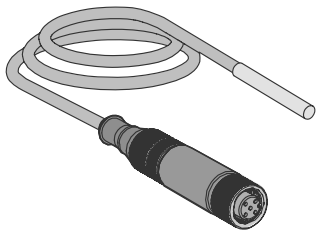
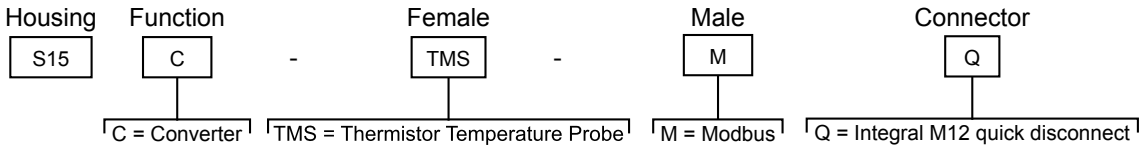
S15C Thermistor Temperature Probe to Modbus® Converter Datasheet

Features



- Compact converter that connects to a thermistor probe and outputs the value to Modbus® registers
- Thermistors are used as temperature sensors and are an accurate and cost-effective sensor for measuring temperatures in various applications
- Rugged overmolded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use

Models



The converter comes with the following included: Thermistor (Type G) with 2.9 m cable and M12 Quick Disconnect.

Thermistor Ratings: Type G

Cable length: 2.9 m

Cable Material: PVC

Tube/Thermistor: Copper Plated/PS103G2

Range: –20 °C to 105 °C (–4 °F to 221 °F)

Accuracy: ± 0.2%

Configuration Instructions

Sensor Configuration Software

The Sensor Configuration Software offers an easy way to manage converter Modbus settings, retrieve data, and visually show converter data. The Sensor 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 Sensor Configuration Software from the Banner Engineering website: https://info.bannerengineering.com/cs/groups/public/documents/software/b_3128586.exe.

Modbus Configuration

Modbus Register Address	Type	Name	I/O Range	Description	Notes	Default
IO Data Out						
40001	int16, Read Only	IO Data	Temperature °C = -4000 to +10500	Analog Data output 1	Temperature °C/°F = Data Output ÷ 100 Thermistor Resistance = Data Output × 10	-
40002	int16, Read Only	IO Data	Temperature °F = -4000 to +22100	-		-
40003	int16, Read Only	IO Data	Thermistor Resistance = 70 to 23980	-		-
40004	int16, Read Only	IO Error Status	STATUS_ERROR_TYPE_NO_ERROR = 0 STATUS_ERROR_TYPE_INVALID_THERM_TYPE = 1	Status of program	0-7 value	-
IO Data Rate						
41201	int16, Read and Write	Sample IO	-	Sample interval time for IO	Minimum rate: 62.5 ms (0x01)	0x10 (1 sec)
Thermistor Input 1						

Continued on page 2

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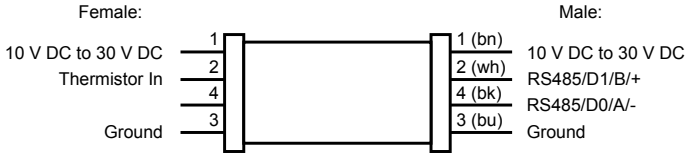
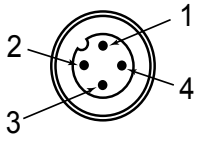
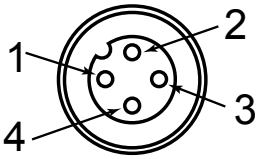
Modbus Register Address	Type	Name	I/O Range	Description	Notes	Default
41006	uint16, Read and Write	Thermistor curve Type	THERM_TYPE_G_CURVE = 0 THERM_TYPE_J_CURVE = 1	Selects which Thermistor type is utilized.	0 - 1 value, Thermistor Only	0
COMs Settings						
46101	Baud Rate	-	0 = 9.6k 1 = 19.2k 2 = 38.4k	-	-	1
46102	Parity	-	0 = None 1 = Odd 2 = Even	-	-	None
46103	Modbus Slave Address	-	1 to 247	-	-	1

Wiring Diagrams



Male (Gateway)	Female (Sensor)	Pin	Wire Color
		1	Brown
		2	White
		3	Blue
		4	Black

Status Indicators

Power LED Indicator (Green)

- Solid Green = Power On
- Off = Power Off

Modbus Communication LED Indicator (Amber)

- Flashing Amber = Modbus communications are active
- Off = Modbus communications are not present

Specifications

Supply Voltage

10 V DC to 30 V DC at 50 mA maximum

Power Pass-Through Current

4 A maximum

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 µA

Resolution

12-bits

Accuracy

± 1.5 °C (± 3 °F)

Internal Resistance

100 ohms

Indicators

Green power

Amber Modbus communications

Connections

Integral male/female 5-pin M12 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)

Environmental Rating

IP65, IP67, 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)

Thermistor Probe

Cable length: 2.9 m

Cable Material: PVC

Tube/Thermistor: Copper Plated/PS103G2

Range: –20 °C to 105 °C (–4 °F to 221 °F)

Accuracy: ± 0.2%

Certifications

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Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

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

Product Identification

SNAP SIGNAL®

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	1.0	30	0.5

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.

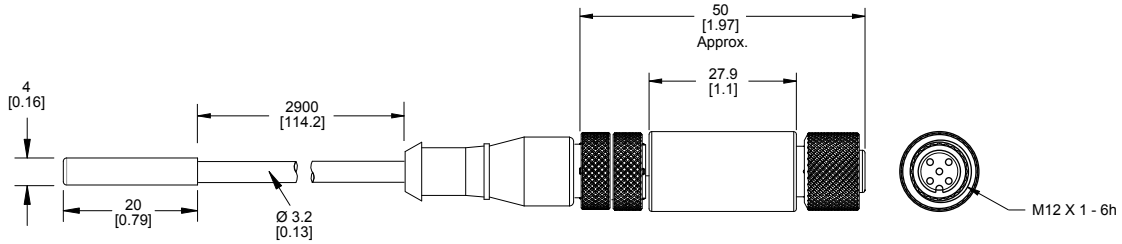
Industry Canada ICES-003(B)

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.

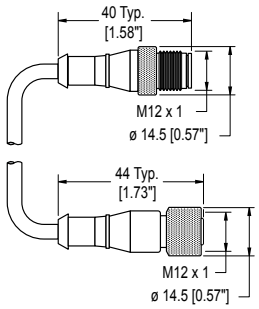
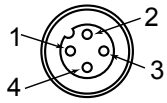
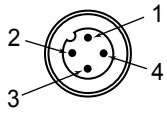
Dimensions

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



Accessories

Cordsets

4-Pin Threaded M12 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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