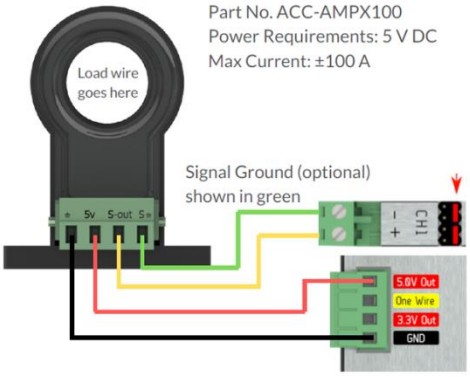
Technical Instruction - **FlexSCADA AMPx-100 Current Sensor**

Power monitoring is an important part of a well-designed, off-grid site. Being able to view the amperage into or out of a system can help users make informed decisions on the next steps to take. Proper calibration of the power monitoring accessories is key in maintaining the site as well. One of those devices is known as a current sensor.

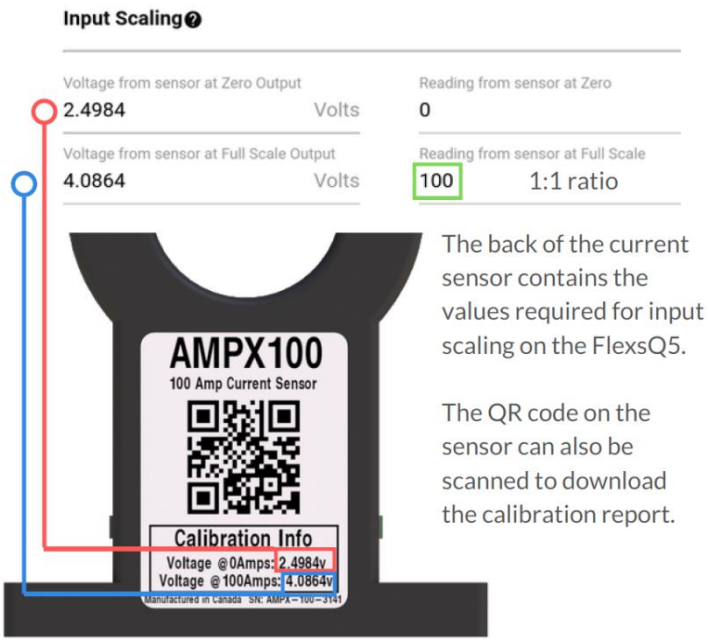
A current sensor will take a current signal (amps), and convert it into an analog voltage output. The ACC-AMPx100 is a non-invasive, bi-directional current sensor that has been specifically designed to integrate with the FlexSCADA Q5/Q5Pro line. Some care must be taken when configuring via the webhost to ensure accurate readings onboard the device.



Power to the AMPx100 is provided by the onboard low power expansion port 5.0V and Ground terminals. The sensor line and reference ground are then attached to any open analog input channel. The line to be monitored is then fed through the opening of the sensor. All that is required is one pass of the monitored wire through. However, if available, taking the monitored wire back through a second, third, or fourth time, will increase the accuracy of the reading. It is important to take note of how many times the wire passes through the sensor (known as turns), during installation because it will impact the configuration in the next step.

On the web interface, navigate to the analog input channel that the 100x sensor is connected to. Confirm the following options:

- **Measurement Type:** Analog Value
- **Channel Mode:** Voltage Mode



The next blocks down in the configuration window (shown to the left) are for the input scaling – which is why it was important to remember the amount of turns through the current sensor earlier. It is also important to have the calibration card that was included in the current sensor packaging. When inputting the values into the scaling page, the *Reading from sensor at Full Scale* is critical to change based on the number of turns for the current sensor. In the example to the left, the load wire passes through only one (1) time. The value in the green area stays at 100. If the output of the channel shows as a negative number, simply place a minus sign before the reading in the full-scale value to change the sign of the output, or vice versa. Do not add value signs to any other value in the input scaling blocks. All the values are found on the calibration card shipped with every sensor, as well as being available via the QR-code on the sensor itself.

In the case of more passes of the load wire through, the green highlighted area will change. For every pass (turn) of the load wire, the *Reading from sensor at Full Scale* output will be divided by the number of passes. For example, if there was a load wire that passed through the sensor four (4) times, the Full-Scale value will be 25. It is important to note that the other numbers within the scaling chart do not change. The only number that changes from the calibration card will be the reading at full scale. This value will be determined by the number of passes (turns). See below for a quick reference.

# of Passes	Full Scale
1	100
2	50
3	33.3
4	25

The current sensor is vulnerable to large amounts of electromagnetic interference, or EMI. Placing the sensor close to an EMI source, such as a transmitter or battery, can impact the proper readings of the sensor by the FlexSCADA system. When placing the sensor on a monitored line, try to keep away from sources of EMI. This will help to reduce chances of interference. If unable to place far enough away, make sure the sensor read lines are insulated to help limit the influence of EMI. In some extreme circumstances, it may be necessary to install a faraday cage around the sensor. If the sensor being installed is that critical in the location that is impacted by EMI, consult with engineering prior to final installation.

For further assistance, please contact the FlexSCADA Support Team at +1 (716) 276-8465, or visit our website at www.flexscadafusion.com.