S15C Banner Bus to Modbus T-GAGE Converter

Datasheet



- Converts T-GAGE temperature information to Modbus registers
- Compact Banner 1-wire to Modbus converter for use with T-GAGE M18T Series Infrared Temperature Sensors
- Rugged over-molded design meets IP65, IP67, and IP68
- Connected directly to a sensor or anywhere in-line for ease of use

Models

Housing	Function		Female		Male	Connector
S15	C	-	BB	-	MTG	Q
	C = Converter		BB = Banner Bus		MTG = Modbus T-GAGE	Q = Integral M12/Euro-style quick disconnect

Overview

The S15C-BB-MTGQ is an easy-to-use converter that presents T-GAGE temperature data over the RS-485 Modbus network. This converter interfaces to the RS-485 Modbus RTU network through a 4-pin or 5-pin M12 female cordset. To install the converter to a cable:

1. Align the notch in the cable's female connector with the key in the converter's male connector.
2. Gently slide the converter end into the cable's connector.
3. Rotate the cable's threaded nut to tighten the converter down.

WARNING: DO NOT attempt to rotate the converter after it is connected to the cable end. This will damage the converter.

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 from the T-GAGE sensor. 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

For more information on the T-GAGE M18T series, see Banner P/N 123698 *T-GAGE™ M18T Series Infrared Temperature Sensors*.

Modbus Register Address	Description	I/O Range	Holding Register Registration	Comments
Temperature – Read Only				
40002	Temperature (°C)	-20–320	-100 to 1600	Temperature = Register Value ÷ 5
40003	Temperature (°F)	-4–644	-20 to 3220	Temperature = Register Value ÷ 5
40004	Core/Ambient Temperature (°C)	-20–320	-100 to 1600	Temperature = Register Value ÷ 5
40005	High Temperature (°C)	-20–320	-100 to 1600	Temperature = Register Value ÷ 5
40006	Low Temperature (°C)	-20–320	-100 to 1600	Temperature = Register Value ÷ 5
40007	Core/Ambient Temperature (°F)	-4–644	-20 to 3220	Temperature = Register Value ÷ 5
40008	High Temperature (°F)	-4–644	-20 to 3220	Temperature = Register Value ÷ 5
40009	Low Temperature (°F)	-4–644	-20 to 3220	Temperature = Register Value ÷ 5
Analog – Read Only				
40400	Output	0-20	0 to 40000	Output = Register Value ÷ 2000
40401	Alarm State	0 = Off, 1 = On		Analog only
40402	Output Designation	0 = mA 1 = V 2 = None		0 = Current device 1 = Voltage 2 = Dual discrete
Model Info - Read Only				

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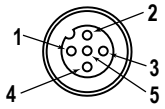
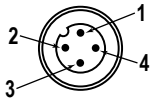
ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Modbus Register Address	Description	I/O Range	Holding Register Registration	Comments
43000	Model Part Number (High Word)			Model Part Number
43001	Model Part Number (Low Word)			Model Part Number
43002	Model Version			Build, Major - High Byte Build, Minor - Low Byte
43003-43018	Model Name			16 registers/32 bytes (ASCII)
31000	Firmware Part Number (High Word)			Firmware Part Number
31001	Firmware Part Number (Low Word)			Firmware Part Number
31002	Firmware Version			Build, Major - High Byte Build, Minor - Low Byte
31003	Build Number			Build Number
Modbus – Read/Write				
46101	Baud	0 = 9.6k 1 = 19.2k 2 = 38.4k		19.2k = Default
46102	Parity	0 = None 1 = Odd 2 = Even		None = Default
46103	Modbus slave address	1 to 247		1 = Default

Wiring Diagrams

For optimum performance, connect the T-GAGE sensor directly to the S15C-BB-MTGQ female connector.

Female (Sensor)	Pin	Wire Color	Signal Description
	1	Brown	18 V DC to 30 V DC
	2	White	Not connected
	3	Blue	Ground
	4	Black	Discrete In
	5	Gray	Banner 1-wire

Male (Gateway)	Pin	Wire Color	Signal Description
	1	Brown	18 V DC to 30 V DC
	2	White	RS485/D1/B/+
	3	Blue	Ground
	4	Black	RS485/D0/A/-

Status Indicators

Power LED Indicator (Green)

- Solid Green = Power On
- Off = Power Off

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

Banner 1-Wire Communication LED Indicator (Amber)

- Flashing Amber (4 Hz) = Banner 1-Wire communications are active
- Off = Banner 1-Wire 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: Banner 1-wire
Amber: ModBus communications

Connections
Integral 4-pin M12 male quick-disconnect connector
Integral 5-pin M12 female 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, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 15G ms duration, half sine wave)

Certifications

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

Turck Banner LTD Blenheim
House, Blenheim Court,
Wickford, Essex SS11 8YT,
Great Britain

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

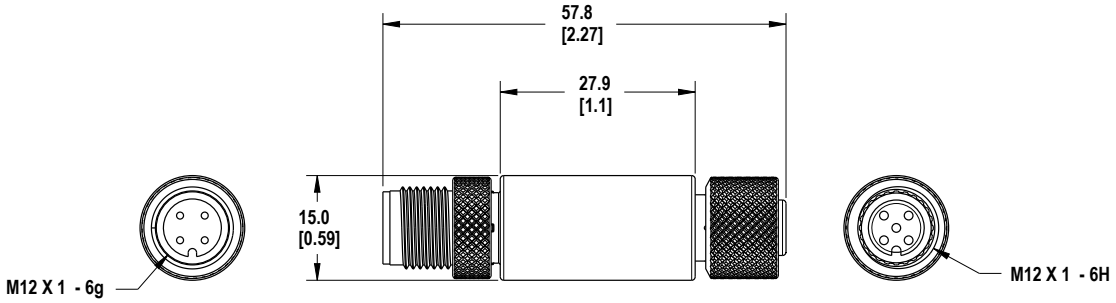
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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

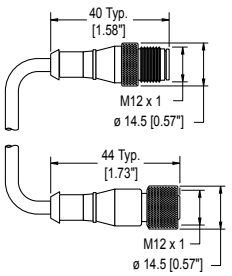
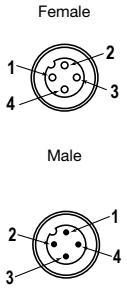
Dimensions

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



Accessories

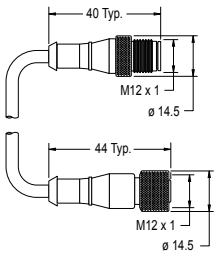
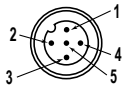
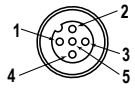
Cordsets

4-Pin Threaded M12 Cordsets—Double Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/Female Straight		
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)			

Female

Male

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

5-Pin Threaded M12 Cordsets—Double Ended					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Male)**	**Pinout (Female)**
MQDEC-501SS	0.31 m (1.02 ft)	Male Straight/ Female Straight			
MQDEC-503SS	0.91 m (2.99 ft)			1 = Brown 2 = White 3 = Blue	4 = Black 5 = Gray
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)				

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FCC Part 15

This device complies with Part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. 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.

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.

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