

Adjustable Background Suppression Sensors

Catalog Numbers 42BC-B1LBAL-T4, 42BC-B1LBAN-T4, 42BC-B1CRAL-T4, 42BC-B1CRAN-T4, 42BT-B2LBSL-F4, 42BT-B1LBSN-F4

Topic	Page
42BC Long-range Sensor	1
Features	1
Available Model	1
Specifications	2
Optical and Response Time Characteristics	2
Product Selection	3
User Interface Panel	3
Wiring Diagrams	3
Approximate Dimensions	4
Typical Response Curves	4
Cordsets and Accessories	4
42BT Long-range Sensor	5
Features	5
Available Model	5
Specifications	5
Optical and Response Time Characteristics	5
Product Selection	5
User Interface Panel	6
Wiring Diagrams	6
Approximate Dimensions [mm (in.)]	6
Typical Response Curves	7
Cordsets and Accessories	7

42BC Long-range Sensor



Features

42BC long-range sensors include the following features:

- True background-suppression technology
- High visibility LED indicators
- Adjustable sensing ranges: 1 m (3.28 ft) and 2 m (6.56 ft)
- Both (NPN and PNP) outputs and SPST relay output on AC/DC models
- IP65 rated enclosure

Available Model

- Adjustable background suppression



Table 1 - Specifications

Certifications	UL Listed, CSA Certified, and CE Marked for all applicable directives
Shock	30 g with 1 ms pulse duration, meets or exceeds IEC 60947-5-2
Vibration	10...55 Hz, 1 mm amplitude, meets or exceeds IEC 60947-5-2
Environmental	
Enclosure type rating	NEMA 1, 12, 13; IP65
Operating temperature	-25...+55 °C (-13...+131 °F)
User Interface	
Indicator LEDs	See Table 4 .
Sensitivity adjustment	Adjustment knob, light operate or dark operate selection switch
Electrical	
Current consumption, max	30 mA
Protection type	Short-circuit (DC only), reverse polarity, false pulse, overload
Outputs	
Output type	See Table 3 .
Output function	Selectable light or dark operate
Mechanical	
Housing material	Polycarbonate
Lens material	Acrylic
Connection type	Screw terminal, 16 AWG [1.3 mm(0.05 in.)]
Supplied accessory	60-2637 mounting bracket

Table 2 - Optical and Response Time Characteristics

Attribute	Sensing Range	
	1 m	2 m
Field of view	3.5°	
Spot size	61 mm (2.4 in.)	135 mm (5.3 in.)
Light source	Infrared LED 880 nm	
Response time, max	20 ms	30 ms

Table 3 - Product Selection

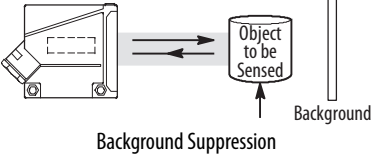
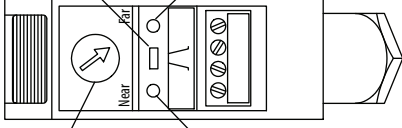
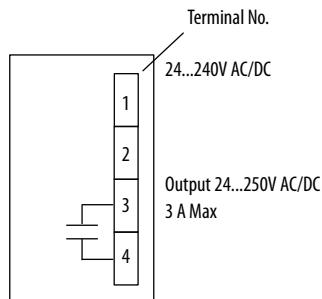
Sensing Mode	Operating Voltage	Load Current	Light Source	Sensing Distance	Output Function	Output Type	Cat. No.
	12...24V DC ±10%	100 mA	Infrared LED 880 nm	0.2...1 m (0.66...3.3 ft)	Selectable light or dark operate	NPN and PNP	42BC-B1LBAL-T4
	24...240V AC/ DC ±10%	3 A		0.2...2 m (0.66...6.4 ft)			42BC-B1LBAN-T4
				0.2...1 m (0.66...3.3 ft)		S.P.S.T. N.O. Relay	42BC-B1CRAL-T4
	0.2...2 m (0.66...6.4 ft)	42BC-B1CRAN-T4					

Table 4 - User Interface Panel

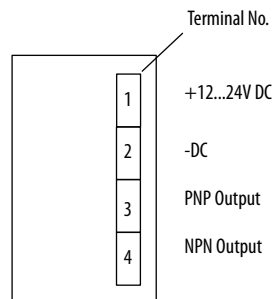
Description	Label	LED Color	State	Status
	Margin	Green	Off	0.8 . Margin < 1.2X
			On	0.8X < Margin > 1.2X
	Status	Red	Off	Output is de-energized
			On	Output is energized

Wiring Diagrams

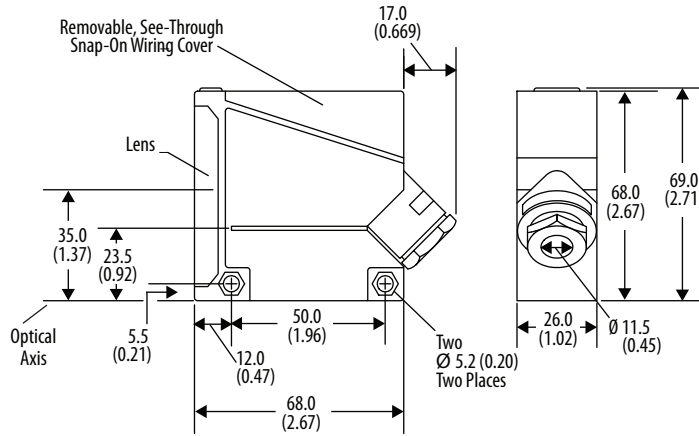
Relay Output Type



Solid-state Output Type



Approximate Dimensions



Typical Response Curves

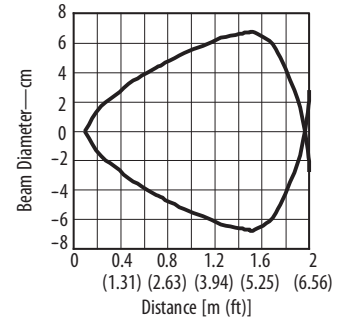
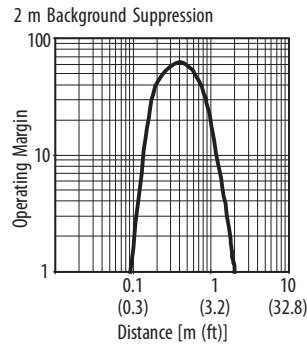
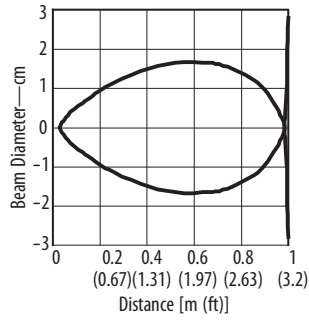
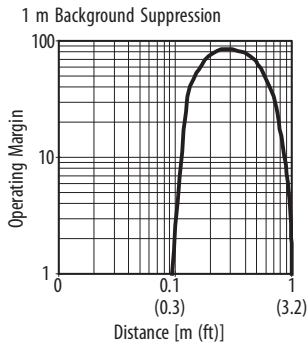


Table 5 - Cordsets and Accessories

Description	Cat. No.
DC micro QD cordset, straight, 4-pin, 2 m (6.5 ft)	889D-F4AC-2
DC micro (M12) QD receptacle	888D-M4AC1-0M3
Mounting bracket	60-2637
Replacement cover	60-2669
Mini QD receptacle	60-2668

42BT Long-range Sensor



Features

42BT long-range sensors include the following features:

- Visible red LED for ease of alignment (1 m models)
- Range indicator allows for an easy readout of settings
- Adjustable sensing ranges: 1 m (3.28 ft) and 2 m (6.56 ft)
- High visibility LED indicators
- Both (NPN and PNP) output
- Compact IP65 rated enclosure

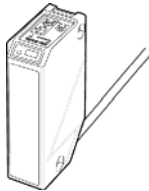
Available Model

- Adjustable background suppression

Table 6 - Specifications

Certifications	UL Listed, c-UL, and CE Marked for all applicable directives
Shock	30 g with 1 ms pulse duration, meets or exceeds IEC 60947-5-2
Vibration	10...55 Hz, 1 mm amplitude, meets or exceeds IEC 60947-5-2
Environmental	
Enclosure type rating	IP65

Table 8 - Product Selection

Sensing Mode	Field of View	Light Source	Sensing Distance	Adjustment Range	Output Function	Output Type	Cat. No. ⁽¹⁾
 Background Suppression	1.7°	Visible red 650 nm	0.1...1 m (0.3...3.3 ft)	0.2...1 m (0.7...3.3 ft)	Selectable light or dark operate	NPN and PNP	42BT-B2LBSL-F4
	2.8°	Infrared 880 nm	0.1...2 m (0.3...6.4 ft)	0.2...2 m (0.7...6.4 ft)			42BT-B1LBSN-F4

(1) Connection Options: The -F4 suffix denotes a 4-pin DC micro (M12) QD connector on a 150 mm (6 in.) pigtail. For additional connections options, replace the -F4 suffix with -A2 for a 2 m cable without quick-disconnect connection (for example, 42BT-B2LBSL-A2) or -Y4 for a 4-pin pico (M8) quick-disconnect connection on a 150 mm (6 in.) pigtail (for example, 42BT-B2LBSL-Y4).

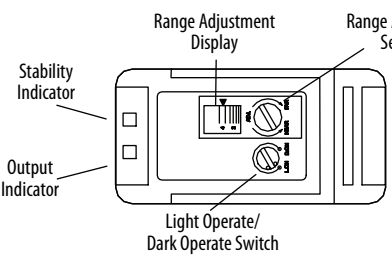
Table 6 - Specifications

Operating temperature	-25...+55 °C (-13...+131 °F)
Relative humidity	35...85%
User Interface	
Indicator LEDs	See Table 9 .
Sensitivity adjustment	Potentiometer, light operate or dark operate selection switch
Electrical	
Operating voltage	12...24V DC
Current consumption, max	33 mA
Protection type	Short-circuit
Outputs	
Output type	See Table 8 .
Output function	Selectable light or dark operate
Load current	100 mA, max
Leakage current	0.1 mA, max
Mechanical	
Housing material	Polyarylate
Lens material	Polyarylate
Connection type	See Table 8 .

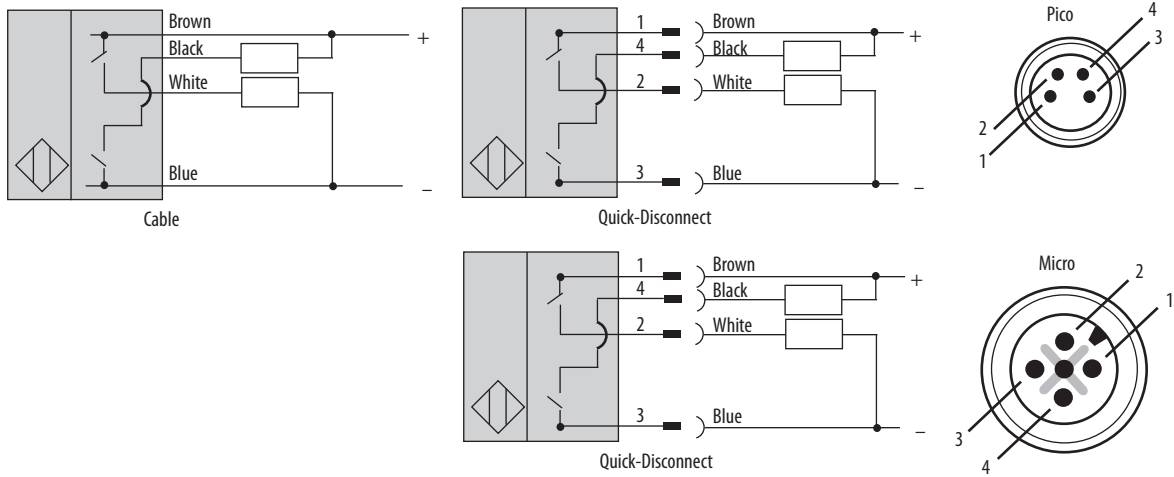
Table 7 - Optical and Response Time Characteristics

Attribute	Sensing Range	
	1 m	2 m
Field of view	1.7°	2.8°
Spot size	29 mm (1.14 in.)	107 mm (4.2 in.)
Light source	Visible red 650 nm	Infrared 880 nm
Response time, max	2 ms	

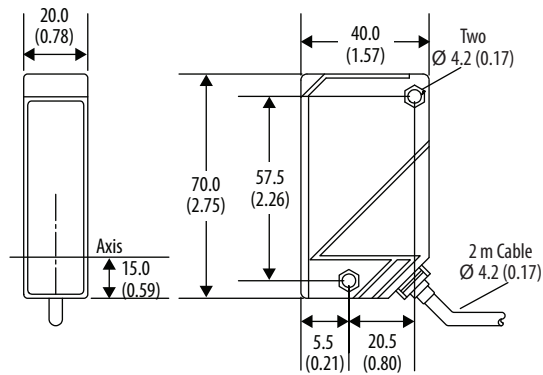
Table 9 - User Interface Panel

Description	Label	LED Color	State	Status
	Margin	Green	Off	Margin <2.5X
			On	Margin >2.5X
	Status	Red	Off	Output is de-energized
			On	Output is energized

Wiring Diagrams



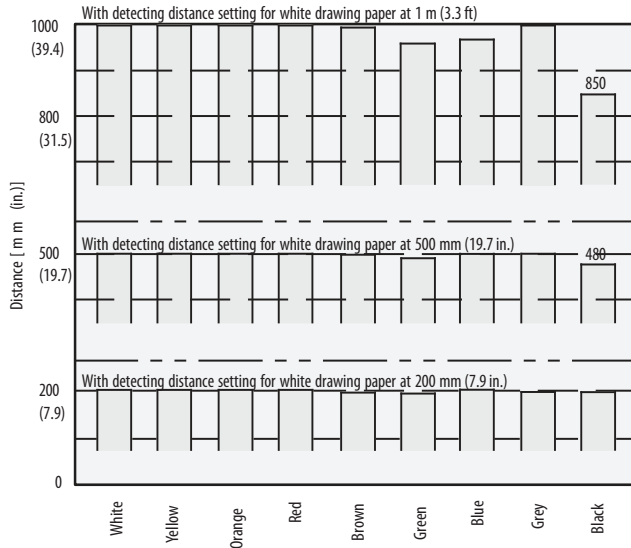
Approximate Dimensions [mm (in.)]



Typical Response Curves

42BT-B2LBSL

Background Suppression (1 m)
Detection distance for a 150 x 150 mm color target
(matte surface)



42BT-B2LBSN

Background Suppression (2 m)
Detection distance for a 150 x 150 mm color target
(matte surface)

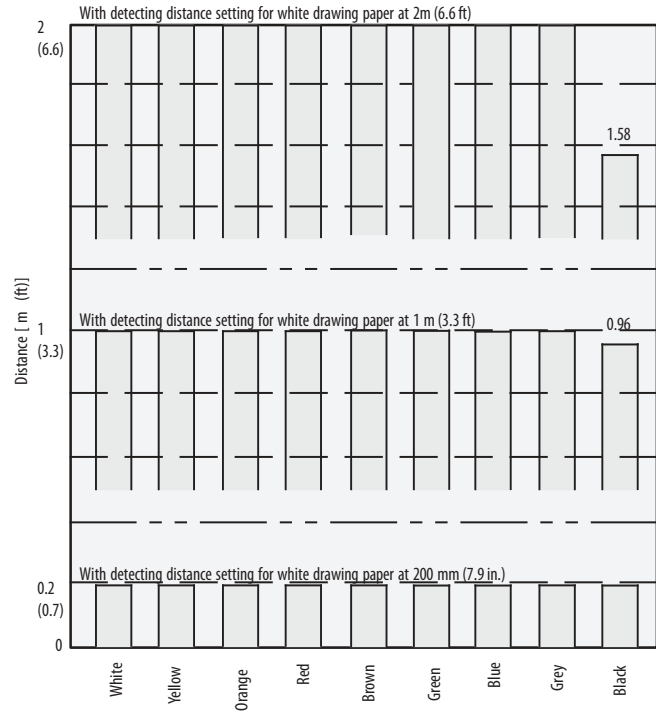


Table 10 - Cordsets and Accessories

Description	Cat. No.
DC micro QD cordset, straight, 4-pin, 2 m (6.5 ft)	889D-F4AC-2
DC pico (M8), right angle, 2 m	889P-F4AB-2
Vertical mounting bracket	61-6738
Horizontal mounting bracket	61-6739

Rockwell Automation Support

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	www.rockwellautomation.com/knowledgebase
Local Technical Support Phone Numbers	Locate the phone number for your country.	www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	www.rockwellautomation.com/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	www.rockwellautomation.com/global/support/pcdc.page

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the How Are We Doing? form at http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

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

Allen-Bradley, Rockwell Software, Rockwell Automation, and LISTEN. THINK. SOLVE are trademarks of Rockwell Automation, Inc. Trademarks not belonging to Rockwell Automation are property of their respective companies.

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

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 Kleetlaan 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 1846