Installation Instructions

Original Instructions

Bulletin 48CR Code Reader

Catalog Number 48CR-CB16R400-E8, 48CR-CB52R102-E8, 48CR-CB80R133-E8, 48CR-CB80R190-E8, 48CR-CC16RAF-E8, 48CR-CC50RAF-E8, 48CR-CC77RAF-E8

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes. Translated versions are not always available for each revision.

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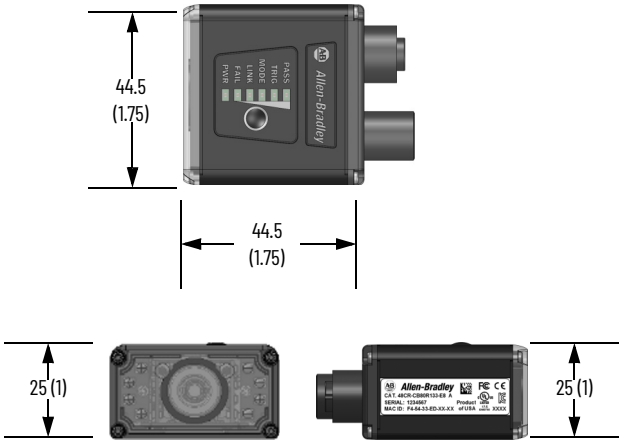
Dimensions

Figure 1 - Approximate Dimensions [mm (in.)]

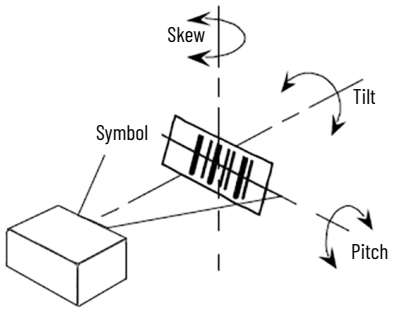


Mount and Position the Reader

1. Position the reader several inches from the symbol. The focal distance varies depending on the code reader catalog number and the 1D/2D barcode size. If needed, you can reposition the reader a few times to find the ideal distance.
2. Tip the reader relative to the symbol to avoid the glare of direct (specular) reflection.
3. Symbols can be rotated (tilted) at any angle. However, for best results, symbols must be aligned with the field of view. If there are linear symbols, align the bars in the direction of their movement (ladder orientation) to help minimize the chance of blurring. This alignment results in more consistent decodes.

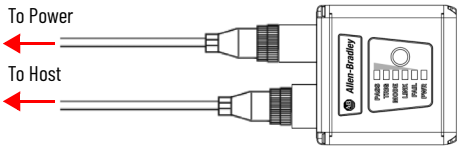
IMPORTANT Avoid excessive skew or pitch. Maximum skew is ±30°; maximum pitch is ±30°. Figure 2 shows approximate skew axis, pitch axis, and tilt axis.

Figure 2 - Skew, Pitch, and Tilt



Connect the System

Figure 3 - 48CR Code Reader– Standalone Ethernet Configuration



IMPORTANT The 48CR code reader is an EtherNet/IP™ reader. See publication 48CR-UM001 for more details.

Power Requirements and Pin Assignments

4.75...30V; 150 mA at 24V DC (typical)

I/O Connectors

Table 1 - Power I/O Connection

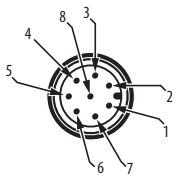
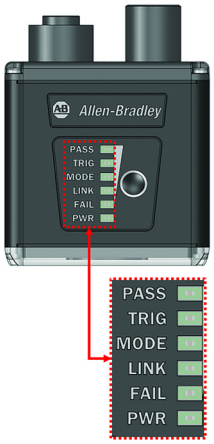
Face View of Male DC Micro	Color	Pin Number	Signal Receiver
	White	1	Trigger input
	Brown	2	+24V DC
	Green	3	Input 1
	Yellow	4	Output 1
	Gray	5	Output 2
	Pink	6	Output common
	Blue	7	0V DC
	Red	8	Input common

Table 2 - Ethernet Connection

Face View of Female DC Micro	Color	Pin Number	Signal Receiver
	White-Orange	1	TxData +
	White-Green	2	TxData -
	Orange	3	Recv Data +
	Green	4	Recv Data -

Status Indicators



Indicator	Status	Description
PASS	Off	Inactive status
	Steady green	Active status
TRIG	Off	Waiting for trigger event
	Flashing yellow	Trigger event
MODE	Off	Unit not ready
	Flashing yellow (0.5 Hz)	Unit is not configured
	Steady yellow	Unit is configured
LINK	Off	No power or no IP address
	Steady yellow	Connected in normal operation
	Flashing yellow	Standby. (No network connection, only power is connected).
FAIL	Off	Inactive status
	Steady red	Active status
PWR	Off	No power is applied to unit
	Steady green	Power on

Connect to Code Reader

You can connect to your 48CR code reader via Web Connect or Add-on Profile (AOP). See publication 48CR-UM001 for details.

Ethernet Communication Options

There are two options to make a static connection to your code reader.

Option 1 — Initiate IP Address (DHCP Default)

1. The code reader IP address configuration state defaults to dynamic and requires a Dynamic Host Configuration Protocol (DHCP) server to assign the IP address automatically.
2. Manually assign the IP address through the Rockwell Automation® BootP/DHCP server tool.

Option 2 — Change Static IP Address

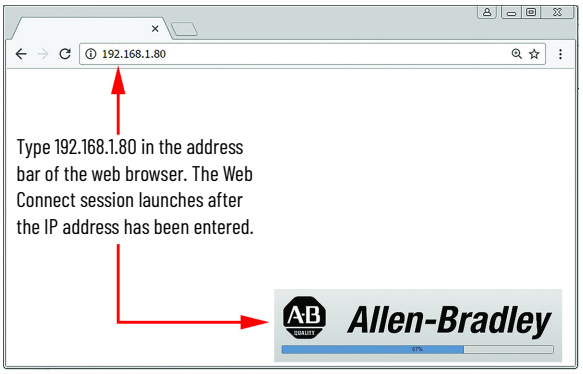
1. Navigate to Control Panel > Network and Sharing Center on your computer.
2. Click Local Area Connection 4. In the Status dialog box, click Properties.
3. In the Local Area Connection Properties dialog box, select Internet Protocol Version 4 (TCP/IPv4) and click Properties again. Set the IP address to 192.168.1.*x* (for example, 192.168.1.80).
4. Click OK.
5. Open a web browser and type the IP address of the code reader that was established in step 3.

   The code reader connects to Web Connect.

Initialize Web Connect

When you enter the IP address of the code reader directly in the address bar of your web browser, Web Connect loads and starts.

Figure 4 - Initiate Web Connect in Browser



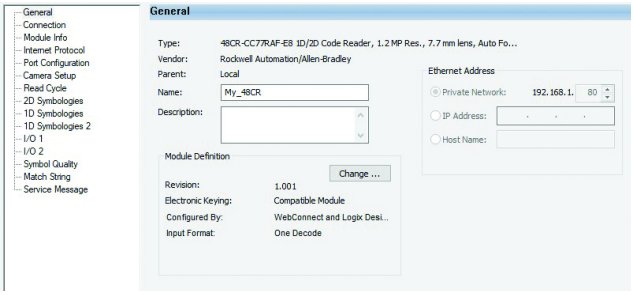
Once Web Connect has launched, the initial view is the Start View (Figure 5). The connected code reader is shown along with user-defined name, IP address, model, serial number, MAC ID, firmware revision, sensor, optics, decoder, and speed. This initial view allows you to choose either Assisted Setup, New Setup, or to load a setup. For details on use of Web Connect, see publication 48CR-UM001.

Figure 5 - Web Connect View

IMPORTANT Web Connect and Studio 5000® Add-on Profiles are the preferred user interfaces to configure and test your 48CR code reader.

Add-on Profile (AOP)

Figure 6 - AOP



For details on the use of AOP, see publication 48CR-UM001.

Product Selection

Table 3 - Standard Fixed-focus Code Readers (0.3 MP Resolution)

Lens [mm (in.)]	Optics	Imager	Focus Distance [mm (in.)]	Decode Algorithms	Cat. No.
5.2 (0.2)	Standard density	WVGA	102 (4.02)	1D, 2D, and DPM	48CR-CB52R102-E8
8 (0.3)	High density		133 (5.24)		48CR-CB80R133-E8
8 (0.3)	High density		190 (7.48)		48CR-CB80R190-E8
16 (0.6)	Ultra high density		400 (15.75)		48CR-CB16R400-E8

Table 4 - Advanced Auto-focus Code Readers (1.2 MP Resolution)

Lens [mm (in.)]	Optics	Imager	Decode Algorithms	Cat. No.
5.0 (0.2)	Standard density	SXGA	1D, 2D, and DPM	48CR-CC50RAF-E8
7.7 (0.3)	High density			48CR-CC77RAF-E8
16 (0.6)	Ultra high density			48CR-CC16RAF-E8

Table 5 - Accessories

Description	Cat. No.
Polarizer – lens cover kit	48CR-POLARIZER
Diffuser – lens cover kit	48CR-DIFFUSER
L-bracket mounting	48CR-LBKT
Adjustable mounting bracket	48CR-ADJBKT
Right-angle mirror	48CR-45MIRROR
T-port	879D-F8D4M

Table 6 - Cables

Style	Connector Type	Pins	Shield	Wire Size [AWG]	Cat. No.
EtherNet/IP Cables					
M12 D Code Patchcords	M12 male straight to RJ45 male straight	4	Unshielded	24	1585D-M4TBJM-*x* (1)
	M12 male right angle to RJ45 male straight				1585D-E4TBJM-*x* (1)
Power Cables					
DC Micro (M12) QD Code Cordset	M12 female straight to flying lead	8	Unshielded	24	889D-F8AB-*x* (2)
			Shielded		889-F8FB-*x* (2)
DC Micro (M12) QD Code Patchcord	M12 female straight to M12 male straight	8	Unshielded	24	889D-F8ABDM-*x* (2)
			Shielded		889D-F8FBDM-*x* (2)

(1) The *x* represents the cable length. Available in lengths of 0.15, 0.2, 0.3, 0.6, 1, 2, 2.5, 3, 4, 5, 10, 15, 20, 30, and 40 m (0.5, 0.7, 1, 2, 3.3, 6.6, 8.2, 9.8, 13.1, 16.4, 32.8, 49.2, 65.6, 98.4, and 131.2 ft) in increments of 5 m (16.4 ft) up to 75 m (246.1 ft).

(2) The *x* represents the cable length. Available in lengths of 0.3, 1, 2, 5, 10, and 15 m (1, 3.3, 6.6, 16.4, 32.8, and 49.2 ft) in increments of 5 m (16.4 ft) up to 75 m (246.1 ft).

IMPORTANT See ab.rockwellautomation.com/Connection-Devices/Cables-and-Cordsets and online configuration tools for more cable and cordset offerings.

Specifications

Table 7 - Specifications

Attribute	Standard	Advanced
Certifications	• FCC and CE Marked • RoHS compliant	
Decoder	• Plus (high-contrast 1D/2D) • X-mode (poor or damaged 1D/2D = DPM)	
Speed	High speed (up to 60 fps)	High speed (up to 42 fps)
Sensor (CMOS)	WVGA (0.34 MP, 752 x 480)	SXGA (1.2 MP, 1280 x 980)
Shutter	Global	
Frames per second (FPS)	WVGA (60 FPS)	SXGA (42 FPS)
Exposure	50...100,000 µs (default 2500 µs)	
Focal length	Fixed focus: • 102 mm (4.02 in.) • 133 mm (5.24 in.) • 190 mm (7.48 in.) • 400 mm (15.75 in.)	Liquid lens auto focus: • 102 mm (4.02 in.) • 190 mm (7.48 in.) • 400 mm (15.75 in.)
Connectivity	M12 8-pin power, M12 4-pin Ethernet	
Illumination	16 red inner light-emitting diode (LEDs)	
Light source, type	High output LED	
Light source, wave length	625 nm (inner red) nominal, 617 nm (outer red) nominal	
Light source, operating life	50,000 hr @ 25 °C (77 °F)	
Digital I/O	2 opto-isolator inputs, 2 opto-isolator outputs	
Electrical	4.75...30V DC, 200 mV p-p max ripple, 150 mA at 24V DC (typical)	
Operating temperature	0...40 °C (32...104 °F)	
Storage temperature	-50...+75 °C (-58...+167 °F)	
Humidity	5...95% (noncondensing)	
Dimensions	25 x 45 x 45 mm (1 x 1.75 x 1.75 in.)	
Weight	68 g (2.4 oz)	
Enclosure	IP65/67, aluminum	
Indicators	Target pattern, good read (green flash), performance status indicators	
Emissions	EN 55022:2010 Class A limits	

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
48CR Code Reader User Manual, publication 48CR-UM001	Provides information on the installation and configuration of 48CR code readers.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at rok.auto/literature.

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 rok.auto/pec.

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