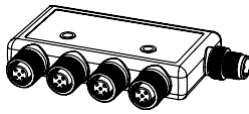


# R90C-4K-MQ IO-Link Master/Modbus Converter

## HE-IOLINK4CHRTU



- Connects four IO-Link devices and provides access via Modbus RTU interface
- Rugged design; easy installation with no assembly or individual wiring required
- 5-pin M12 male quick-disconnect connector
- Four 4-pin M12 female quick-disconnect connectors
- Built-in indication for four IO-Link master ports
- Built-in indication for Modbus RTU connection status
- Rugged over-molded design meets IP65, IP67, and IP68

### Overview

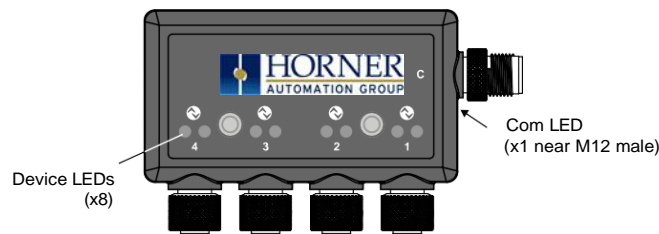
The R90C 4-Port Converter connects to four IO-Link devices and provides access to IO-Link data and functionality via a Modbus RTU connection.

Modbus registers allow for access to both IO-Link devices and their functions:

- Process Data In
- Process Data Out
- Connected device information
- ISDU data
- Discrete I/O configuration
- IO-Link events
- Data storage
- SIO mode

### Status Indicators

The R90C-4K-MQ IO-Link Master/Modbus Converter has matching RGB LED indicators on both sides for each IO-Link device port to allow for installation needs and still provide adequate indication visibility. There is also an Amber LED indicator on both sides of the converter, which is specific to the Modbus communication.



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IO-Link Device Port 1 and Port 2 RGB LEDs	
Indication	Status
Off	Deactivated Port
Flashing Green	Waiting for IO-Link device
Solid Green	IO-Link device is connected
Flashing Red	Validation Error
Solid Yellow	Signal high in SIO-mode
Solid Blue	Processor communication error

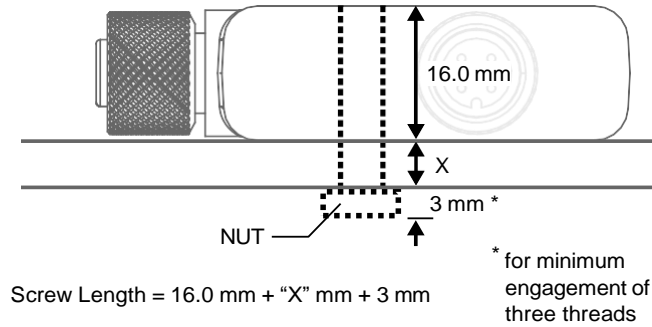
Modbus Communication Amber LED	
Indication	Status
Flashing Amber (4 Hz)	Modbus communications are active
Solid Amber (2 seconds) to Off	Modbus communications are lost after connection
Solid Amber (2 seconds) to Flashing Amber (4Hz)	Modbus communications momentarily lost, but then reestablished.
Solid Amber	Modbus communications are intermittent, or communications error occurs more frequently once every 2 seconds
Off	Modbus communications are not present

## Installation Instructions

### Mechanical Installation

Install the R90C 4-Port Converter to allow access for functional checks, maintenance, and service or replacement.

All mounting hardware is supplied by the user. Fasteners must be of sufficient strength to guard against breakage. 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 R90C 4-Port Converter accepts M4 (#8) hardware. See the figure below to help in determining the minimum screw length.



**CAUTION:** Do not overtighten the R90C 4-Port Converter's mounting screw during installation. Overtightening can affect the performance of the R90C 4-Port Converter.

### Wiring

Port 1 and Port 2 - Female	Pin	Signal Description
	1	18 VDC to 30 VDC
	2	I/Q (Digital I/O)
	3	Ground
	4	C/Q (Communication/ Digital I/O)

Comm Port - Male	Pin	Signal Description
	1	18 VDC to 30 VDC
	2	RS485/D1/B/+
	3	Ground
	4	RS485/D0/A-
	5	Banner 1-wire

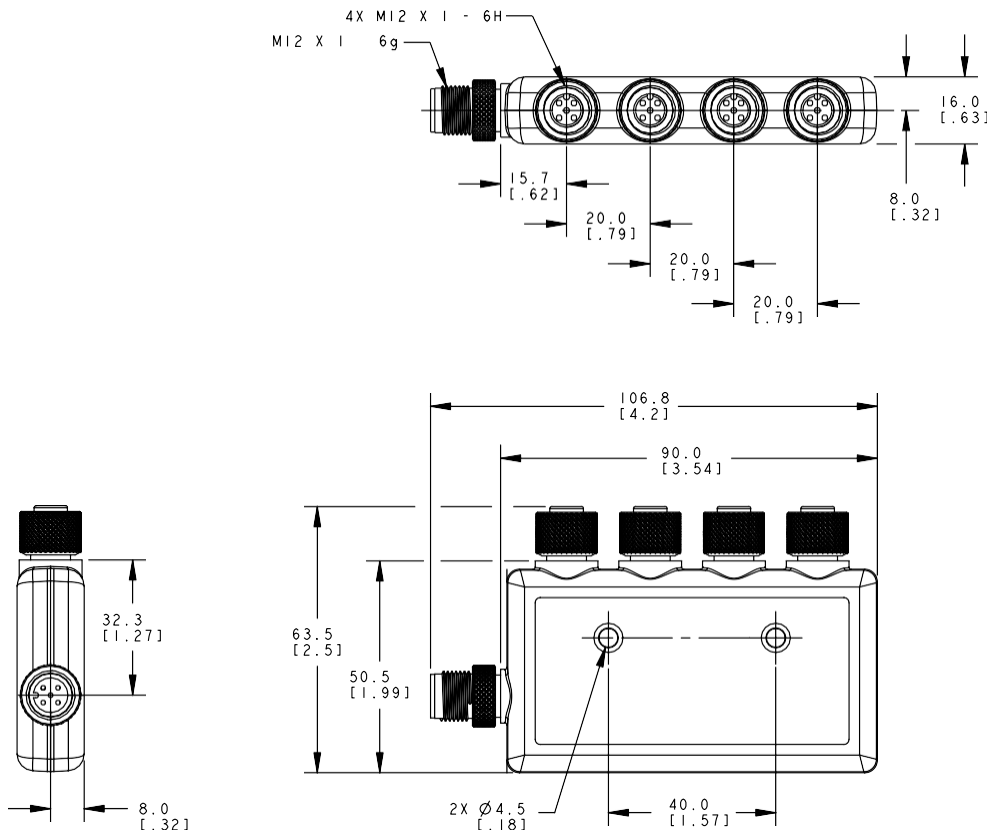
### Specifications

<b>Voltage Input Range</b>	18 V DC to 30 V DC	<b>Environmental Ratings</b>	For Indoor Use Only IP65, IP67, IP68, UL Type 1
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<b>Input Power</b>	24 VDC @ 4A	<b>Operating Conditions</b>	-40 °C to +70 °C (-40 °F to +158 °F) 90% at +70 °C maximum relative humidity (non-condensing) <b>Storage Temperature:</b> -40 °C to +80 °C (-40 °F to +176 °F)
<b>Output Power</b>	24 V DC at 100mA + 200mA/port = 900mA maximum	<b>IO-Link Baud Rates</b>	COM1: 4.8 kbps COM2: 38.4 kbps COM3: 230.4 kbps
<b>Supply Protection Circuitry</b>	Protected against reverse polarity and transient voltages	<b>Compliant Standards</b>	IO-Link interface and System Specification v 1.1.2 IO-Link Test Specification v 1.1.2
<b>Leakage Current Immunity</b>	400 µA	<b>Master Communication Protocol</b>	RS485 – Modbus RTU
<b>Indictors</b>	RGB1: IO-Link Port 1 Status RGB2: IO-Link Port 2 Status RGB3: IO-Link Port 3 Status RGB4: IO-Link Port 4 Status Amber: Modbus Communications	<b>Digital Inputs (SIO [DI] Mode)</b>	Input Current: 5 mA typical ON Voltage/Current: 15 V DC minimum/5 mA minimum OFF Voltage: 5 V DC maximum
<b>Connections</b>	(4) Integral 4-pin M12 female quick-disconnect connector (1) Integral 5-pin M12 male quick-disconnect connector	<b>Digital Outputs (SIO [DO] Mode)</b>	On-Resistance: 120 mΩ typical, 250 mΩ maximum Current Limit: 0.7 A minimum, 1.0 A typical, 1.3 A maximum Off Leakage Current: -10 µA minimum, 10 µA maximum
<b>Construction</b>	Coupling Material: Nickel-plated brass Connector Body: PVC translucent black	<b>Vibration and Mechanical Shock</b>	Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)
<b>Certifications</b>	CE UL		Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave)

## Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.



## Accessories

### Cordsets

5-Pin Threaded M12 Cordsets—Double Ended					
Model	Length	Style	Dimensions	Pinout (Male)	Pinout (Female)
MQDEC-501SS	0.31 m (1.02ft)	Male Straight/ Female Straight			
MQDEC-503SS	0.91 m (2.99ft)				
MQDEC-506SS	1.83 m (6 ft)				
MQDEC-512SS	3.66 m (12 ft)				
MQDEC-515SS	5 m (16.4 ft)				
MQDEC-530SS	9 m (29.5 ft)				
MQDEC-550SS	15 m (49.2 ft)				

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

5-Pin Threaded M12 Cordsets—Double Ended					
Model	Length	Style	Dimensions	Pinout (Male)	Pinout (Female)
MQDEC-501RS	0.31 m (1.02 ft)	Male Right-angle/ Female Straight			
MQDEC-503RS	0.91 m (2.99 ft)				
MQDEC-506RS	1.83 m (6 ft)				
MQDEC-512RS	3.66 m (12 ft)				

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

4-Pin Threaded M12 Cordsets—Double Ended					
Model	Length	Style	Dimensions	Pinout	
MQDEC-401SS	0.31 m (1 ft)	Male Straight/ Female Straight		Female	
MQDEC-403SS	0.91 m (2.99 ft)				
MQDEC-406SS	1.83 m (6 ft)			Male	
MQDEC-412SS	3.66 m (12 ft)				
MQDEC-420SS	6.10 m (20 ft)				
MQDEC-430SS	9.14 m (30.2 ft)				
MQDEC-450SS	15.2 m (49.9 ft)				
MQDEC-403RS	0.91 m (2.99 ft)	Male Right-Angle/ Female Straight			
MQDEC-406RS	1.83 m (6 ft)				
MQDEC-412RS	3.66 m (12 ft)				
MQDEC-420RS	6.10 m (20 ft)				
MQDEC-430RS	9.14 m (30.2 ft)				
MQDEC-450RS	15.2 m (49.9 ft)				
MQDEC-403RR	0.9 m (2.9 ft)	Male Right-Angle/ Female Right-Angle			
MQDEC-406RR	1.8 m (5.9 ft)				
MQDEC-412RR	3.6 m (11.8 ft)				
MQDEC-420RR	6.1 m (20 ft)				

1 = Brown  
2 = White  
3 = Blue  
4 = Black

4-Pin Threaded M12 Cordsets—Double Ended				
Model	Length	Style	Dimensions	Pinout
MQDEC-403RS	0.91 m (2.99 ft)	Male Right-Angle/ Female Straight		<p>Female</p> <p>Male</p> <p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
MQDEC-406RS	1.83 m (6 ft)			
MQDEC-412RS	3.66 m (12 ft)			
MQDEC-420RS	6.10 m (20 ft)			
MQDEC-430RS	9.14 m (30.2 ft)			
MQDEC-450RS	15.2 m (49.9 ft)	Male Right-Angle/ Female Right-Angle		
MQDEC-403RR	0.9 m (2.9 ft)			
MQDEC-406RR	1.8 m (5.9 ft)			
MQDEC-412RR	3.6 m (11.8 ft)			
MQDEC-420RR	6.1 m (20 ft)			

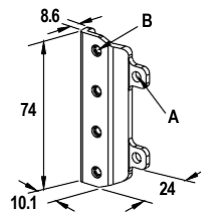
## Brackets

### SMBR90S

- Stainless steel bracket
- 4x M4-07 pemnuts (B)
- Includes 2x M4 stainless steel hex head screws and flat washers

Hole center spacing: A = 40, B = 20

Hole size: A =  $\varnothing$  5



## Maintenance and Service

Do not use alcoholic cleaning agents. The R90C 4-Port Converter is maintenance-free.

### FCC Part 15 Class 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.

## Industry Canada

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.

## Technical Support

<b>North America:</b> Tel: (317) 916-4274 Fax: (317) 639-4279 Website: <a href="https://hornerautomation.com">https://hornerautomation.com</a> Email: <a href="mailto:techspt@heapg.com">techspt@heapg.com</a>	<b>Europe:</b> Tel: (+353)-21-4321-266 Fax: (+353)-21-4321826 Website: <a href="http://www.hornerautomation.eu">http://www.hornerautomation.eu</a> Email: <a href="mailto:technical.support@horner-apg.com">technical.support@horner-apg.com</a>
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