R95C-L-4MDR-MQ Motor Driven Roller Controller Product Manual

Original Instructions
p/n: 243654 Rev. C
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Contents

Chapter Contents

Chapter 1 Features

- Efficiently control four motor driven rollers from a PLC using Modbus communication
- Simplify installation of multiple R95Cs 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
- 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
- L-Code power pass-through
- Rugged over-molded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use
- R95C controllers are a quick, easy, and economical way to integrate non-Modbus devices into a Modbus system

Model

Model Name	Function	Control	Connectors
R95C-L-4MDR-MQ	L-Code ports with bimodal function: 2 inputs, 2 outputs, and an analog voltage output	Modbus®	(5) Integral 5-pin M12 A-Code female quick-disconnect connectors (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

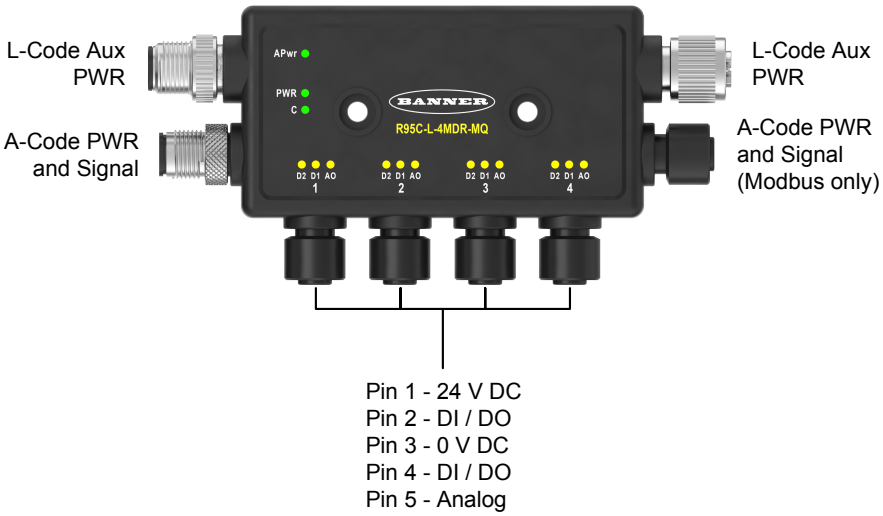
Overview

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 on each of the four motor driven roller ports, the R95C allows for precise control over start/stop functions, direction, and error conditions. These discrete channels can also be used to transmit discrete inputs from sensors as part of the motor driven roller system logic. The 0–18 volt analog output on the four motor driven roller ports 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 R95Cs 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 R95C suitable for use in challenging environments without the need for additional protective enclosures. This robustness ensures reliability and longevity in harsh conditions.



Compatible Motor Driven Rollers

The R95C is compatible with the following motor driven rollers:

- Itoh Denki PM- XE, XP
- Itoh Denki PM- XC
- Interoll EC310
- Interoll 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	Active States	0..255	Port 4..Port 1 → Pin 4 and Pin 2 Active States	-	RO	0_b|P4.4|P4.2|P3.4|P3.2| P2.4|P2.2|P1.4|P1.2|
40002	Pin 4 / Black Output - Port 1	0..1	Black wire discrete output - Port 1	0	RW	0 = Inactive, 1 = Active
40003	Pin 2 / White Output - Port 1	0..1	White wire discrete output - Port 1	0	RW	0 = Inactive, 1 = Active
40004	Pin 4 / Black Output - Port 2	0..1	Black wire discrete output - Port 2	0	RW	0 = Inactive, 1 = Active
40005	Pin 2 / White Output - Port 2	0..1	White wire discrete output - Port 2	0	RW	0 = Inactive, 1 = Active
40006	Pin 4 / Black Output - Port 3	0..1	Black wire discrete output - Port 3	0	RW	0 = Inactive, 1 = Active
40007	Pin 2 / White Output - Port 3	0..1	White wire discrete output - Port 3	0	RW	0 = Inactive, 1 = Active
40008	Pin 4 / Black Output - Port 4	0..1	Black wire discrete output - Port 4	0	RW	0 = Inactive, 1 = Active
40009	Pin 2 / White Output - Port 4	0..1	White wire discrete output - Port 4	0	RW	0 = Inactive, 1 = Active

Analog Out Value

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40010	Pin 5 / Gray Output - Port 1	0..18200	Voltage = mV	0	RW	Max. Voltage = Maximum Analog Setting
40011	Pin 5 / Gray Output - Port 2	0..18200	Voltage = mV	0	RW	Max. Voltage = Maximum Analog Setting
40012	Pin 5 / Gray Output - Port 3	0..18200	Voltage = mV	0	RW	Max. Voltage = Maximum Analog Setting
40013	Pin 5 / Gray Output - Port 4	0..18200	Voltage = mV	0	RW	Max. Voltage = Maximum Analog Setting

Status / Monitoring

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40014	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 = MDR1 overcurrent alarm 5 = MDR1 short circuit alarm 6 = MDR2 overcurrent alarm 7 = MDR2 short circuit alarm 8 = MDR3 overcurrent alarm 9 = MDR3 short circuit alarm 10 = MDR4 overcurrent alarm 11 = MDR4 short circuit alarm 12..15 = 0	-	RO	0_b[0|0|0|0|MDR4SC|MDR4OC|MDR3SC|MDR3OC|MDR2SC|MDR2OC|MDR1SC|MDR1OC|OVolt|UVolt|Temp|Aux]
40015	Thermostat Reading °F	0..65535	Divide by 100	-	RO	Temperature in Fahrenheit
40016	Thermostat Reading °C	0..65535	Divide by 100	-	RO	Temperature in Celsius
40017	Voltage Reading	0, 10000..30000	0 = no reading Divide by 1000, as the value is in millivolts	-	RO	
40018	Current 1 Reading	0..20000	Divide by 1000	-	RO	
40019	Current 2 Reading	0..20000	Divide by 1000	-	RO	
40020	Current 3 Reading	0..20000	Divide by 1000	-	RO	
40021	Current 4 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

Motor Current Fault

Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40105	Motor Current Fault Reset 1	0..1	0 = No action, 1 = Reset	0	RW	When set to 1, it resets and toggles back to 0

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Modbus Register Address	Description	I/O range	Comments	Default	Access	Notes
40106	Motor Current Fault Reset 2	0..1	0 = No action, 1 = Reset	0	RW	When set to 1, it resets and toggles back to 0
40107	Motor Current Fault Reset 3	0..1	0 = No action, 1 = Reset	0	RW	When set to 1, it resets and toggles back to 0
40108	Motor Current Fault Reset 4	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	-	R95C-L-4MDR-MQ	RO	(16 words/32 Characters)
40632	Item H	0..65535	817147 split into two 16-bit registers	12	RO	Banner Item Number
40633	Item L	0..65535	-	30715	RO	-
40634	Serial Number H	0..65535	-	-	RO	Serial Number is split into (4) 16-bit registers
40635	Serial Number	0..65535	-	-	RO	
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 controller
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

Multi-Port Support

Register Ranges for Each of the 8 Ports

Modbus Register Range	Description
41001-41037	Port 1
42001-42037	Port 2
43001-43037	Port 3
44001-41037	Port 4

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

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41001	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
41002	Pin 4 Mode	0..3	0 = Disabled 1 = On off Delay 2 = On One-shot 3 = Off One-shot	0	RW	-
41003	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
41004	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
41005	Pin 4 Delay Timer 2 Upper	0..65535	Pin 4 Off Delay	0	RW	Upper 16 of 32 Bits = Milliseconds
41006	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
41007	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

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Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41008	Pin 2 Mode	0..6	0 = Disabled 1 = On off Delay 2 = On One-shot 3 = Off One-shot	0	RW	-
41009	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
41010	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
41011	Pin 2 Delay Timer 2 Upper	0..65535	Pin 2 Off Delay	0	RW	Upper 16 of 32 Bits = Milliseconds
41012	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
41013	Analog Channel Enable	0..1	0 = Off, 1 = On	1	RW	Enable or disable analog output on Pin 5
41014	Maximum Analog Setting	0..18200	Millivolts	10200	RW	Maximum analog output voltage allowed
41015	Maximum Current Setting	0..4000	Milliamps	4000	RW	Maximum continuous current setting before shutdown or motor switch is disabled
41016	Current In-Rush Delay Setting	0..1000	Milliseconds	20	RW	Time delay after detection of Maximum Current Setting to account for in-rush current
41017	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
41018	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
41019	Motor Current ON Setting	0..4000	Milliamps	50	RW	On current for activating the motor run timer
41020	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

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Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41021	Resettable Motor Run Time L	0..65535	Lower 16 of 32 bits		RW	15 minute increments
41022	Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RO	Upper 16 of 32 bits = Running count of the received input pulses
41023	Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RO	Lower 16 of 32 bits = Running count of the received input pulses
41024	Pin 4 Duration H	0..65535	Pin 4 Duration Value Upper	-	RO	Upper 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41025	Pin 4 Duration L	0..65535	Pin 4 Duration Value Lower	-	RO	Lower 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41026	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
41027	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
41028	Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RO	Upper 16 of 32 bits = Running count of the received input pulses
41029	Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RO	Lower 16 of 32 bits = Running count of the received input pulses
41030	Pin 2 Duration H	0..65535	Pin 2 Duration Value Upper	-	RO	Upper 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41031	Pin 2 Duration L	0..65535	Pin 2 Duration Value Lower	-	RO	Lower 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41032	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
41033	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
41034	Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW	Upper 16 of 32 bits
41035	Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW	Lower 16 of 32 bits
41036	Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW	Upper 16 of 32 bits
41037	Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW	Lower 16 of 32 bits

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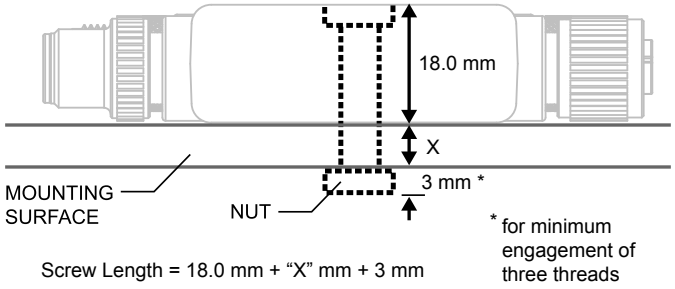
Chapter 3 Mechanical Installation

Install the R95C to allow access for functional checks, maintenance, and service or replacement. Do not install the R95C 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 R95C accepts M4 (#8) hardware.

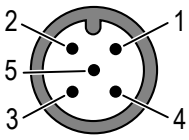
See the figure below to help in determining the minimum screw length.

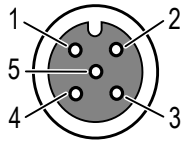


CAUTION: Do not overtighten the R95C's mounting screw during installation. Overtightening can affect the performance of the R95C.

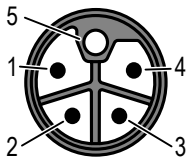
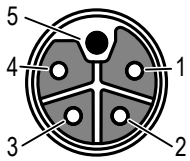
Wiring

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 R95C 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)

front

back

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)

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Indication	Status
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

Connections
(5) Integral 5-pin M12 A-Code female quick-disconnect connectors
(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: Nylon
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)

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.

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.

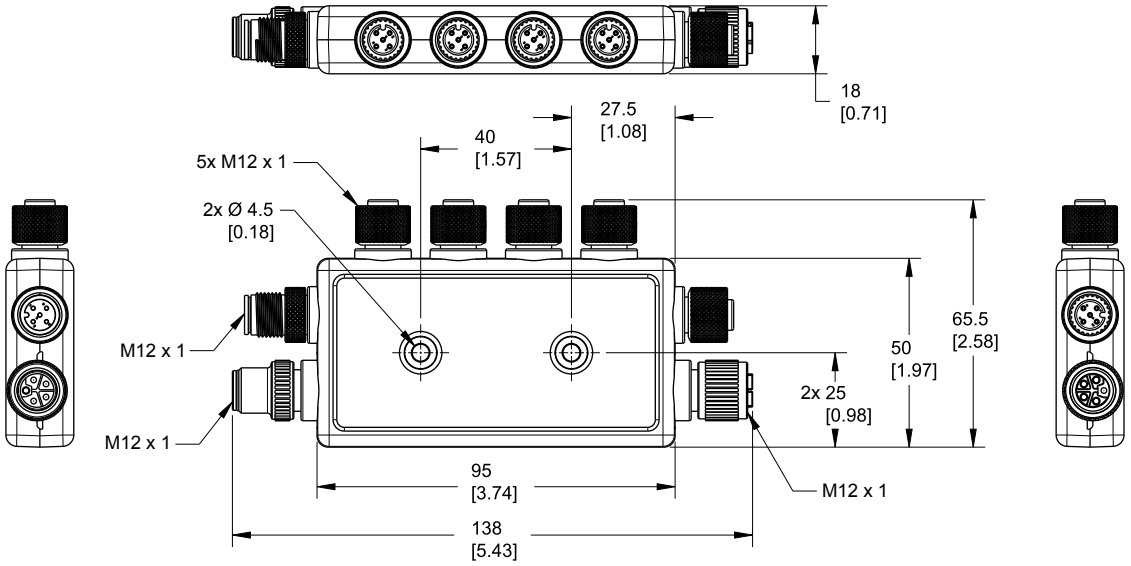
Industry Canada ICES-003(B)

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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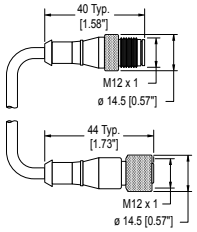
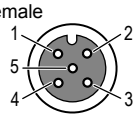
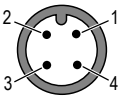
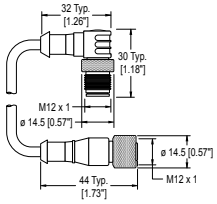
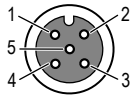
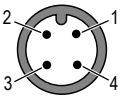
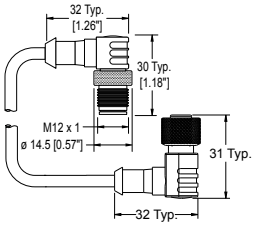
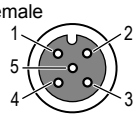
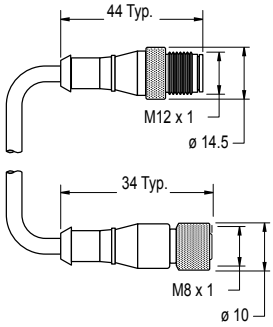
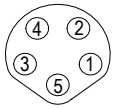
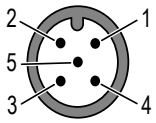
Chapter 6 Accessories

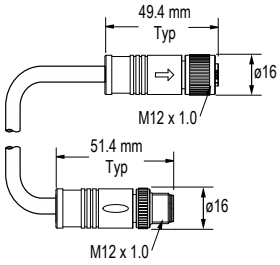
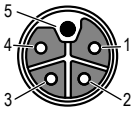
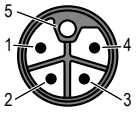
Cordsets

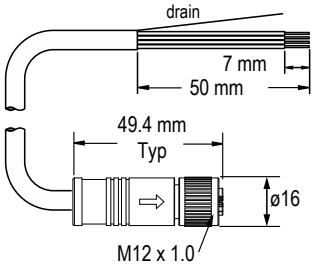
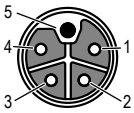
4-pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 236186)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused c UL us LISTED
BC-M12F4-M12M4-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4-22-3	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  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused c UL us LISTED
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)			

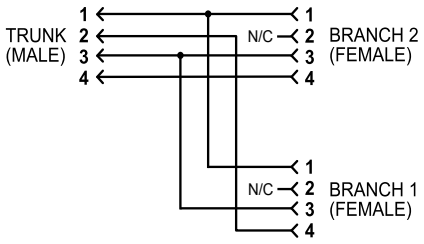
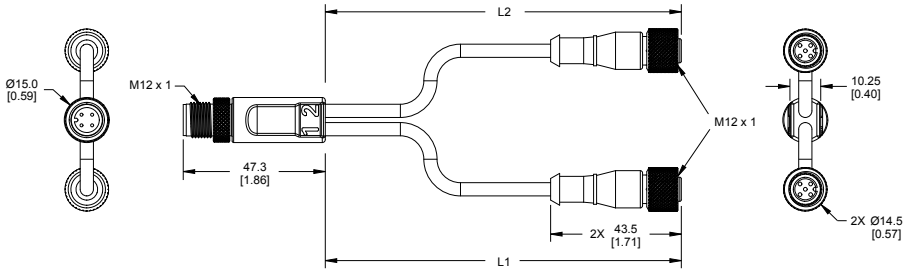
4-pin A-Code Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets (datasheet p/n 236186)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4A-M12M4A-22-0.3	0.3 m (1 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused c UL us LISTED
BC-M12F4A-M12M4A-22-1	1 m (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)		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray	 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
BC-M8F5B-M12M5-24-1	1 m (3.28 ft)			
BC-M8F5B-M12M5-24-2	2 m (6.56 ft)			

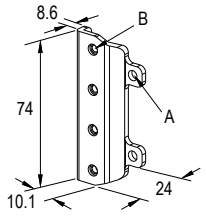
5-pin L-Code Double-Ended M12 Female to M12 Male Cordsets				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	**Pinout (Male)**
BCP-M12LF5-M12LM5-14-1	1 m (3.28 ft)		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Yellow/Green Shell = Braid	 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Yellow/Green Shell = Braid
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)			

5-pin L-Code Single-Ended M12 Female Cordsets				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BCP-M12LF5-14-1	1 m (3.28 ft)			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Yellow/Green Shell = Braid
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		 1 = Brown 2 = White 3 = Blue 4 = Black

4-Pin M12 Male to 5-Pin M12 Female Splitter Cordset		
Model	**Branches (Female)**	**Wiring**
S15YA4-M124-M124-0.2M	**L1, L2** 2 × 0.2 m (7.9 in)	
		

Brackets

SMBR90S • Stainless steel bracket • 4x M4-07 pemnuts (B) • Includes 2x M4 stainless steel hex head screws and flat washers • CAD Files: DXF, PDF, IGS, STP **Hole center spacing:** A = 40, B = 20 **Hole size:** A = ø 5	

Splitters

Model	Housing	Power Connections	Power Drops	Wiring
R50-M12LM5-M12LF5-2M12F5-P13	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
R50-2M125L-M125-P	Two 5-pin L-code M12 female quick-disconnect connectors, oriented in-line	One 5-pin M12 L-Code male quick-disconnect connector	Parallel
R50T-2M125L-M125-P	Two 5-pin L-code M12 female quick-disconnect connectors, oriented in a tee		

Chapter Contents

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.

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