



Features

Rogowski coil current sensors are used to monitor AC current for various devices. The Rogowski coil takes a high current input and produces a proportional low-voltage, low-current signal that is then converted into Modbus. The compact size and the ability to easily install on conductors make them well-suited for installation on existing applications.

- Monitors AC current of motors, sub-panels, and facilities
- Pre-scaled and pre-configured sensor with a Modbus output
- Sensing loop can be opened, allowing for simple installation

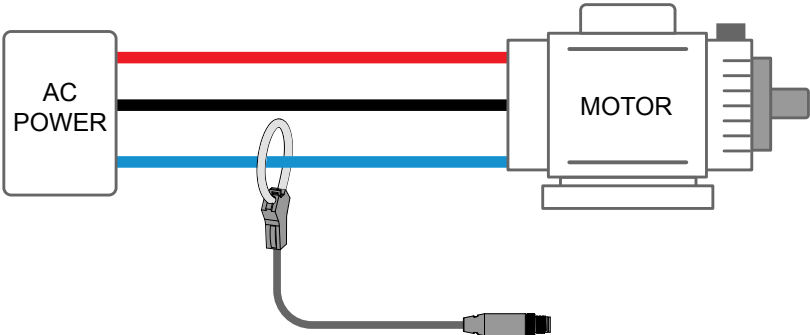
Models

| Models        | Coil Diameter (mm) | AC Current Range (A) |  |
|---------------|--------------------|----------------------|--|
| S15S-R500-MQ  | 50                 | 500                  |  |
| S15S-R1000-MQ | 50                 | 1000                 |  |
| S15S-R3000-MQ | 200                | 3000                 |  |
| S15S-R6000-MQ | 200                | 6000                 |  |

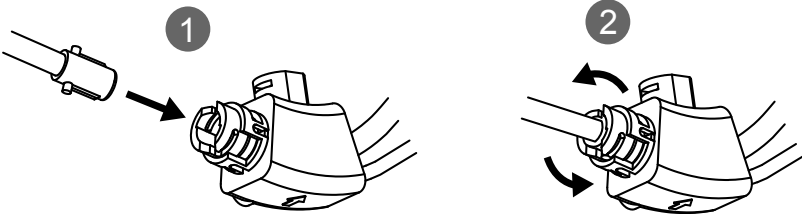
Installing the Rogowski Coil Sensor

Rogowski coil current sensors should be installed around a single conductor with the arrow pointing toward the load. The sensing loop can be opened to simplify installations on existing wiring. Refer to the diagrams below for additional instructions.

Installing a current transformer relative to the power supply/motor



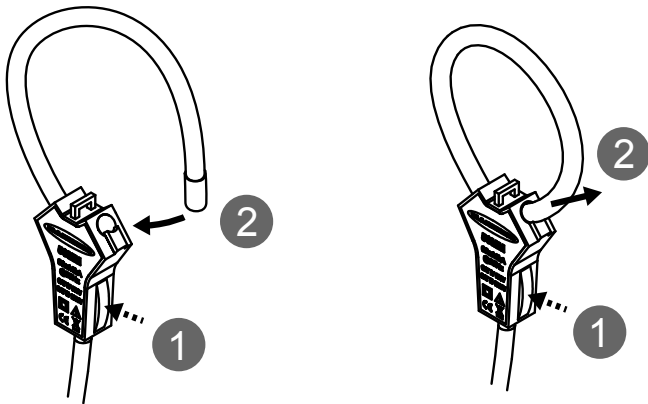
Installing a single conductor on the current transformer



1. Align tabs on the loop connector and insert as shown.

- 2. Twist to lock into place.
- 3. Twist in the opposite direction and pull out to release the connection.

Installing the 50mm current transformer loop model



To install the Rogowski coil current sensor loop model:

- 1. Press the button on the side of the connector.
- 2. Insert the loop connection and release the button.

To open the loop:

- 1. Press the button on the side of the connector.
- 2. Pull out the loop connection and release the button.

## Wiring the Rogowski Coil Sensor

| Male  | Signal Description |
|-------|--------------------|
| Pin 1 | 10 V DC to 30 V DC |
| Pin 2 | RS-485/D1/B/+      |
| Pin 3 | Ground             |
| Pin 4 | RS-485/D0/A/-      |



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

## 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](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 <sup>(1)</sup> |
|-------------------------|------|------|-----------|-------------|-------|------------------------|
| IO Data Out             |      |      |           |             |       |                        |

Continued on page 3

<sup>(1)</sup> Based on the model selected

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| Modbus Register Address | Type                   | Name                  | I/O Range  | Description   | Notes  | Default  |
|-------------------------|------------------------|-----------------------|--|---|--|--|
| 40001                   | uint16, Read Only      | IO Data               | 0-65535  | Analog Data output  | AC RMS Current (A) =Register Value/10              | 500A= 0-5000<br>1000A= 0-10000<br>3000A= 0-30000<br>6000A= 0-60000 |
| 40002                   | bool, Read Only        | IO Alarm State        | -  | Alarm State for IO based on Min and Max thresholds defined in Analog In Min Value () and Analog In Max Value () | 0=Within threshold range; 1=Out of threshold range | -  |
| 40003                   | int16, Read Only       | IO Error Status       | STATUS_ERROR_TYPE_NO_ERROR=0;<br>STATUS_ERROR_TYPE_BELOW_MIN=1;<br>STATUS_ERROR_TYPE_ABOVE_MAX=2 | Status of program   | 0-2 value  | -  |
| 40801                   | uint16, Read Only      | Measurement List Max  |  |   | FIFO maximum                                       |  |
| 40802                   | uint16, Read Only      | Measurement List Min  |  |   | FIFO minimum                                       |  |
| 40803                   | uint16, Read Only      | Measurement List Mean |  |   | FIFO mean  |  |
| 40811-40820             | uint16, Read Only      | Measurement List      | 0-65535  | FIFO (first in, first out) list of the past 10 measurements   |  |  |
| IO Data Rate            |                        |                       |  |   |  |  |
| 41201                   | uint16, Read and Write | Sample IO             | 0-65535  | Sample interval time for IO   | Increments of 62.5 ms                              | 16 (1 second)  |
| Minimum Value           |                        |                       |  |   |  |  |
| 41204                   | uint16, Read and Write | Minimum Analog Value  | -  | Minimum analog value for data read  | Minimum value: 0                                   | 0  |
| Maximum Value           |                        |                       |  |   |  |  |
| 41205                   | uint16, Read and Write | Maximum Analog Value  | -  | Max analog value for data read  | Maximum value                                      | 5000, 10000, 30000, 60000  |
| Line Frequency          |                        |                       |  |   |  |  |
| 41011                   | int16, Read and Write  | AC Line Frequency     | 1 = 60 Hz<br>2 = 50 Hz   | AC Line Frequency   | 1 = 60 Hz<br>2 = 50 Hz                             | 1  |
| COMs Settings           |                        |                       |  |   |  |  |
| 46101                   | Baud Rate              | -                     | 0 = 9.6k<br>1 = 19.2k<br>2 = 38.4k   | -   | -  | 1  |
| 46102                   | Parity                 | -                     | 0 = None<br>1 = Odd<br>2 = Even  | -   | -  | 0  |
| 46103                   | Modbus Slave Address   | -                     | 1 to 247   | -   | -  | 1  |

## 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

### Performance

Accuracy: ≤ 5% of full scale

Full-Scale Position Error: ±1% maximum

Full-Scale Maximum Bandwidth: 1 Hz to 1 MHz

Phase Error: ≤ 5% of full scale

### Electrical

Voltage Insulation- Coil: 1000V

Voltage Insulation- Cable: 500V

### Connections

Integral male/female 4-pin M12 quick disconnect

### Indicators

Green: power

Amber: Modbus communications

### Construction

Coupling Material: Nickel-plated brass

Connector Body: PVC translucent black

Coil and Cable: TPR, UL94-V0

### 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

### Operating Conditions

**Temperature:** -30 °C to +70 °C (-22 °F to +158 °F)

≤ 85% at +70 °C maximum relative humidity (non-condensing)

**Storage Temperature:** -40 °C to +80 °C (-40 °F to +176 °F)

## Product Identification



## 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

## FCC Part 15 Class A for Unintentional Radiators

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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 of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

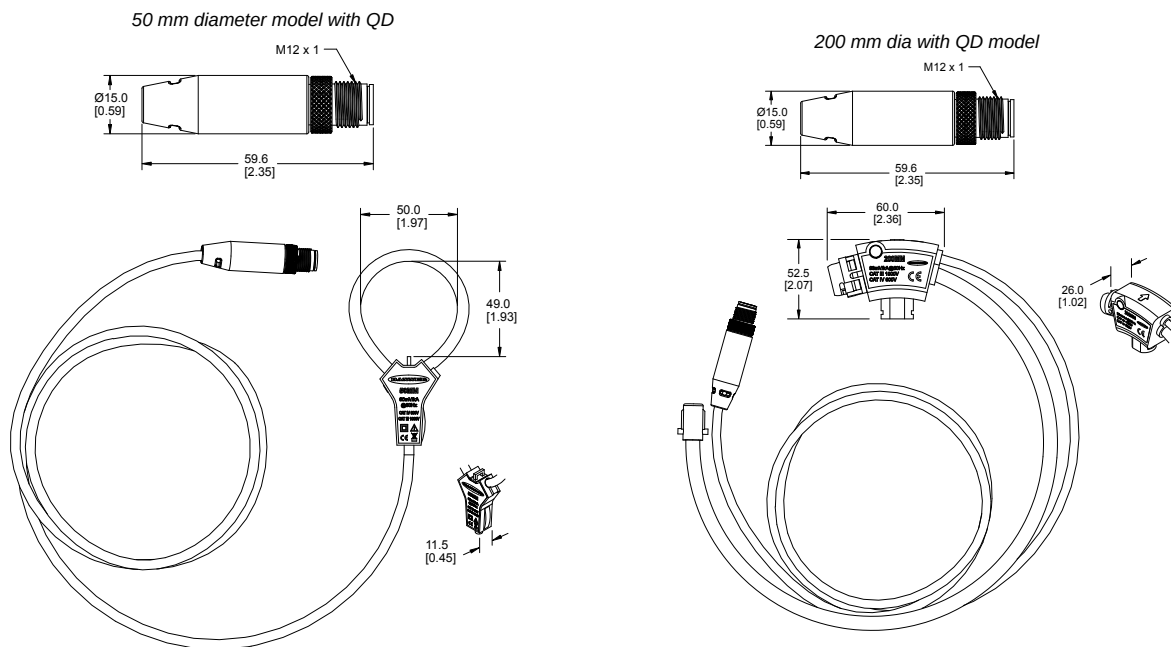
(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## 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



# Accessories

## Cordsets

| 4-Pin Double-Ended M12 Female to M12 Male Cordsets |                  |                               |            |   |
|--|------------------|-------------------------------|------------|---|
| Model  | Length           | Style                         | Dimensions | Pinout  |
| MQDEC-401SS  | 0.31 m (1 ft)    | Male Straight/Female Straight |            | <p>Female</p> <p>Male</p> <p>1 = Brown<br/>2 = White<br/>3 = Blue<br/>4 = Black</p> |
| MQDEC-403SS  | 0.91 m (2.99 ft) |                               |            |   |
| MQDEC-406SS  | 1.83 m (6 ft)    |                               |            |   |
| MQDEC-412SS  | 3.66 m (12 ft)   |                               |            |   |
| MQDEC-415SS  | 4.58 m (15 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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