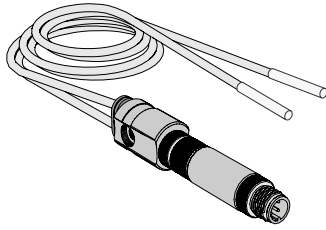


S15C Dual Thermistor Temperature Probe to Modbus Converter Datasheet



Features



- Includes a dual thermistor probe and an S15C Modbus® Converter
- 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

Models

Model	Function	Female End	Male End	Connector
S15C-DTMS-MQ	S15C - S15 Converter	DTMS - Dual Thermistor Temperature Probe	M - Modbus	Q - Integral male/female 5-pin M12 quick-disconnect connector

The converter comes with the following included: Dual thermistor (Type G) with 1.8 m long cables and an M12 quick-disconnect connector.

Thermistor Ratings: Type G

- Cable length: 1.8 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 (Thermistor 1) C	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 (Thermistor 2) C				-
40003	int16, Read Only	Diff Temp (T1-T2) C	Temperature °C = -14500 to +14500	-		-
40004	int16, Read Only	IO Data (Thermistor 1) F	Temperature °F = -4000 to +22100	Analog Data output 1		-
40005	int16, Read Only	IO Data (Thermistor 2) F				-
40006	int16, Read Only	Diff Temp (T1-T2) F	Temperature °F = -26100 to +26100	-		-
40007	int16, Read Only	IO Data	Thermistor 1 Resistance = 70 to 23980	-		-
40008	int16, Read Only	IO Data	Thermistor 2 Resistance = 70 to 23980	-		-

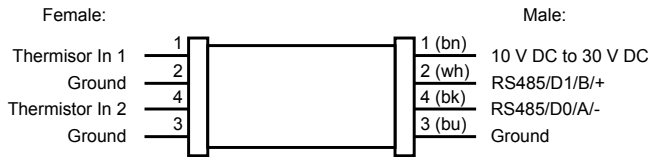
Continued on page 2



Continued from page 1

Modbus Register Address	Type	Name	I/O Range	Description	Notes	Default
IO Data Rate						
41201	int16, Read and Write	Sample IO	-	Sample interval time for IO	Minimum rate: 62.5 ms (0x01)	0x10 (1 sec)
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 μ A

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: 1.8 m
 Cable Material: PVC
 Tube/Thermistor: Copper Plated/PS103G2
 Range: -20 °C to 105 °C (-4 °F to 221 °F)
 Accuracy: ± 0.2%

Certifications

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

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

**Product Identification****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.

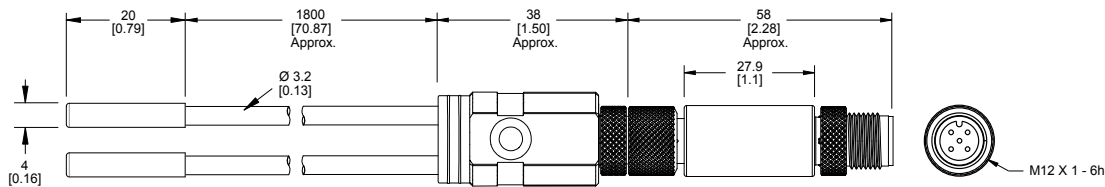
Industry Canada ICES-003(B)

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
MQDEC-403SS	0.91 m (2.99 ft)			Female
MQDEC-406SS	1.83 m (6 ft)			Female
MQDEC-412SS	3.66 m (12 ft)			Female
MQDEC-420SS	6.10 m (20 ft)			Female
MQDEC-430SS	9.14 m (30.2 ft)			Female
MQDEC-450SS	15.2 m (49.9 ft)			Male

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

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.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.

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