

S15C Resistance Temperature Detector to Modbus® Converter Datasheet



S15C Features

- Compact converter that connects to a resistance temperature detector (RTD) and outputs the value to Modbus® registers
- Rugged overmolded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use
- For use with PT100 3-wire RTDs



S15C Models

House	Function	-	Female End	-	Male End	Connector
S15	C	-	RTD	-	M	Q
	C = Converter		RTD = Resistance temperature detector		M = Modbus	Q = Integral M12 quick disconnect connector

SNAP SIGNAL Configuration Software

Banner's SNAP SIGNAL Configuration Software offers an easy way to configure and demonstrate Banner Modbus devices.

Users have full control of device configuration, the ability to visualize device data, and to demonstrate device features. The easy-to-use software provides a variety of tools and works with Banner Modbus devices.

- Allows for the configuration and demo of Banner Modbus devices
- Free to download and available on the Banner website at <https://www.bannerengineering.com/sg/en/products/software/snap-signal-configuration-software.html>
- Works on Microsoft® Windows® 7 and 10⁽¹⁾
- BWA-UCT-900 cable required to connect PC-based SNAP SIGNAL Configuration Software to Banner Modbus devices

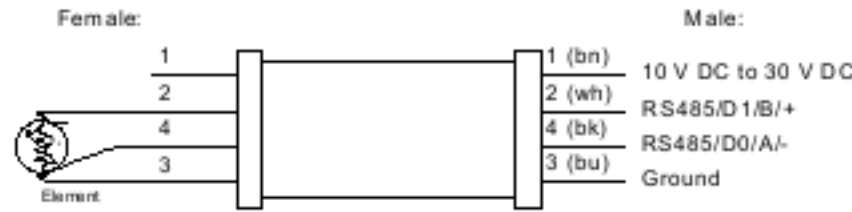


Modbus Configuration

Modbus Register Address	Type	Name	I/O Range	Description	Notes	Default
IO Data Out						
40001	Int16, Read Only	IO Data	Temperature °C = 4000 to -2000	Analog Data output 1	Temperature °C = Data Output - L00	-
40002	Int16, Read Only	IO Data	Temperature °C = 400 to -3920		Temperature °C = Data Output - L0	-
40003	Int16, Read Only	IO Data	Resistance = 84 to 177		Resistance = Data Output - L00	-
IO Data Rate						
41201	Int16, Read and write	Sample IO	-	Sample interval time for IO	Minimum rate: 62.5 ms (0x01)	0x10 (1 sec)
Base Resistance and Temperature Coefficient						
41006	uint16	Base Resistance	0-65535	Resistance at 0 °C in Ohms	-	100
41007	uint16	Temperature Coefficient	0-65535	Register Value = Temperature Coefficient / 100,000	-	385
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

⁽¹⁾ Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

S15C 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

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Leakage Current Immunity

400 µA

Resolution

12-bits

Accuracy

± 3 °C

Indicators

Green: Power
Amber: Modbus communications

Connections

Integral male/female 4-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)

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	28	1.0
22	3.0	28	0.8
24	1.0	30	0.5

Certifications



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



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



LISTED

Product Identification



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.

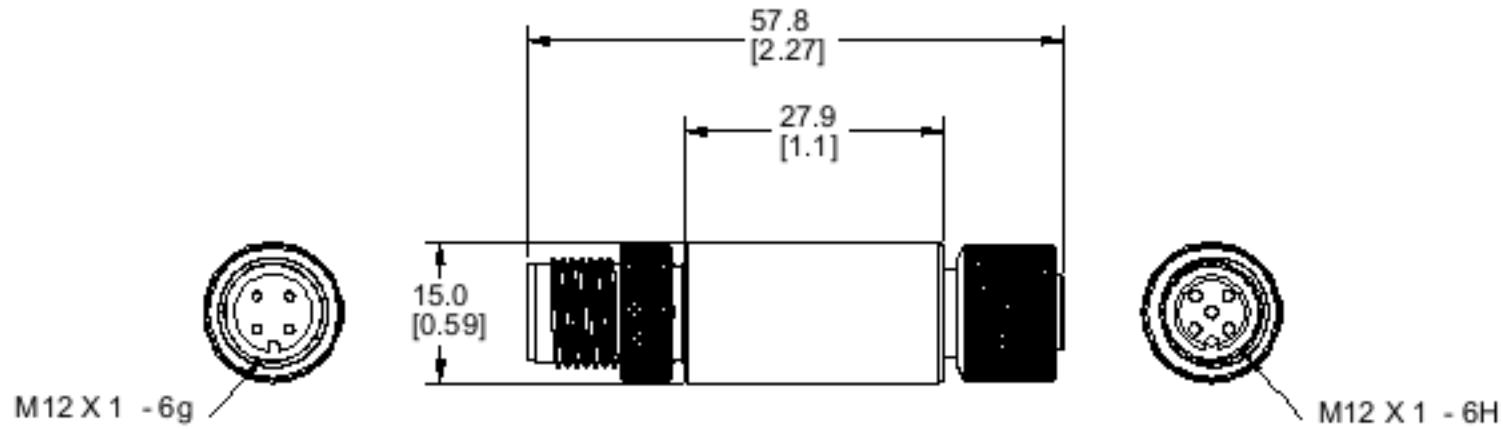
Industry Canada ICES-003(B)

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.



S15C Accessories

Cordsets

4-pin M12 Cordsets - Female to Male Double-Ended, Straight				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)		Female	1 = Brown 2 = White 3 = Blue 4 = Black
BC-M12F4-M12M4-22-2	2 m (6.56 ft)		Male	
BC-M12F4-M12M4-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4-22-8	8 m (26.25 ft)			
BC-M12F4-M12M4-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4-22-15	15 m (49.2 ft)			

4-pin M12 Cordsets - Female Straight to Male Right-Angle Double-Ended				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4A-22-1	1 m (3.28 ft)		Female	1 = Brown 2 = White 3 = Blue 4 = Black
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 M12 Cordsets - Female Right-Angle to Male Right-Angle Double-Ended				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4A-M12M4A-22-1	1 m (3.28 ft)		Female	1 = Brown 2 = White 3 = Blue 4 = Black
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)			

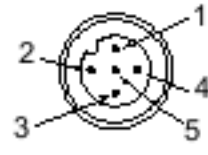
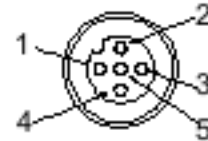
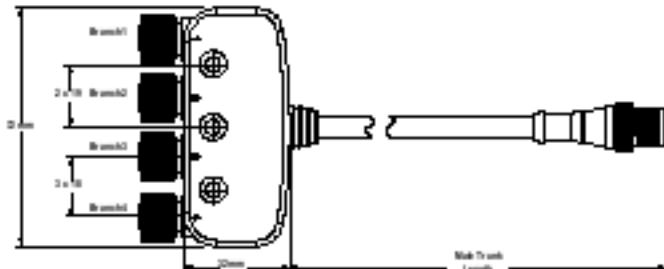
Splitter Tee

5-Pin Threaded M12 Splitter Tee			
Model		Pinout (Male)	Pinout (Female)
CSB-M1250M1250-T <ul style="list-style-type: none"> Two 5-pin M12 female quick-disconnect connectors One 5-pin M12 male quick-disconnect connector Parallel wiring 		<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>	<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>

5-Pin Molded Junction Blocks

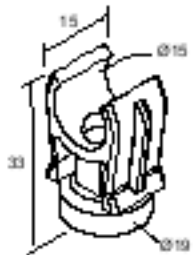
Model		Pinout (Male)	Pinout (Female)
R50-4M125-M125Q-P Molded Junction Block <ul style="list-style-type: none"> Four integral 5-pin M12 female quick-disconnect connectors One integral 5-pin M12 male quick-disconnect connector Parallel wiring Product documentation (pin 227974) 		<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>	<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>
R95-8M125-M125Q-P Molded Junction Block <ul style="list-style-type: none"> Eight integral 5-pin M12 female quick-disconnect connectors One integral 5-pin M12 male quick-disconnect connector Parallel wiring Product documentation (pin 227974) 		<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>	<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>

Splitter Cordsets

5-Pin Threaded M12 Splitter Cordset with Flat Junction—Double Ended			
Model	Description	Pinout (Male)	Pinout (Female)
CSB4-M1251M1250	<p>Four (no cable) 5-pin M12 female quick-disconnect connectors</p> <p>One 0.3 m (0.98 ft) cable with a 5-pin M12 male quick-disconnect connector</p> <p>Parallel wiring</p>		
		<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>	<p>1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray</p>

4-Pin Threaded M12 RS 495 to USB Adapter Cordset with Wall Plug				
Model	Length	Style	Dimensions	Pinout (Female)
BWA-UCT-900	1 m (3.28 ft)	Straight		 <p>1 = Brown 2 = White 3 = Blue 4 = Black</p>

Brackets

<p>LMBS15MAG</p> <ul style="list-style-type: none"> Attaches to S15 housing White polypropylene 11.8 kg (26 lb) pull force One piece 	
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For patent information, see www.bannerengineering.com/patents.

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 Original Instructions
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