



# R50C-L-MDR-MQ Motor Driven Roller Controller Product Manual

Original Instructions

p/n: 251013 Rev. C

18-Mar-26

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# Chapter 1 Features

- Efficiently control motor-driven rollers from a PLC using Modbus communication
- Simplify installation of multiple R50Cs on a conveyor using M12 connectors and motor power connections in series
- Compact bimodal to Modbus® device converter that reports and controls two channels of discrete inputs/outputs, and an analog output voltage value (0 V DC to 18 V DC) via register settings on a Modbus RTU server
- User-configurable alarms for undervoltage, overvoltage, motor current, motor short circuit, R50C board temperature, and motor run time
- Enabled Delay Modes: Ramp On, Ramp Off, ON/OFF Delay, ON/OFF One-shot, ON/OFF/Retriggerable One-shot, ON/OFF Pulse-stretcher and Totalizer
- Measurement Metrics: Motor Run Time, Count, Counts Per Minute (CPM), and Duration
- Discrete input/output can be independently configured as NPN or PNP
- M12 L-Code power pass-through
- Rugged over-molded design meets IP65, IP67, and IP68



## Model

Model Name	Function	Control	Connectors
R50C-L-MDR-MQ	L-Code ports with bimodal function: 2 inputs, 2 outputs, and an analog voltage output	Modbus®	(1) Pair of integral 5-pin M12 A-Code male/female quick-disconnect connectors and (1) Pair of integral 5-pin M12 L-Code male/female quick-disconnect connectors

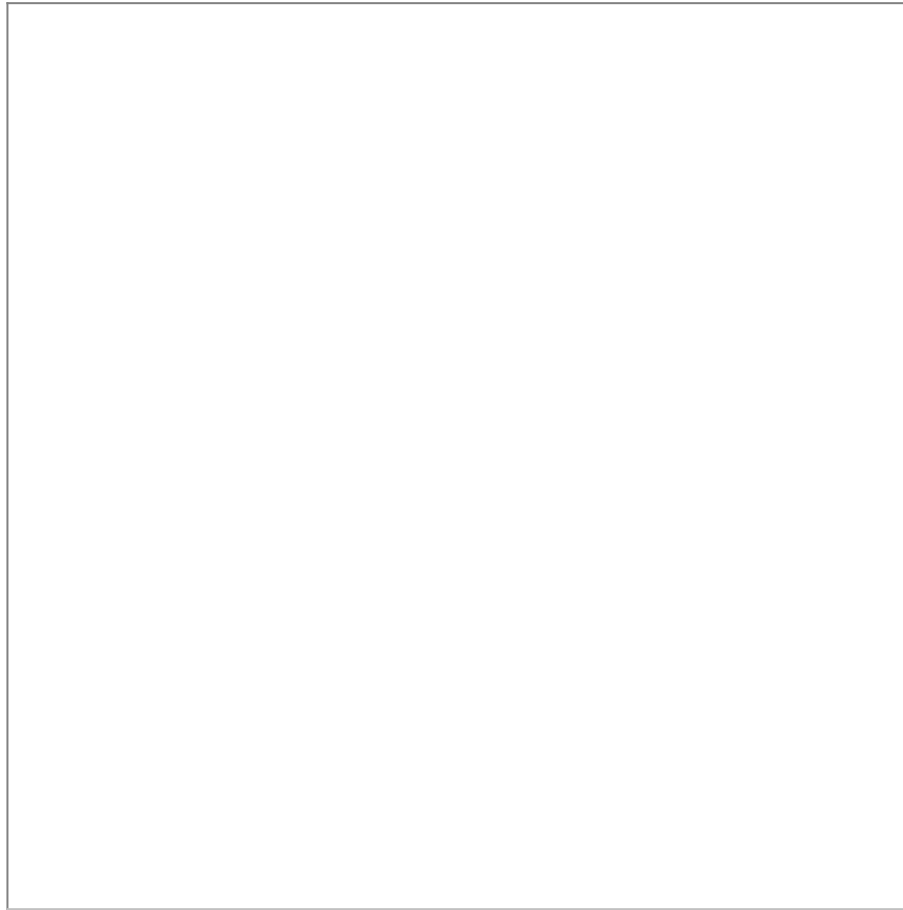
## Overview

Motor Driven Rollers (MDR) are used to control product flow through a conveyor line. They are normally connected to multiple idler rollers to make up a zone of conveyance. This design creates a modular and controllable conveyor system, often used in material handling applications.

With two discrete channels that can be configured as inputs or outputs, the R50C-L-MDR-MQ allows for precise control over start/stop functions, direction, and error conditions in motor-driven roller systems. The 0–18 volt analog output ensures accurate speed control for both standard and high-speed motor-driven roller systems. LED indicators provide clear status monitoring and facilitate troubleshooting, ensuring smooth and efficient operation.

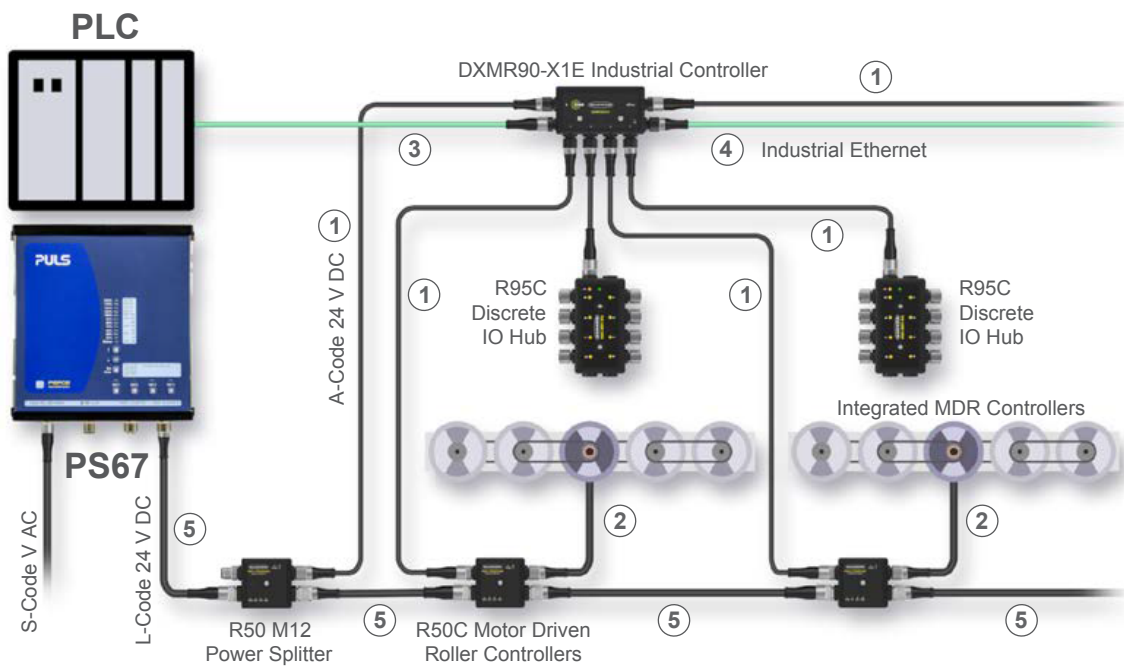
The use of compact sealed M12 connectors and motor power connections in series simplifies the installation process, making it easy to set up multiple R50Cs on a conveyor. The M12 L-coded connections support higher current demands and share up to 16 amps of power, delivering more power while occupying less space than traditional connectors.

The IP67-rated fully-sealed housing and -40° C to 70° C operating range make the R50C suitable for use in challenging environments without the need for additional protective enclosures. This robustness ensures reliability and longevity in harsh conditions.



## Example Setup

The following is a diagram of an example setup for the R50C, along with a list of devices used in the setup.





**DXMR90-X1E Industrial Controller**

- Allows PLC communication with MDR controller via common industrial protocols Modbus TCP, Ethernet/IP™ and PROFINET®
- Four dedicated Modbus client ports allow communication with multiple motor driver roller controllers



**R50-2M125L-M125-P**  
M12 Power Junction Block



**R50-M12LM5-M12LF5- 2M12F5-P13**  
R50 M12 Power Splitter

L-Code Pass-Through with A-Code Power Drops



**R50T-2M125L-M125-P**  
M12 Tee Power Junction Block



**4-Pin M12 Double-Ended (1)**

Straight connector models for device power and communications

- **BC-M12F4-M12M4-22-2:** 2 m (6.5 ft)
- **BC-M12F4-M12M4-22-5:** 5 m (16.4 ft)
- **BC-M12F4-M12M4-22-10:** 10 m (32.8 ft)



**4-Pin M12 D-Code Double-Ended (4)**

Straight connector models for Ethernet connections between DXMR90-X1E controllers

- **BCD-M12DM-M12DM-2M:** 2 m (6.5 ft)
- **BCD-M12DM-M12DM-5M:** 5 m (16.4 ft)
- **BCD-M12DM-M12DM-10M:** 10 m (32.8 ft)



**5-Pin M12 to M8 Double-Ended (2)**

Straight connector models for connection between R50C MDR controller and motor driven roller

- **BC-M8F5B-M12M5-24-0.5:** 0.5 m (1.6 ft)
- **BC-M8F5B-M12M5-24-1:** 1 m (3.2 ft)
- **BC-M8F5B-M12M5-24-2:** 2 m (6.5 ft)



**5-Pin M12 L-Code Double-Ended (5)**

Straight connector models for high amp power connections between R50C MDR controllers

- **BCP-M12LF5-M12LM5-14-2:** 2 m (6.5 ft)
- **BCP-M12LF5-M12LM5-14-10:** 10 m (32.8 ft)
- **BCP-M12LF5-M12LM5-14-15:** 15 m (49.2 ft)



**4-Pin D-Code M12 to RJ45 Double-ended (3)**

Straight connector models for Ethernet connection on DXMR90-X1E

- **STP-M12D-403:** 0.9 m (2.9 ft)
- **STP-M12D-406:** 1.83 m (6 ft)
- **STP-M12D-415:** 4.57 m (15 ft)
- **STP-M12D-430:** 9.14 m (30 ft)



**5-Pin M12 L-Code Single-Ended**

Straight connector models for high amp power connections to R50C MDR controllers

- **BCP-M12LF5-14-2:** 2 m (6.5 ft)
- **BCP-M12LF5-14-5:** 5 m (16.4 ft)
- **BCP-M12LF5-14-10:** 10 m (32.8 ft)



Features	PS67K-1S-24L-150: 1-Phase IP67 Power Supply	PS67K-3S-24L-250: 3-Phase IP67 Power Supply
<b>Input Voltage</b>	100 V AC to 240 V AC	380 V AC to 480 V AC
<b>Output Voltage</b>	24 V DC	24 V DC
<b>Output Current</b>	15 A	25 A
<b>Input Connector</b>	M12 S-Code	M12 S-Code
<b>Output Connectors</b>	2x M12 L-Code	2x M12 L-Code

For more information on product accessories, see ["Accessories" on page 19](#).

## Compatible Motor Driven Rollers

The R50C is compatible with the following motor driven rollers:

- Itoh Denki PM- XE, XP
- Itoh Denki PM- XC
- Interroll EC310
- Interroll EC5000
- PulseRoller Senergy IDC
- Lenze MDR o450
- Rulmeca BL3
- Johnson Controls True Drive

Other motor driven rollers may be compatible. Contact Banner Engineering Corp. to verify compatibility.

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# Chapter 2 Configuration Instructions

## SNAP SIGNAL® Configuration Software

The SNAP SIGNAL® Configuration Software offers an easy way to manage converter Modbus® settings, retrieve data, and visually show converter data. The SNAP SIGNAL Configuration Software runs on any Windows machine and uses an adapter cable (BWA-UCT-900, p/n 19970) to connect the converter to the computer.

Download the most recent version of the SNAP SIGNAL Configuration Software from the Banner Engineering website: <https://www.bannerengineering.com/sg/en/products/software/snap-signal-configuration-software.html>.

## Modbus Configuration

### Device Port States

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40001	Pin 4 Active State	0..1	0 = Inactive, 1 = Active		RO	0 = Inactive, 1 = Active
40002	Pin 2 Active State	0..1	0 = Inactive, 1 = Active		RO	0 = Inactive, 1 = Active
40003	Pin 4 / Black Output	0..1	Black wire discrete output	0	RW	0 = Inactive, 1 = Active
40004	Pin 2 / White Output	0..1	White wire discrete output	0	RW	0 = Inactive, 1 = Active

### Analog Out Value

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40005	Pin 5 / Gray Output	0..18200	Voltage = mV	0	RW	Max. Voltage = Maximum Analog Setting

### Status / Monitoring

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40006	Aux Power and Port specific alarms	0..65535	Bit Mapped 16 bits: 0 = Aux Power 1 = Temp Alarm 2 = Undervoltage Alarm 3 = Overvoltage Alarm 4 = MDR overcurrent alarm 5 = MDR short circuit alarm 6..15 = 0		RO	0 <sub>b</sub> [0 0 0 0 0 0 0 0 0 0 0 0 MDRSC MDROC OVolt UVolt Temp Aux]
40007	Thermostat Reading °F	0..65535	Divide by 100		RO	Temperature in Fahrenheit
40008	Thermostat Reading °C	0..65535	Divide by 100		RO	Temperature in Celsius

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Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40009	Voltage Reading	0, 10000..30000	0 = no reading Divide by 1000, as the value is in millivolts		RO	
40010	Current Reading	0..20000	Divide by 1000		RO	

*Block Configuration*

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40101	Temperature High Setpoint	0..65535	Divide by 100	20000	RW	Temperature alarm setpoint
40102	Temperature Scale	0..1	0 = °F, 1 = °C	0	RW	Temperature unit select Looks at 40015 or 40016, depending on the setting
40103	Undervoltage Alarm Setpoint	0..30000	Divide by 1000, as the value is in millivolts	18000	RW	Undervoltage alarm setpoint
40104	Overvoltage Alarm Setpoint	0..30000	Divide by 1000, as the value is in millivolts	28000	RW	Overvoltage alarm setpoint
40105	Motor Current Fault Reset	0..1	0 = No action, 1 = Reset	0	RW	When set to 1, it resets and toggles back to 0

*Modbus Configuration*

Modbus Register Address	Description	I/O range	Comments	Default	Access
40601	Baud Rate		0 = 9.6k 1 = 19.2k 2 = 38.4k	0 = 9.600 1 = 19200 2 = 38400	1 RW
40602	Parity		0 = None 1 = Odd 2 = Even	0 = None 1 = Odd 2 = Even	0 RW
40603	Address		1-254	-	1 RW
40604	Reserved (cannot be read or written)		None	-	- -
40605	Restore Factory Configuration		0 = No Operation, 1 = Restore	-	- WO

*Device Information*

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40606-40615	Banner Name	0..65535	-	Banner Engineering	RO	(9 words/18 Characters)
40616-40631	Product Name	0..65535	-	R50C-L-MDR-MQ	RO	(16 words/32 Characters)
40632	Item H	0..65535	818581 split into two 16-bit registers	12	RO	Banner Item Number
40633	Item L	0..65535	-	30475	RO	-
40634	Serial Number H	0..65535	-	-	RO	Serial Number is split into (4) 16-bit registers
40635	Serial Number	0..65535	-	-	RO	

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Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40636	Serial Number	0..65535	-	-	RO	-
40637	Serial Number L	0..65535	-	-	RO	-
40644-40659	User Define Tag	0..65535	User Writable Space	More Sensors. More Solutions.	RW	(16 words/32 Characters)
40680	Discovery	0..1	0 = Disabled, 1 = Enabled	-	RW	Flash all LEDs to find hub
40681	All-Time Run Time H	0..65535	-	-	RO	Upper 16 of 32 bits
40682	All-Time Run Time L	0..65535	-	-	RO	Lower 16 of 32 bits
40683	Resettable Run Time H	0..65535	-	-	RW	Upper 16 of 32 bits
40684	Resettable Run Time L	0..65535	-	-	RW	Lower 16 of 32 bits

*Pin Active State*

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
41001	Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO	-
41002	Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO	-

*Pin 4 Port Configuration (Black - Female, Discrete 1)*

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41003	Pin 4 IO Selection	0..5	0 = NPN Input 1 = PNP Input 2 = NPN Output with Pull Up 3 = PNP Output with Pull Down 4 = NPN Output Push Pull 5 = PNP Output Push Pull	1	RW	PNP input
41004	Pin 4 Mode	0..3	0 = Disabled 1 = On off Delay 2 = On One-shot 3 = Off One-shot	0	RW	-
41005	Pin 4 Delay Timer 1 Upper	0..65535	Pin 4 On Delay, One-shot	0	RW	Upper 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41006	Pin 4 Delay Timer 1 Lower	0..65535	Pin 4 On Delay, One-shot	0	RW	Lower 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41007	Pin 4 Delay Timer 2 Upper	0..65535	Pin 4 Off Delay	0	RW	Upper 16 of 32 Bits = Milliseconds
41008	Pin 4 Delay Timer 2 Lower	0..65535	Pin 4 Off Delay	0	RW	Lower 16 of 32 Bits = Milliseconds

*Pin 2 Port Configuration (White - Female, Discrete 2)*

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41009	Pin 2 IO Selection	0..5	0 = NPN Input 1 = PNP Input 2 = NPN Output with Pull Up 3 = PNP Output with Pull Down 4 = NPN Output Push Pull 5 = PNP Output Push Pull	3	RW	PNP output
41010	Pin 2 Mode	0..6	0 = Disabled 1 = On off Delay 2 = On One-shot 3 = Off One-shot	0	RW	-
41011	Pin 2 Delay Timer 1 Upper	0..65535	Pin 2 On Delay, One-shot	0	RW	Upper 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41012	Pin 2 Delay Timer 1 Lower	0..65535	Pin 2 On Delay, One-shot	0	RW	Lower 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41013	Pin 2 Delay Timer 2 Upper	0..65535	Pin 2 Off Delay	0	RW	Upper 16 of 32 Bits = Milliseconds
41014	Pin 2 Delay Timer 2 Lower	0..65535	Pin 2 Off Delay	0	RW	Lower 16 of 32 Bits = Milliseconds

*Pin 5 Port Configuration (Gray - Female, Analog / Voltage)*

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41015	Analog Channel Enable	0..1	0 = Off, 1 = On	1	RW	Enable or disable analog output on Pin 5
41016	Maximum Analog Setting	0..18200	Millivolts	10200	RW	Maximum analog output voltage allowed
41017	Maximum Current Setting	0..4000	Milliamps	4000	RW	Maximum continuous current setting before shutdown or motor switch is disabled
41018	Current In-Rush Delay Setting	0..1000	Milliseconds	20	RW	Time delay after detection of Maximum Current Setting to account for in-rush current
41019	Ramp On Delay	0..65535	Milliseconds	0	RW	Ramp the analog voltage output up to the setting over a programmable period of time for motor start up
41020	Ramp Off Delay	0..65535	Milliseconds	0	RW	Ramp the analog voltage output off over a programmable period of time for motor power down

Measurement Reads

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41021	Motor Current ON Setting	0..4000	Milliamps	50	RW	On current for activating the motor run timer
41022	Resettable Motor Run Time H	0..65535	Upper 16 of 32 bits		RW	Tracks the time that the motor driven roller is running based on the monitored current greater than or equal to the motor current on the setting
41023	Resettable Motor Run Time L	0..65535	Lower 16 of 32 bits		RW	15 minute increments
41024	Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RO	Upper 16 of 32 bits = Running count of the received input pulses
41025	Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RO	Lower 16 of 32 bits = Running count of the received input pulses
41026	Pin 4 Duration H	0..65535	Pin 4 Duration Value Upper	-	RO	Upper 16 of 32 bits = Duration of the last input pulse in $\mu$ s with 50 $\mu$ s granularity
41027	Pin 4 Duration L	0..65535	Pin 4 Duration Value Lower	-	RO	Lower 16 of 32 bits = Duration of the last input pulse in $\mu$ s with 50 $\mu$ s granularity
41028	Pin 4 Events Per Minute H	0..65535	Pin 4 Events Per Minute Value Upper	-	RO	Upper 16 of 32 bits = Running count of the number of pulses received averaged over one minute. Range 1 to 37,500
41029	Pin 4 Events Per Minute L	0..65535	Pin 4 Events Per Minute Value Lower	-	RO	Lower 16 of 32 bits = Running count of the number of pulses received averaged over one minute. Range 1 to 37,500
41030	Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RO	Upper 16 of 32 bits = Running count of the received input pulses
41031	Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RO	Lower 16 of 32 bits = Running count of the received input pulses
41032	Pin 2 Duration H	0..65535	Pin 2 Duration Value Upper	-	RO	Upper 16 of 32 bits = Duration of the last input pulse in $\mu$ s with 50 $\mu$ s granularity
41033	Pin 2 Duration L	0..65535	Pin 2 Duration Value Lower	-	RO	Lower 16 of 32 bits = Duration of the last input pulse in $\mu$ s with 50 $\mu$ s granularity
41034	Pin 2 Events Per Minute H	0..65535	Pin 2 Events Per Minute Value Upper	-	RO	Upper 16 of 32 bits = Running count of the number of pulses received averaged over one minute. Range 1 to 37,500
41035	Pin 2 Events Per Minute L	0..65535	Pin 2 Events Per Minute Value Lower	-	RO	Lower 16 of 32 bits = Running count of the number of pulses received averaged over one minute. Range 1 to 37,500

Metric Count Presets

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41036	Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW	Upper 16 of 32 bits

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Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41037	Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW	Lower 16 of 32 bits
41038	Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW	Upper 16 of 32 bits
41039	Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW	Lower 16 of 32 bits

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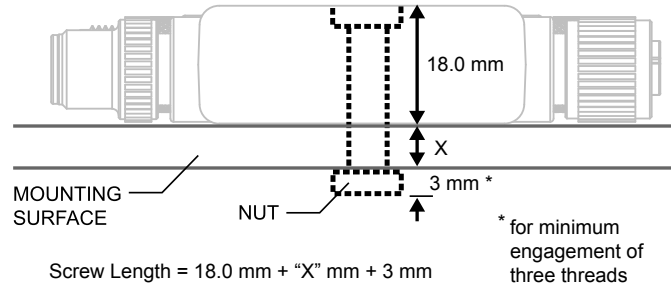
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# Chapter 3 Mechanical Installation

Install the R50C to allow access for functional checks, maintenance, and service or replacement. Do not install the R50C in such a way to allow for intentional defeat.

Fasteners must be of sufficient strength to guard against breakage. The use of permanent fasteners or locking hardware is recommended to prevent the loosening or displacement of the device. The mounting hole (4.5 mm) in the R50C accepts M4 (#8) hardware.

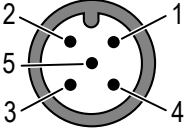
See the figure below to help in determining the minimum screw length.

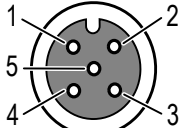


 **CAUTION:** Do not overtighten the R50C's mounting screw during installation. Overtightening can affect the performance of the R50C.

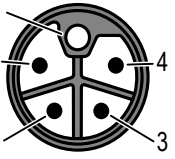
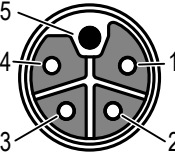
## Wiring

### A-Code Male and Female Pinouts

Modbus - Male	Pin	Signal Description
	1	12 V DC to 30 V DC
	2	RS485/D0/A-
	3	GND
	4	RS485/D1/B+
	5	BannerBus

Motor Driven Roller (MDR) - Female	Pin	Signal Description
	1	12 V DC to 30 V DC (supplied from Aux L-Code M12 Power)
	2	Discrete Channel 2
	3	GND
	4	Discrete Channel 1
	5	Analog Out

*L-Code Male and Female Pinouts (16A)*

Male Pinout	Female Pinout	Pin	Wire Color	Signal Description
		1	Brown	+24 V DC
		2	White	GND
		3	Blue	GND
		4	Black	+24 V DC
		5	Gray	FE

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# Chapter 4 Status Indicators

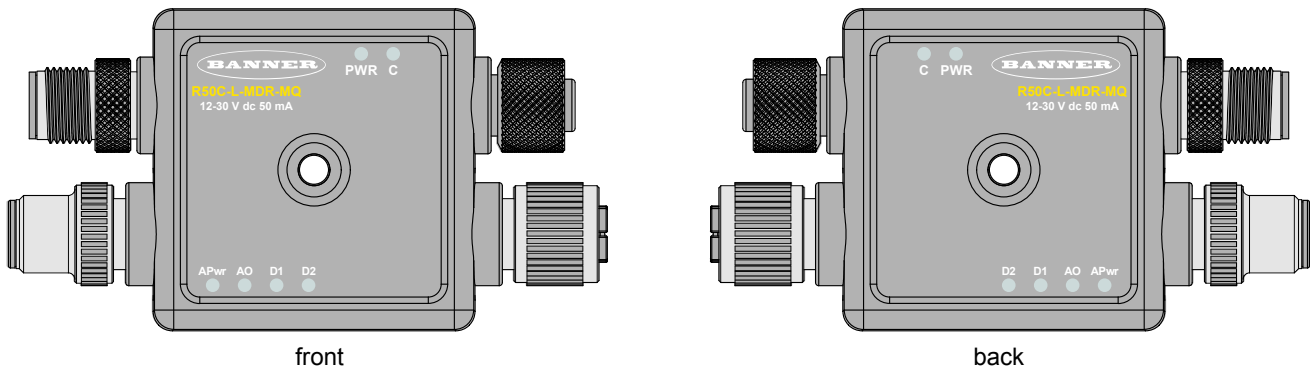
The R50C has matching LED indicators on both sides of the converter to allow for installation needs, while still providing adequate indication visibility.

There are two pairs of green LEDs:

- PWR: A-Code power indication
- APwr: L-Code power indication

Additionally, there are four pairs of amber LEDs:

- C: Modbus communications
- AO: Analog Out
- D1: Discrete Channel 1 (Pin 4)
- D2: Discrete Channel 2 (Pin 2)



*A-Code Power Indicator Green LEDs*

Indication	Status
Off	Power off
Solid Green	Power on

*L-Code Power Indicator Green LEDs*

Indication	Status
Off	L-Code power is off or not attached
Solid Green	L-Code power is on or active

*Modbus Communications Amber LEDs*

Indication	Status
Off	Modbus communications are not present
Flashing Amber (4 Hz)	Modbus communications are active
Solid Amber for 2 seconds, then off	Modbus communications are lost after connection
Solid Amber for 2 seconds, then to flashing amber (4 Hz)	Modbus communications are momentarily lost, but then communication is reestablished

*Analog Out Amber LEDs*

Indication	Status
Off	Analog output value is outside the allowable output range (0 V DC to 18 V DC)
Solid Amber	Analog output value is inside the allowable output range (0 V DC to 18 V DC)

*Discrete Channel 1 and Discrete Channel 2 Amber LEDs*

Indication	Status
Off	Discrete is inactive
Solid Amber	Discrete is active

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# Chapter 5 Specifications

**Supply Voltage**

12 V DC to 30 V DC at 400 mA maximum

**Power Pass-Through Current**

16 A maximum

**Discrete Output Load Rating**

185 mA

**Analog Output Load Requirements**

Resistance > 1000 Ω

**Supply Protection Circuitry**

Protected against reverse polarity and transient voltages

**Leakage Current Immunity**

400 μA

**Indicators**

See "Status Indicators" on page 15

**Connections**

- (1) Integral 5-pin M12 A-Code female quick-disconnect connector
- (1) Integral 5-pin M12 A-Code male quick-disconnect connector
- (1) Integral 5-pin M12 L-Code female quick-disconnect connector
- (1) Integral 5-pin M12 L-Code male quick-disconnect connector


**Construction**


Coupling Material: Nickel-plated brass  
 Connector Body: PVC translucent black

**Vibration and Mechanical Shock**

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)  
 Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

**Certifications**

 Banner Engineering BV  
 Park Lane, Culliganlaan 2F bus 3  
 1831 Diegem, BELGIUM

 Turck Banner LTD Blenheim House  
 Blenheim Court  
 Wickford, Essex SS11 8YT  
 GREAT BRITAIN

 cUL<sub>us</sub>  
 LISTED

**Product Identification**



**Environmental Rating**

IP65, IP67, IP68


**Operating Conditions**

**Temperature:** -40 °C to +70 °C (-40 °F to +158 °F)

90% at +70 °C maximum relative humidity (non-condensing)

**Storage Temperature:** -40 °C to +80 °C (-40 °F to +176 °F)

**Required Overcurrent Protection**



**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to [www.bannerengineering.com](http://www.bannerengineering.com).

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

## FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

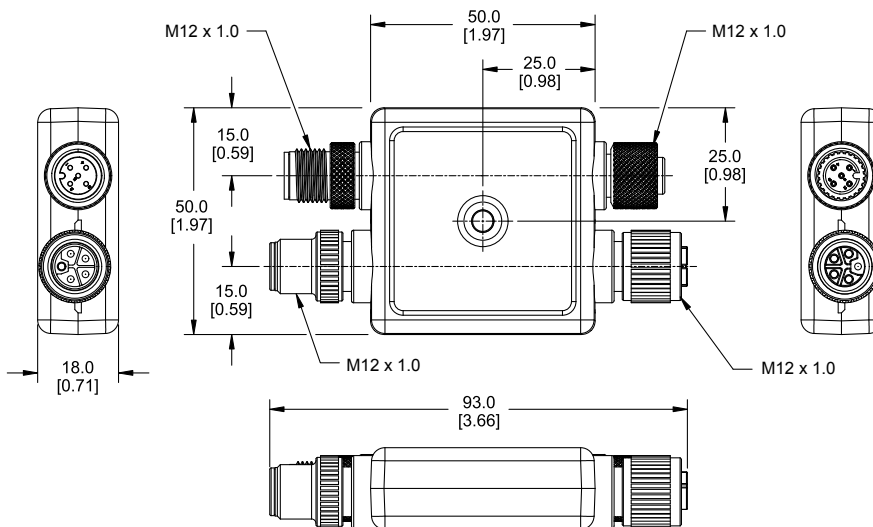
## Industry Canada ICES-003(B)

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

## Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.



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# Chapter 6 Accessories

## Cordsets

4-pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 236186)				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)		Female 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused 
BC-M12F4-M12M4-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4-22-3	3 m (9.84 ft)			
BC-M12F4-M12M4-22-4	4 m (13.12 ft)			
BC-M12F4-M12M4-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4-22-15	15 m (49.2 ft)			

4-pin A-Code Double-Ended M12 Female to M12 Male Right-Angle Cordsets (datasheet p/n 236186)				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4A-22-1	1 m (3.28 ft)		Female 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused 
BC-M12F4-M12M4A-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4A-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4A-22-8	8 m (26.25 ft)			
BC-M12F4-M12M4A-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4A-22-15	15 m (49.2 ft)			

4-pin A-Code Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets (datasheet p/n 236186)				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4A-M12M4A-22-0.3	0.3 m (1 ft)		Female 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused 
BC-M12F4A-M12M4A-22-1	1 m (3.28 ft)			
BC-M12F4A-M12M4A-22-2	2 m (6.56 ft)			
BC-M12F4A-M12M4A-22-5	5 m (16.4 ft)			
BC-M12F4A-M12M4A-22-8	8 m (26.25 ft)			
BC-M12F4A-M12M4A-22-10	10 m (30.81 ft)			
BC-M12F4A-M12M4A-22-15	15 m (49.2 ft)			

5-pin Double-Ended M8 B-Code Female to M12 A-Code Male Cordset (datasheet p/n 242461)				
Model	Length	Dimensions (mm)	Pinout (M8 Female B-Code)	Pinout (M12 Male A-Code)
BC-M8F5B-M12M5-24-0.5	0.5 m (1.64 ft)			
BC-M8F5B-M12M5-24-1	1 m (3.28 ft)			
BC-M8F5B-M12M5-24-2	2 m (6.56 ft)			

- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black
- 5 = Gray

- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black
- 5 = Gray

5-pin L-Code Double-Ended M12 Female to M12 Male Cordsets				
Model	Length	Dimensions (mm)	Pinout (Female)	Pinout (Male)
BCP-M12LF5-M12LM5-14-1	1 m (3.28 ft)			
BCP-M12LF5-M12LM5-14-2	2 m (6.56 ft)			
BCP-M12LF5-M12LM5-14-5	5 m (16.4 ft)			
BCP-M12LF5-M12LM5-14-10	10 m (32.8 ft)			
BCP-M12LF5-M12LM5-14-15	15 m (49.2 ft)			
BCP-M12LF5-M12LM5-14-20	20 m (65.6 ft)			

- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black
- 5 = Yellow/Green
- Shell = Braid

- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black
- 5 = Yellow/Green
- Shell = Braid

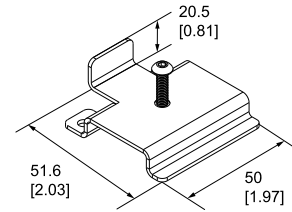
5-pin L-Code Single-Ended M12 Female Cordsets				
Model	Length	Dimensions (mm)	Pinout (Female)	
BCP-M12LF5-14-1	1 m (3.28 ft)			<ul style="list-style-type: none"> <li>1 = Brown</li> <li>2 = White</li> <li>3 = Blue</li> <li>4 = Black</li> <li>5 = Yellow/Green</li> <li>Shell = Braid</li> </ul>
BCP-M12LF5-14-2	2 m (6.56 ft)			
BCP-M12LF5-14-5	5 m (16.4 ft)			
BCP-M12LF5-14-10	10 m (32.8 ft)			
BCP-M12LF5-14-15	15 m (49.2 ft)			
BCP-M12LF5-14-20	20 m (65.6 ft)			

4-Pin M12 Female RS-485 to USB Adapter Cordset, with Wall Plug				
Model	Length	Style	Dimensions	Pinout (Female)
BWA-UCT-900	1 m (3.28 ft)	Straight		<ul style="list-style-type: none"> <li>1 = Brown</li> <li>2 = White</li> <li>3 = Blue</li> <li>4 = Black</li> </ul>

## Brackets

### SMBR50

- R50 flat mount bracket
- M4 x 0.7 mm
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)



## Splitters

Model	Housing	Power Connections	Power Drops	Wiring
<b>R50-M12LM5-M12LF5-2M12F5-P13</b>	4-Port Molded Junction Box	1 x L-code male M12 1 x L-code female M12	2 x A-code female M12	V+, V- power distribution

Model	Female Ports	Male Input Port	Wiring
<b>R50-2M125L-M125-P</b>	Two 5-pin L-code M12 female quick-disconnect connectors, oriented in-line	One 5-pin M12 L-Code male quick-disconnect connector	Parallel
<b>R50T-2M125L-M125-P</b>	Two 5-pin L-code M12 female quick-disconnect connectors, oriented in a tee		

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# Chapter 7 Product Support and Maintenance

## Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

## Repairs

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

**IMPORTANT:** If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

## Contact Us

Banner Engineering Corp. | 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit [www.bannerengineering.com](http://www.bannerengineering.com).

## Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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