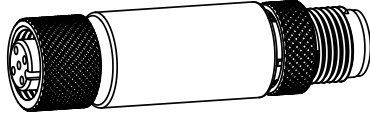


S15C Analog Current to Modbus Converter



Datasheet



- Compact analog current to Modbus converter that connects to a current source (4 mA to 20 mA) and outputs the value to Modbus registers
- Rugged over-molded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use

Model



Modbus Configuration

| Modbus Register Address | Description | I/O Range | Comments | Default | Access |
|-------------------------|--|------------------------------------|--|------------|--------|
| IO Data Out | | | | | |
| 40001 | Analog Data output | 0-32768 | Current (mA) = Register Value /1000 | 4000-20000 | RO |
| 40002 | Alarm State for IO 1 based on Min and Max thresholds defined in Analog In Min Value () and Analog In Max Value() | 0..1 | 0 = Within threshold range 1 = Out of threshold range | - | RO |
| 40003 | Status of program | 0..2 | STATUS_ERROR_TYPE_NO_ERROR = 0 STATUS_ERROR_TYPE_BELOW_MIN = 1 STATUS_ERROR_TYPE_ABOVE_MAX = 2 | - | RO |
| Input_ADC_Config | | | | | |
| 41201 | Sample interval time | 0..65535 | 0 = Disabled 1 = 10 ms 2..65535 = 5 ms increments | 1 | RW |
| FilterConfig | | | | | |
| 41202 | Takes current ADC value and the last ADC reading and takes the median of the values. | 0..1 | 0 = Median Filter Disabled 1 = Median Filter Enabled | 0 | RW |
| Minimum Value | | | | | |
| 41204 | Minimum analog value for data read | 0..31 mA | Must be less than maximum | 4 mA | RW |
| Maximum Value | | | | | |
| 41205 | Max analog value for data read | 1..32 mA | Must be greater than the minimum | 20 mA | RW |
| COMs Settings | | | | | |
| 46101 | Baud Rate | 0 = 9.6k 1 = 19.2k 2 = 38.4k | 0 = 9.6k 1 = 19.2k 2 = 38.4k | 1 | RW |
| 46102 | Parity | 0 = None 1 = Odd 2 = Even | 0 = None 1 = Odd 2 = Even | 0 | RW |
| 46103 | Slave Address | 1..247 | 1 to 247 | 1 | RW |



Wiring Diagrams

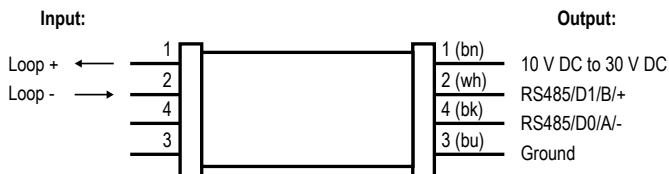


| Male (Gateway) | Female (Sensor) | Pin | Wire Color |
|----------------|-----------------|-----|------------|
| | | 1 | Brown |
| | | 2 | White |
| | | 3 | Blue |
| | | 4 | Black |

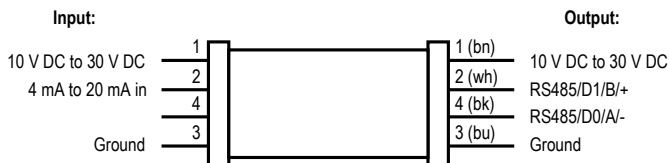


Important: If using a cable to connect the converter to an analog sensor, use of a shielded M12 cable is recommended, with the shield tied to pin 3.

Connecting 2-wire 4 mA to 20 mA Sensors



Connecting 3-wire 4 mA to 20 mA Sensors



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

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% of full scale

Indicators

Green power
Amber Modbus communications

Connections

Integral male/female 4-pin M12 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



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.

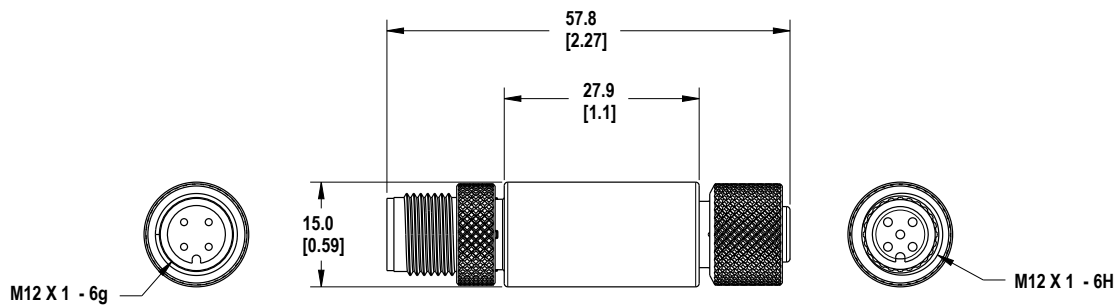
Supply wiring leads < 24 AWG shall not be spliced.

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 |

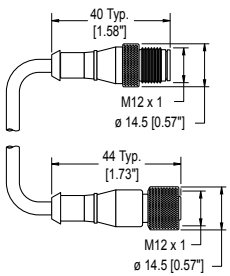
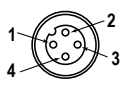
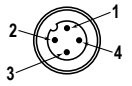
Dimensions

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 |  | Female |
| MQDEC-403SS | 0.91 m (2.99 ft) | | |  |
| MQDEC-406SS | 1.83 m (6 ft) | | | Male |
| 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) | | | 1 = Brown 2 = White 3 = Blue 4 = Black |

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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.