



## 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

<b>Light Source</b>	Infrared 880nm, visible red on polarised retroreflective model
<b>Unit Protection</b>	Reverse polarity, output short-circuit protection (SCP)
<b>Supply Voltage</b>	10–30V DC
<b>Current Consumption</b>	20mA maximum
<b>Output Type</b>	NPN or PNP
<b>Output Mode</b>	Light or dark operate selectable via wiring
<b>Output Rating</b>	100mA @ 28V DC
<b>Response Time</b>	500µs
<b>Housing Material</b>	Polyamide
<b>Lens Material</b>	Acrylic
<b>LED Indicators</b>	See User Interface on page 1–138
<b>Connection Types</b>	2m 300V cable, 4-pin DC micro QD
<b>Supplied Accessories</b>	None
<b>Optional Accessories</b>	Mounting brackets, reflectors, cordsets
<b>Operating Environment</b>	NEMA 3, 4X, 12, 13 (IP65)
<b>Vibration</b>	10–55Hz, 1mm amplitude, Meets or exceeds IEC 60947–5–2
<b>Shock</b>	30g with 1ms pulse duration, Meets or exceeds IEC 60947–5–2
<b>Operating Temperature</b>	–25° C to +70° C (–13° F to +158° F)
<b>Relative Humidity</b>	35...85%
<b>Approvals</b>	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 1–301

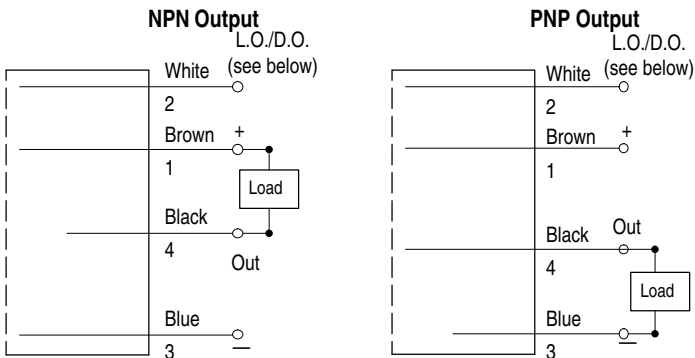
Reflectors, Reflective Tape . . . page 1–311

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

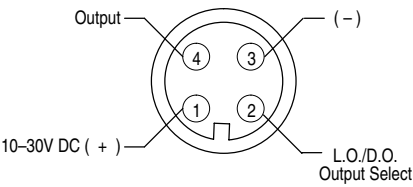
Cable Version



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

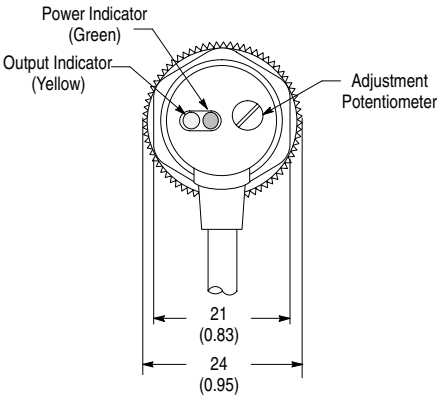
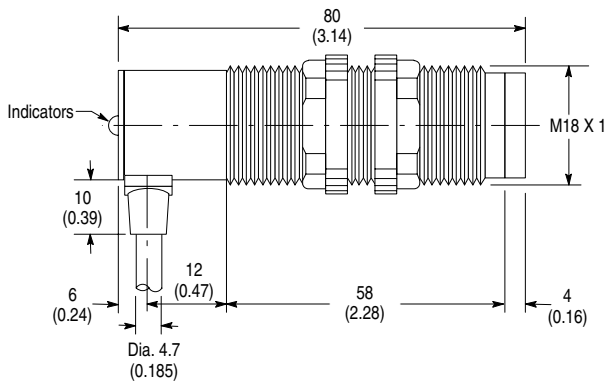
Micro Quick-Disconnect Versions

Face View Male Receptacle (Sensor)

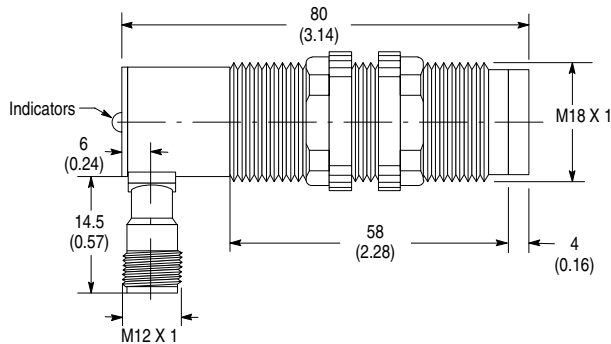


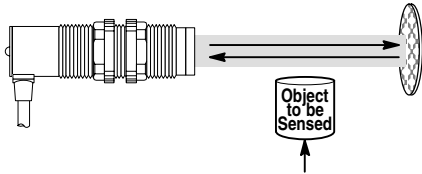
Dimensions—mm (inches)

Cable Version

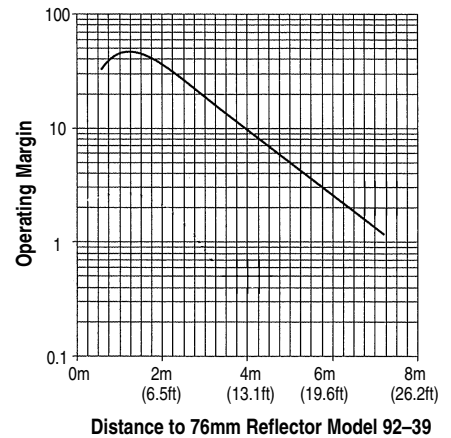


Quick-Disconnect Version



**42CB Retroreflective****High Speed 18mm Cylindrical Style****QD Cordsets and Accessories**

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

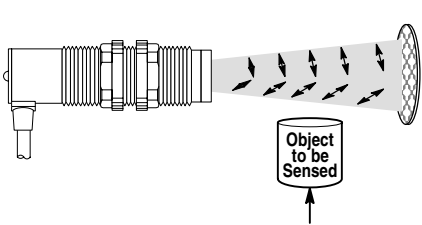
**Typical Response Curve****Specifications**

<b>Field of View</b>	1.3°
<b>Emitter LED</b>	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

PHOTOSWITCH<sup>®</sup> Photoelectric Sensors
42CB Polarized Retroreflective
High Speed 18mm Cylindrical Style



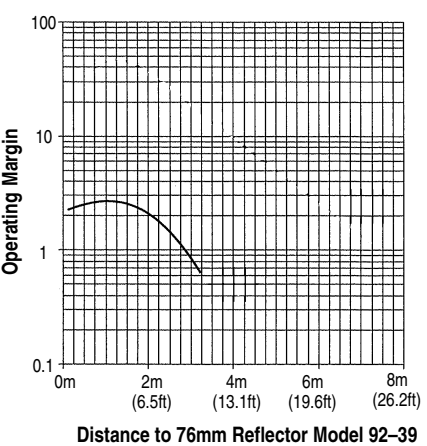
Specifications

Field of View	1.6°
Emitter LED	Visible red 660nm

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

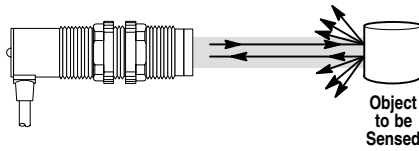
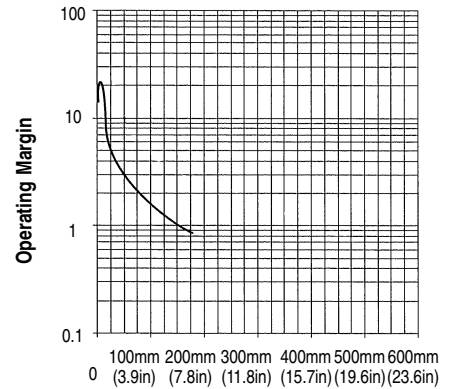


Selection Guide

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**

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

**Typical Response Curve****Specifications**

<b>Field of View</b>	See Selection Guide
<b>Transmitting LED</b>	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	
	0.2m (7.9) to 1000mm (39.4in)		PNP 100mA 500μs		5.5°	2m 300V cable	42CB–D1LNAL–L2
	4-pin DC micro QD					42CB–D1LNAL–M4	
	0.2m (7.9) to 150mm (5.9in)	Light/Dark Selectable	PNP 100mA 500μs		15°	2m 300V cable	42CB–D1LPAF–L2
	4-pin DC micro QD					42CB–D1LPAF–M4	
	0.2m (7.9) to 1000mm (39.4in)		PNP 100mA 500μs		5.5°	2m 300V cable	42CB–D1LPAL–L2
	4-pin DC micro QD					42CB–D1LPAL–M4	