



Description

The 42CB family of photoelectric sensors shares many of the same features as the 42CA general purpose line but offer additional enhancements in electrical, mechanical, and optical characteristics. These include a faster response time, both light/dark operate modes, right angle package, dual LED outputs, sensitivity adjustment, and increased sensing range.

The 42CB is available in three sensing modes to cover typical applications. The infrared light source provides excellent range for the sensor size.

DC operation ensures compatibility with measurement and control circuits found in today's factory automation systems. Signaling of target detection is made via either an NPN or PNP output. This output is short-circuit protected to protect the sensor from possible damage. Light or dark operate condition is selected by wiring not model number.

A single turn adjustment is included to set the optical sensitivity of the sensor. Two LED indicators are provided to indicate both power and output status of the sensor.

As an alternative to the 18mm cylindrical package, Rockwell Automation/Allen-Bradley also offers the RightSight™ photoelectric sensor. That product is of a right angle design to conserve space in many applications. Refer to page 1–31 for further information on this product.

General Specifications

Light Source	Infrared 880nm, visible red on polarised retroreflective model
Unit Protection	Reverse polarity, output short-circuit protection (SCP)
Supply Voltage	10–30V DC
Current Consumption	20mA maximum
Output Type	NPN or PNP
Output Mode	Light or dark operate selectable via wiring
Output Rating	100mA @ 28V DC
Response Time	500µs
Housing Material	Polyamide
Lens Material	Acrylic
LED Indicators	See User Interface on page 1–138
Connection Types	2m 300V cable, 4-pin DC micro QD
Supplied Accessories	None
Optional Accessories	Mounting brackets, reflectors, cordsets
Operating Environment	NEMA 3, 4X, 12, 13 (IP65)
Vibration	10–55Hz, 1mm amplitude, Meets or exceeds IEC 60947–5–2
Shock	30g with 1ms pulse duration, Meets or exceeds IEC 60947–5–2
Operating Temperature	–25° C to +70° C (–13° F to +158° F)
Relative Humidity	35...85%
Approvals	UL listed, CSA certified, CE marked for all applicable directives

Features

- Right angle 18mm package
- Wide selection of sensing modes
- 24VDC operation
- NPN or PNP outputs
- Selectable light/dark operate modes
- Fast 500µs response time
- Variety of connection types

General Information

Typical Wiring Diagrams . . . page 1–138
 Dimensions page 1–138

Sensing Modes

Retroreflective page 1–139
 Polarized Retroreflective . . . page 1–140
 Standard Diffuse page 1–141

Accessories

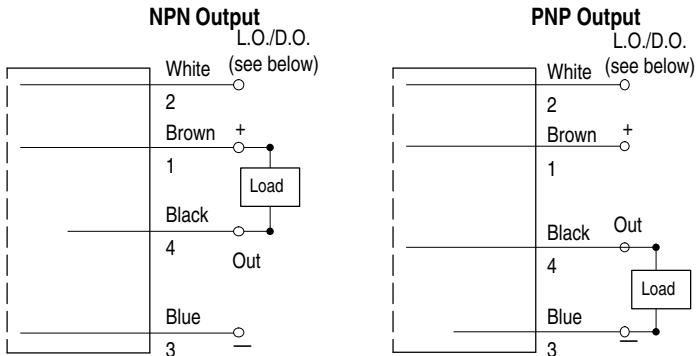
Quick-Disconnect Cables . . . page 5–1
 Mounting Assemblies page 1–316
 Reflectors, Reflective Tape page 1–327

User Interface

Label	Color	State	Status
Output	Red	OFF	Sensor output de-activated
		ON	Sensor output activated
Power	Green	OFF	Sensor not powered
		ON	Sensor powered

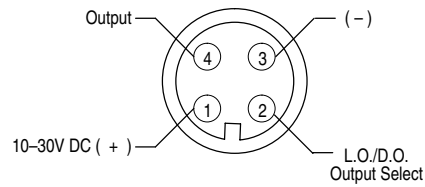
Wiring Diagrams

Cable Version



Micro Quick-Disconnect Versions

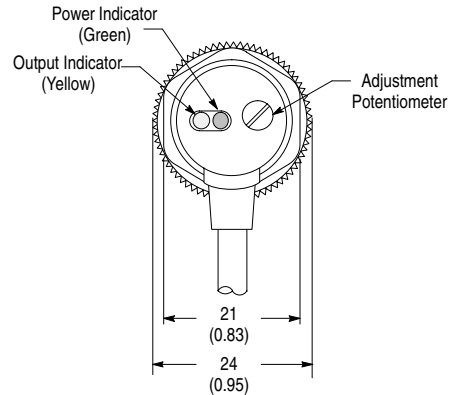
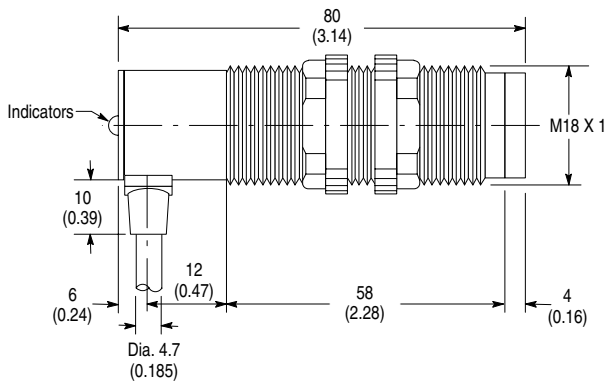
Face View Male Receptacle (Sensor)



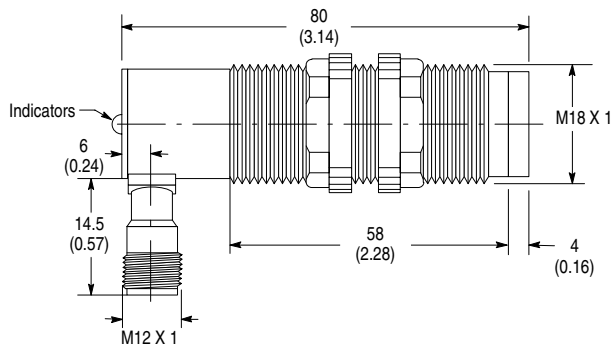
Selection of the output state (white wire must be connected for operation): L.O. (White -), D.O. (White +)

Dimensions—mm (inches)

Cable Version

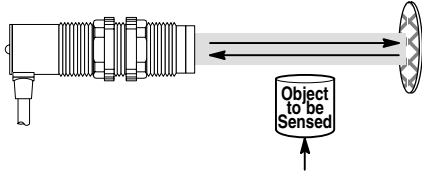


Quick-Disconnect Version



42CB Retroreflective

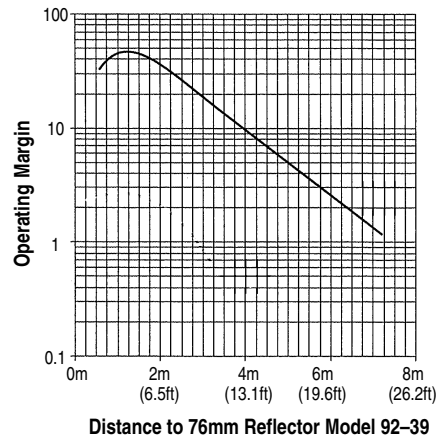
High Speed 18mm Cylindrical Style



QD Cordsets and Accessories

Description	Catalog/Page Number
DC Micro QD Cordset, 4-pin, 2m	889D-F4AC-2
Other Cordsets Available	5-1
Mounting Assemblies	60-2664
76mm (3in) Diameter Reflector	92-39
32mm (1.25in) Diameter Reflector	92-47

Typical Response Curve



Specifications

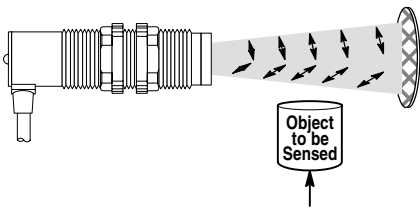
Field of View	1.3°
Emitter LED	Infrared 880nm

Selection Guide

Operating Voltage Supply Current	Sensing Distance @ 1X Margin	Output Energized	Output Type Capacity Response Time	Max Leakage Current	Connection Type	Catalog Number
10-30V DC 20mA	80mm (3in) to 7.2m (23.6ft)	Light/Dark Selectable	NPN 100mA 500µs	10µA	2m 300V cable	42CB-U1LNA-L2
					4-pin DC micro QD	42CB-U1LNA-M4
			PNP 100mA 500µs		2m 300V cable	42CB-U1LPA-L2
					4-pin DC micro QD	42CB-U1LPA-M4

42CB Polarized Retroreflective

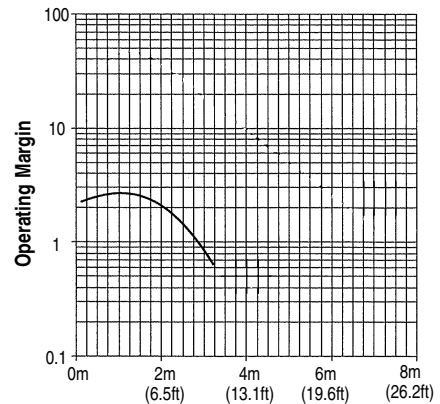
High Speed 18mm Cylindrical Style



QD Cordsets and Accessories

Description	Catalog/Page Number
DC Micro QD Cordset, 4-pin, 2m	889D-F4AC-2
Other Cordsets Available	5-1
Mounting Assemblies	60-2664
76mm (3in) Diameter Reflector	92-39
32mm (1.25in) Diameter Reflector	92-47

Typical Response Curve



Distance to 76mm Reflector Model 92-39

Specifications

Field of View	1.6°
Emitter LED	Visible red 660nm

Selection Guide

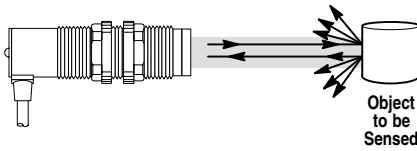
Operating Voltage Supply Current	Sensing Distance @ 1X Margin	Output Energized	Output Type Capacity Response Time	Max Leakage Current	Connection Type	Catalog Number
10-30V DC 20mA	3mm (0.12in) to 2.8m (9.2ft)	Light/Dark Selectable	NPN 100mA 500µs	10µA	2m 300V cable	42CB-P2LNA-L2
					4-pin DC micro QD	42CB-P2LNA-M4
			PNP 100mA 500µs		2m 300V cable	42CB-P2LPA-L2
					4-pin DC micro QD	42CB-P2LPA-M4

42CB Standard Diffuse

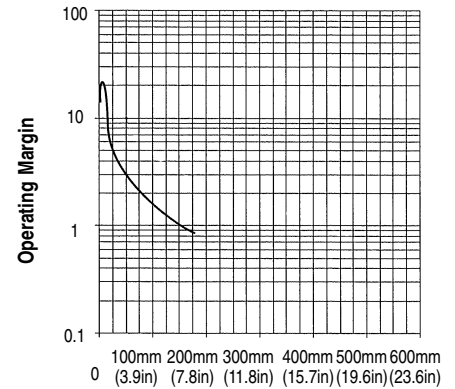
High Speed 18mm Cylindrical Style

QD Cordsets and Accessories

Typical Response Curve



Description	Catalog/Page Number
DC Micro QD Cordset, 4-pin, 2m	889D-F4AC-2
Other Cordsets Available	5-1
Mounting Assemblies	60-2664



Specifications

Field of View	See Selection Guide
Transmitting LED	Infrared 880nm

Distance to White Target

Selection Guide

Operating Voltage Supply Current	Sensing Distance @ 1X Margin	Output Energized	Output Type Capacity Response Time	Max Leakage Current	Field of View	Connection Type	Catalog Number
10-30V DC 20mA	0.2m (7.9) to 150mm (5.9in)	Light/Dark Selectable	NPN 100mA 500µs	10µA	15°	2m 300V cable	42CB-D1LNAF-L2
						4-pin DC micro QD	42CB-D1LNAF-M4
	5.5°				2m 300V cable	42CB-D1LNAL-L2	
					4-pin DC micro QD	42CB-D1LNAL-M4	
	0.2m (7.9) to 1000mm (39.4in)		15°		PNP 100mA 500µs	2m 300V cable	42CB-D1LPAF-L2
						4-pin DC micro QD	42CB-D1LPAF-M4
	0.2m (7.9) to 150mm (5.9in)		5.5°		2m 300V cable	42CB-D1LPAL-L2	
						4-pin DC micro QD	42CB-D1LPAL-M4