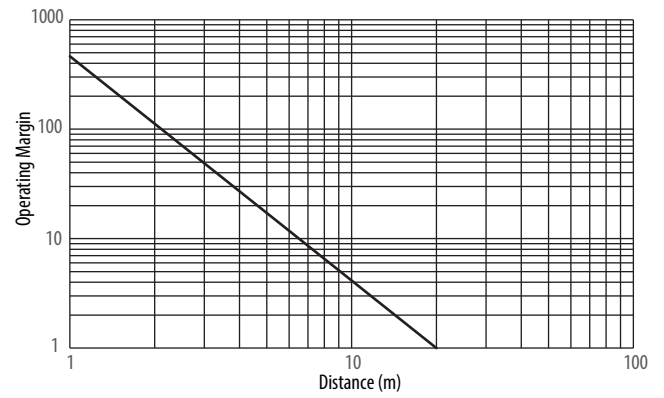
Transmitted Beam Receiver—8 m Beam Pattern



Visible Red Polarized Retroreflective—3.0 m Beam Pattern



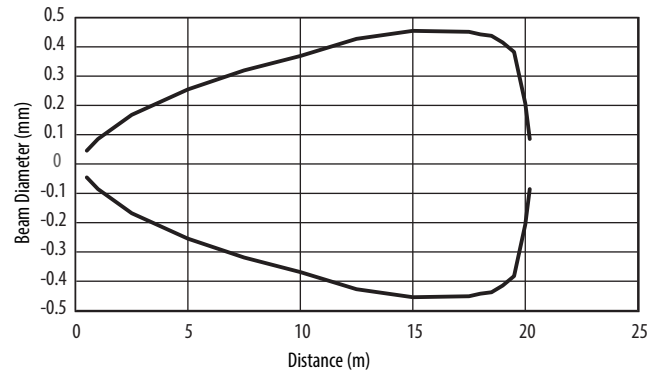
Transmitted Beam Receiver—Margin Curves



Visible Red Diffuse—500 mm Beam Pattern

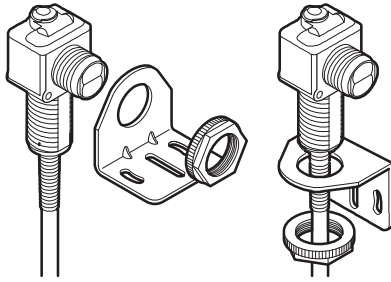


Transmitted Beam Receiver—20 m Beam Pattern

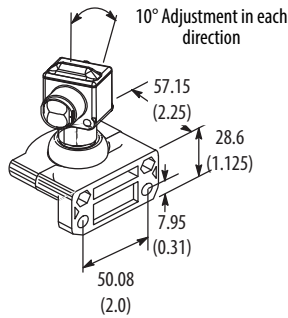


Accessories

Right Angle Bracket #60-2657



Swivel/Tilt Bracket #60-2649



Description	Cat. No.
4-pin DC micro, 2 m (6.5 ft) cordset	889D-F4AC-2
Straight bracket	60-2656
Right angle bracket	60-2657
Mounting kit	60-2716
Clamp style bracket	871A-BP18
Flush mount adaptor	60-2590
4-pin DC micro field-mount terminal chamber	871A-TS4-DM
1.25 in. diameter reflector	92-47
3 in. diameter reflector	92-39

Specifications

	42EF-*2J*	42EF-*2K*	42EF-*2M*
Certifications	cULus Listed and CE Marked for all applicable directives		
Vibration	10...55 Hz, 1 mm amplitude, meets or exceeds IEC 60947-5-2		
Shock	30 G with 1 ms pulse duration, meets or exceeds IEC 60947-5-2		
Relative Humidity	5...95% (noncondensing)		
Ambient-Light Immunity	Incandescent light: 5000 lux Sunlight: 20,000 lux		
User Interface			
Status Indicators	Green status indicator (power and margin), Orange status indicator (output)		
Electrical			
Adjustments	Fixed or adjustment knob by cat. no.		
Voltage	10...30V DC, I-O link: 18...30V DC		
Current consumption	30 mA maximum		
Sensor Protection	False pulse, reverse polarity, overload, short circuit		
Outputs			
Response time	1 ms		
Output type	PNP and NPN	PNP OR NPN (based on cat. no.)	
Load Current	100 mA		
Leakage Current, Max.	PNP: 0.1 mA, NPN: 0.3 mA		
Mechanical			
Housing Material	Mindel™		
Lens Material	Acrylic		
Cover Material	Udel™		
Supplied Accessories	Supplied 18 mm mounting nut		
Environmental			
Enclosure Type Rating	NEMA 4X, 6P, IP67, IP69K; 1200 psi (8270 kPa) washdown		
Operating Temperature [C (F)]	-25...+70° (-13...+158°)		
Connection Type	2 m cable, 4-pin DC micro (M12) QD on 150 mm pigtail; 4-pin DC pico (M8) QD on 150 mm pigtail		

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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