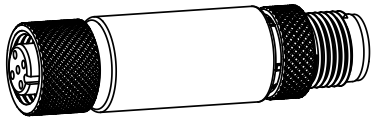
S15C Modbus Master to IO-Link Device Converter for Ultrasonic

Datasheet



- Compact Modbus master to IO-Link device converter for use with K50UX2ARA Ultrasonic sensor (100 mm to 1 m) and K50UX2CRA Ultrasonic sensor (300 mm to 3 m)
- Predefined ModBus registers are sent over IO-Link automatically
- Rugged over-molded design meets IEC IP65, IEC IP67, and IEC IP68
- Connects directly to a sensor or anywhere in-line for ease of use

Models

Housing	Function		Female		Male	Connector
S15	C	-	MUL	-	K	Q
	C = Converter		MUL = Modbus Ultrasonic		K = IO-Link	Q = Integral M12/Euro-style quick disconnect

IO-Link®

IO-Link® is a point-to-point communication link between a master device and a sensor and/or light. It can be used to automatically parameterize sensors or lights and to transmit process data. For the latest IO-Link protocol and specifications, please visit www.io-link.com.

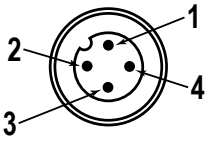
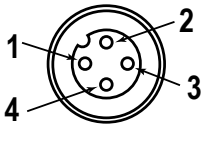
For the latest IODD files, please refer to the Banner Engineering Corp website at: www.bannerengineering.com.

Process Data In (Device to Master)

For more information, see Banner P/N 195214 *Sure Cross® U-GAGE K50U Ultrasonic Sensor*, Banner P/N 217179 *S15C Modbus Converter (Ultrasonic) - IO-Link Data Reference Guide*, and Banner P/N 217163 *S15C-MUL-KQ IODD Files*.

Process Data In		
Reg Adr 01	45201	Distance (mm)
Reg Adr 02	45202	Distance (in)
Reg Adr 03	45203	Temperature (°F)
Reg Adr 04	45204	Temperature (°C)

Wiring Diagrams

Male	Female	Pin	Wire Color
		1	Brown
		2	White
		3	Blue
		4	Black

Female (Sensor)	Signal Description
Pin 1	18 V DC to 30 V DC
Pin 2	RS485/D1/B/+

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Female (Sensor)	Signal Description
Pin 3	Ground
Pin 4	RS485/D0/A/-

Male (IO-Link Master)	Signal Description
Pin 1	18 V DC to 30 V DC
Pin 2	Banner-specific
Pin 3	Ground
Pin 4	IO-Link

Status Indicators

Power LED Indicator (Green)

- Solid Green = Power On
- Off = Power Off

IO-Link Communication LED Indicator (Amber)

- Flashing Amber (900 ms On, 100 ms Off) = IO-Link communications are active
- Off = IO-Link communications are not present

Modbus Communication LED Indicator (Amber)

- Flashing Amber (4 Hz) = Modbus communications are active
- Solid Amber for 2 seconds to Off = Modbus communications are lost after connection
- Solid Amber for 2 seconds to Flashing Amber (4 Hz) = Modbus communications momentarily lost, but communication reestablished
- Solid Amber = Modbus communications are intermittent, or communications error occurs more frequently than once every 2 seconds
- Off = Modbus communications are not present

Specifications

Supply Voltage
18 V DC to 30 V DC at 50 mA maximum

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Leakage Current Immunity
400 µA

Indicators
Green power
Amber IO-Link communications
Amber ModBus communications

Connections
Integral male/female 4-pin M12/Euro-style quick disconnect

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

Environmental Rating
IEC IP65, IEC IP67, IEC IP68
NEMA/UL Type 1

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

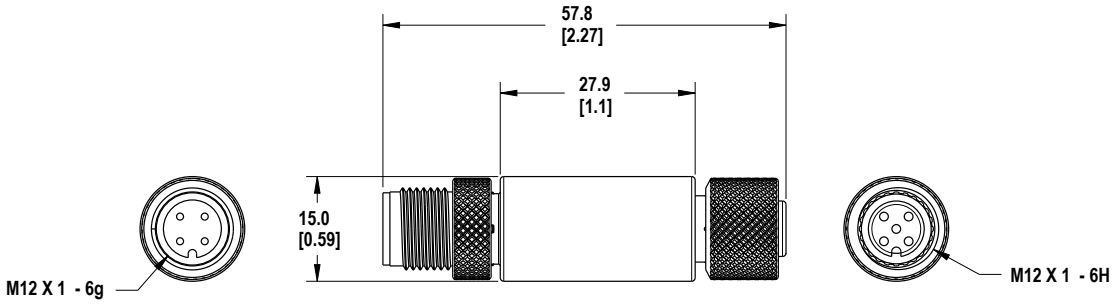
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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 (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

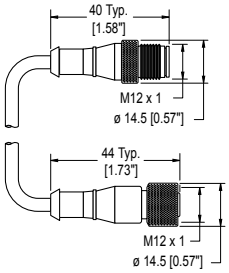
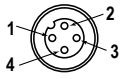
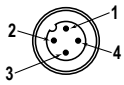
Dimensions

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



Accessories

Cordsets

4-Pin Threaded M12/Euro-Style Cordsets—Double Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/ Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
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)			

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For patent information, see www.bannerengineering.com/patents.

FCC Part 15 and CAN ICES-3 (B)/NMB-3(B)

This device complies with part 15 of the FCC Rules and 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.

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 and CAN ICES-3 (B)/NMB-3(B). 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 manufacturer.

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