

42AF RightSight M30 Photoelectric Sensors



A High-Power, Mid-Size Solution for a Wide Range of Applications

Features and Benefits

- Universal 30 mm nose and 18 mm base mounts help make installation and replacement 50% faster than other mounting methods with minimal or no tools
- 360-degree highly visible status indicator LEDs ease troubleshooting and help confirm proper sensor operation
- Dual auto PNP/NPN on DC only and Universal (AC/DC) gives you comprehensive coverage from smart sensing to high voltage/high current applications
- Dual auto PNP/NPN helps streamline inventory by reducing the amount of SKUs needed to stock
- Available sensing modes:
 - Background suppression
 - Background reflection
 - Polarized retroreflective
 - Transmitted beam
- Embedded IO-Link communications enable access to enhanced diagnostic features
- Firmware upgrade and embedded IODD ready
- IP67, 1,200 psi and IP69k rated enclosure

What is IO-Link?

IO-Link is a worldwide open-standard peer-to-peer serial communication protocol (IEC 61131-9) that allows sensors to easily integrate into The Connected Enterprise.

Benefits of IO-Link technology include:

- Reduced inventory and operating costs
- Increased uptime/productivity
- Simplified design, installation, setup and maintenance
- Enhanced flexibility and scalability



The new Allen-Bradley® 42AF RightSight™ M30 family of high-power sensors introduces a flexible, mid-sized right-angle housing. Addressing the challenges of a wide range of industries and applications, the RightSight M30 is also a smart sensing solution thanks to embedded IO-Link functionality. IO-Link allows sensors to easily integrate into The Connected Enterprise, delivering data from the sensor directly into a control system to help minimize downtime and increase productivity.

The Allen-Bradley RightSight M30 family offers long sensing range in a compact new housing that features a threaded 30 mm nose and threaded 18 mm base for flexible mounting and fast installation. The rugged IP67/IP69k housing is also fully sealed, allowing the RightSight M30 to withstand tough industrial environments, including those involving high-pressure and high-temperature washdowns. The ultra-bright status and power LEDs can be seen from 360 degrees, simplifying setup, monitoring and troubleshooting.

Featuring multiple sensing modes, the RightSight M30 is available in easy-to-apply adjustment-free models and teachable versions that adjust sensitivity and output configuration at the push of a button. The unique “Auto PNP/NPN” output continuously monitors how the load is connected and automatically configures the output for proper operation. And when connected to an IO-Link master the RightSight M30 can take advantage of advanced functionality including real-time diagnostics, Automatic Device Configuration (ADC) and multiple job-specific profiles. Not only do these features make the 42AF RightSight M30 ideal for a broad range of challenging applications, but they help simplify product selection and reduce stocking costs.

42AF RightSight M30 IO-Link Features and Benefits

- **Triggered (output status):** indicates when the target is detected
- **Margin Low Alarm:** indicates when the target signal is marginal and about to fail
- **Proximity Alarm:** indicates if there is a target in the background that may be in close proximity to the threshold
- **Signal Strength:** provides the raw signal strength value reflected by the target (diffuse) or the reflector (retro)
- **Location Indication:** helps distinguish sensors in applications where you may need to identify in a large machine
- **Alignment Mode:** helps sensor alignment in diffuse and polarized retroreflective applications
- **Internal Temperature:** provides the sensor's internal temperature which helps you determine if the sensor is operating close to its minimum and maximum temperature range
- **Counter:** counts the amount of times the target has been detected
- **Adjustable Response Time:** allows operator to change the response time for longer range on background suppression and background reflection models (Time of Flight)
- **Timer:** indicates the amount of time the output was present or absent to help determine the how fast your system is operating

Product Selection

Sensing Mode	Operating Voltage	Light Source	Sensing Distance	Sensitivity Adjustment	Output Function	Output Type	Catalog Number
Background Suppression	10...30V DC	Infrared	Default setting: 10...400 mm (0...15.7 in.)	No physical adjustment. IO-Link teach: 4 m*	Light and dark operate	Dual auto PNP or NPN	42AF-B1MAB1-D4
			Default setting: 10...600 mm (0...23.6 in.)	No physical adjustment. IO-Link teach: 4 m*			42AF-B1MAB2-D4
			Default setting: 10...1.2 m (0...3.9 ft)	Push button teach: 3 m IO-Link teach: 4 m*			42AF-B1MAC1-D4
			0...800 mm (0...31.5 in.)	Push button teach: 3 m IO-Link teach: 4 m*			42AF-N1MAC1-D4
Background Reflection							
Polarized Retroreflective	10...30V DC	Visible red	0.025...10 m (0.03...33 ft)	No adjustment	Light and dark operate	Dual auto PNP or NPN	42AF-P2MAB1-D4
	Light operate				SPDT EM relay		42AF-P2RHB1-G4
	Dark operate					42AF-P2SHB1-G4	
	Light and dark operate					42AF-P2CHB1-A2	
Transmitted Beam	10...30V DC	Infrared	0...80 m (0...262 ft)	No adjustment		Transmitted beam emitter	N/A
	20...250V DC 24...250V AC				42AF-E1UZB1-G4		
	10...30V DC				Light and dark operate	Dual auto PNP or NPN	42AF-R1MAB1-D4
	20...250V DC 24...250V AC				Light operate		42AF-R1RHB1-G4
	20...250V DC 24...250V AC				Dark operate	SPDT EM relay	42AF-R1SHB1-G4
					Light and dark operate		42AF-R1CHB1-A2

Connection Options: The following suffixes describe the available connection options:

-D4: Describes an Integral 4-pin DC micro (M12) quick-disconnect for DC models

-G4: Describes a 4-pin AC micro (M12) quick-disconnect on a 150 mm (6 in.) length pigtail on AC/DC models

-F4: Describes a 4-pin DC micro (M12) quick-disconnect on a 150 mm (6 in.) length pigtail on DC models

-A2: Describes a 2 m PVC cable

*Sensor response time can be changed up to 75 ms to achieve distance of up to 4 m. A higher distance between target and high reflectivity background may be needed when operating the sensors at distances greater than 2 m.

Additional connection options may be available. Refer to ProposalWorks for available options by sensing mode.

Product Specifications

Specifications	
Certifications	CCC, cULus and CE marked for all applicable directives
User Interface	
Status indicators	Green and orange LED
Electrical	
Adjustments	Adjustment free or push button teach IO-Link adjustable
Operating voltage	DC models: 10...30V DC, IO-Link: 18...30V AC/DC models: DC: 20V DC to 250V DC AC: 24V AC to 250V AC AC/DC: Reverse polarity
Discrete Output	
Response time	DC: 1 ms AC/DC: 15 ms max
Output type	DC: Dual Auto PNP or NPN AC/DC: EM relay
Load current	DC: 100 mA max AC/DC SPDT: 10...30V DC: 3 A 31...125V DC: 200 mA 24...250V AC: 3 A

Specifications	
IO-Link	
Communications mode	COM2
Cycle time, min	2 ms
Process data bit length	32 bits (4 bytes)
Specification version	1.1
Mechanical	
Housing material	PBT
Lens material	PMMA

Environmental	
Enclosure type rating	IP67 and IP69K per ISO 20653 rated enclosure
Operating temperature	-40...+70 °C (-40...158 °F) ¹

¹The sensing range for all sensing modes can be reduced up to 20% when operated between -40...-25 °C (-40...-13 °F).

Mounting Accessories

Description	Catalog Number
4-pin DC micro, 2 m (6.5 ft) cordset	889D-F4AC-2
18 mm straight bracket	60-2656
18 mm right angle bracket	60-2657
30 mm stainless steel mounting bracket	60-2421
30 mm swivel/tilt bracket	60-2439
18 mm swivel/tilt bracket	60-2649
76 mm (3 in.) diameter reflector	92-39
47 mm (1.85 in.) diameter reflector	92-47
84 mm (3.3 in.) diameter reflector	92-125

Other accessories – including apertures and stainless steel mounting hardware – are available. Go to www.ab.com to see the full line of 42AF RightSight M30 sensors and accessories.

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