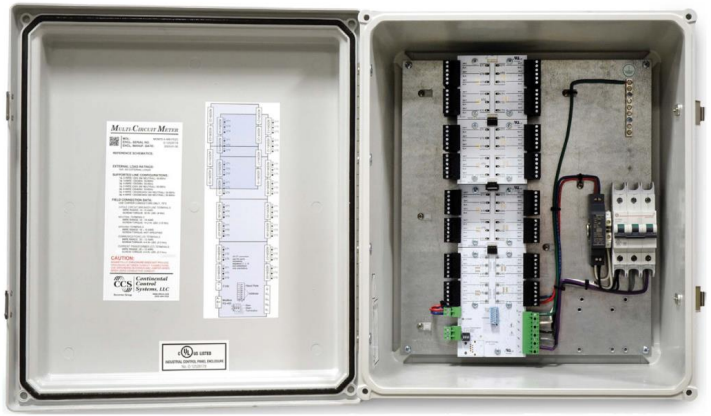
Multi-Circuit Meter (MCM)

Electric Meter

12-84 circuits

100 – 600 VAC



Modbus RTU

Modbus TCP

Continental Control Systems, LLC
Socomec Group
www.ctlsys.com

July 2020

socomec
Innovative Power Solutions

Overview of Presentation

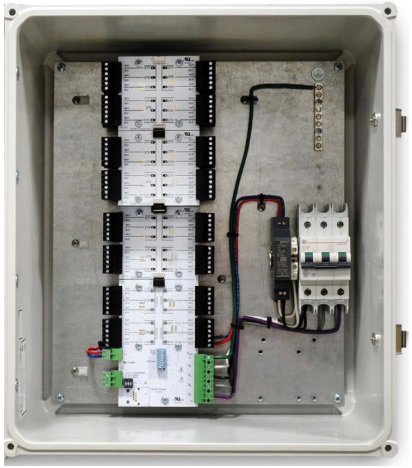
- Company Information
- Electrical Measurements
- Communications
- Typical applications
- Number of CTs inputs
- Retail price
- Current Transformers
- Certifications and Accuracy
- Voltage types
- Enclosures
- Unique Features
- Q & A

Company Mission

25-year-old company whose mission is to create and provide the technology and equipment that enables the efficient use of electricity throughout the world.

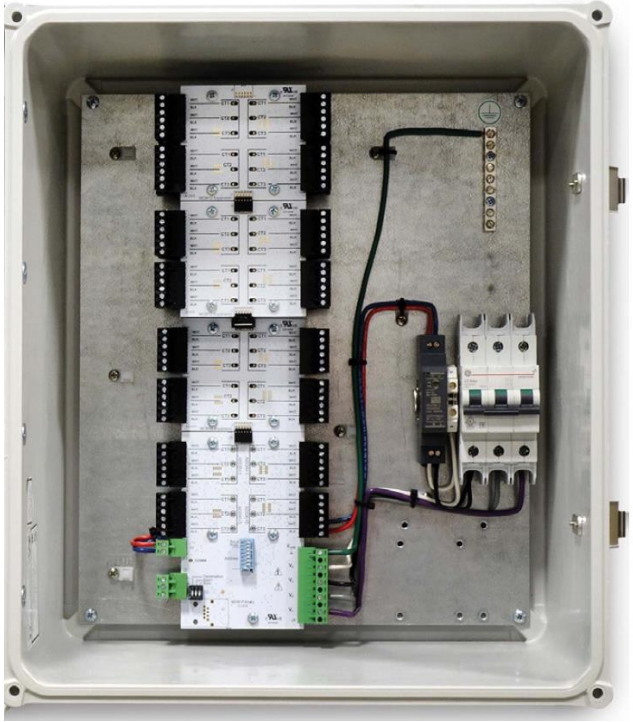
Company Product Overview

- Designs and manufactures
  - Energy meters
  - Current transformers
  - OEM Solutions



Electric Power and Energy Measurements

- Electrical Measurements
  - True RMS Energy: kWh per phase and sum
  - True RMS Power: watts, per phase and sum
  - Power Factor: per phase and average
  - RMS voltage per phase and average
  - RMS current per phase and average
  - Reactive Energy: VAR hours per phase and sum
  - Reactive Power: VARs, per phase and sum
  - Demand and peak demand
  - Frequency

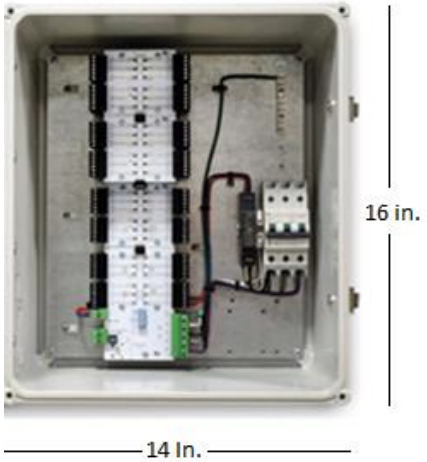


Communications

- Communications
  - Modbus RTU (RS-485)
    - Standard
  - Modbus TCP (TCP/IP)
    - Optional

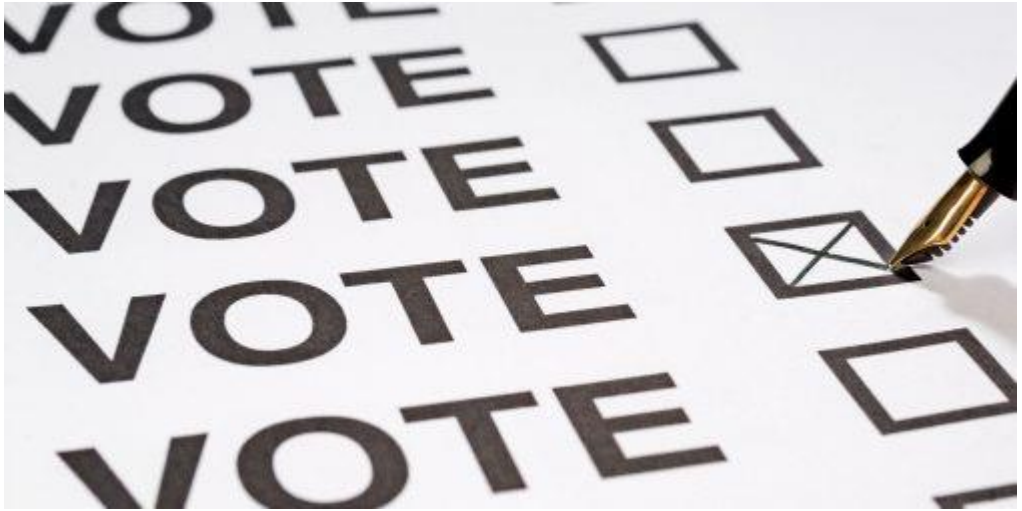
Typical Applications

- Wherever you have a high density of circuits
  - Data centers
  - Hospitals
  - Commercial Buildings
  - Schools
  - Retail
  - Government
  - Industrial



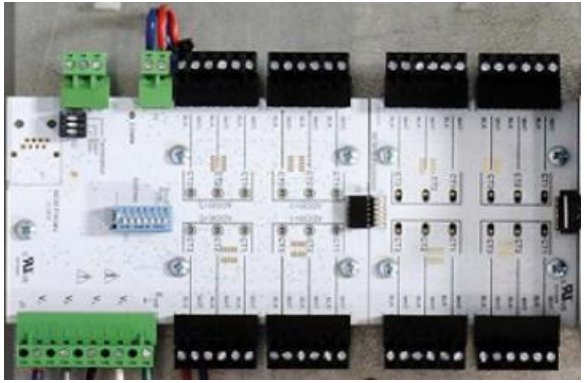
Survey of your applications

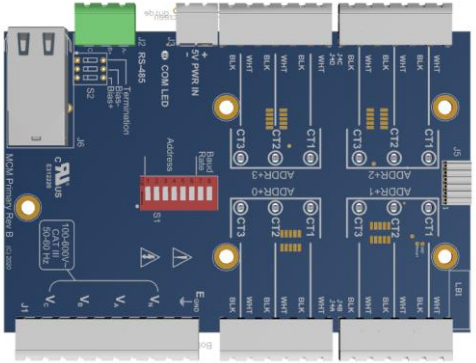
- Survey of applications
  - Fill in your application

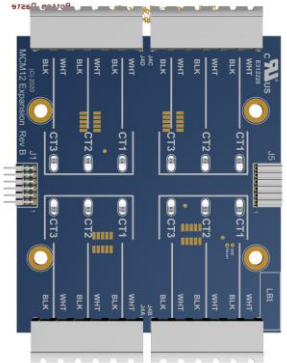


Number of circuits

- Order in blocks of 12 to 84
  - 12, 24, 36, 48, 60, 72, 84
- Two boards
  - Main Board
    - Comm connection
    - Voltage input
    - Configure Modbus
    - Connect 12 CTs
  - CT expansion boards
    - 12 CTs per board

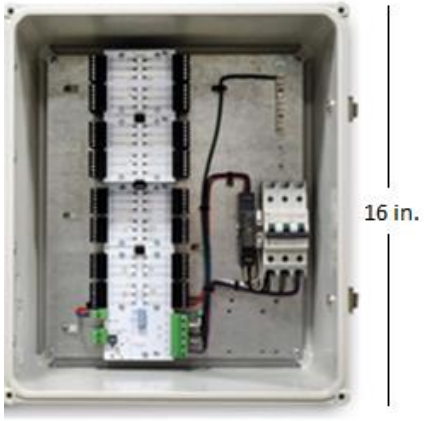


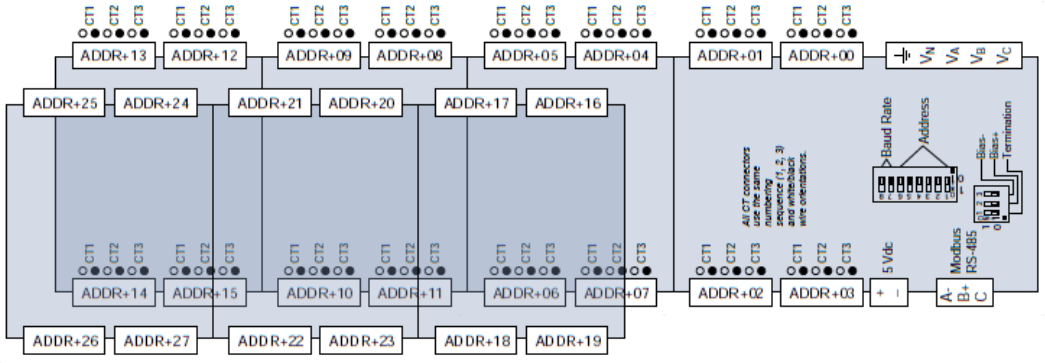




Modular design

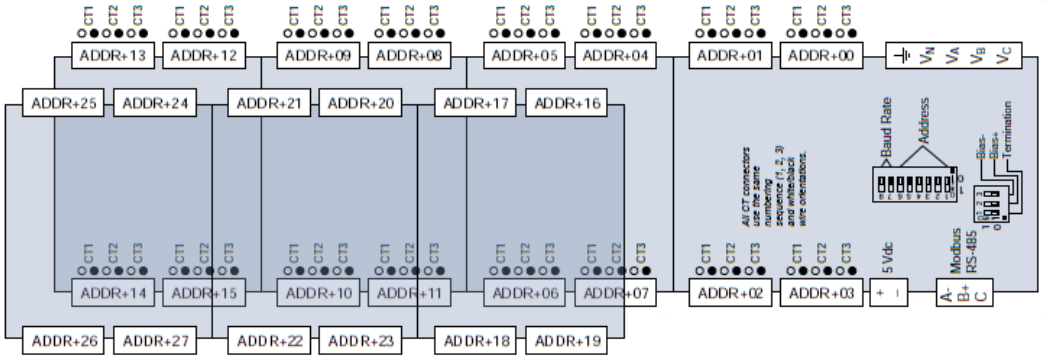
- Saves space
  - Boards stack
- Save time
  - One voltage connection
  - One Communication connection





Retail Price

- 12 Circuits - $600
- 24 Circuits - $900
- 36 Circuits - $1,200
- 48 Circuits - $1,500
- 60 Circuits - $1,800
- 72 Circuits - $2,100
- 84 Circuits - $2,400
- $29 - $50 a circuit
- For current pricing www.ctlsys.com



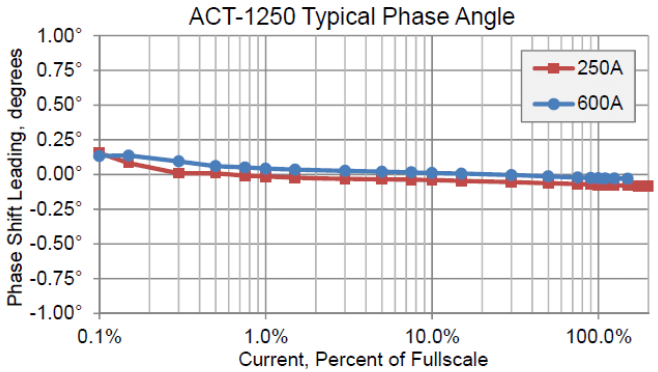
Current Transformers

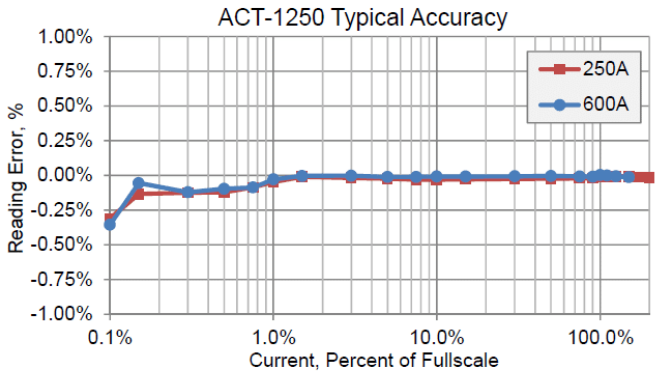
- MCM supports industry standard
  - 0.333 Vac output CTs
- Split-core window sizes
  - 0.35 in., 0.75 in., 1.25 in., 2.0 in.,
  - 4.0in., and Custom Sizes
- Rogowski coils
  - 3.0 in., 4.5 in., 7.5 in., and
  - 12 in. diameter
- CT Accuracy
  - Class 0.3, 0.6, 1.0
- www.ctlsys.com/products/current-transformers

Certifications

- Safety
  - UL 508A
  - FCC Class B
- Accuracy
  - ANSI C12.1
    - Use CT with Opt. C0.6
  - ANSI C12.20 class 0.5
    - Use CT with Opt. C0.3

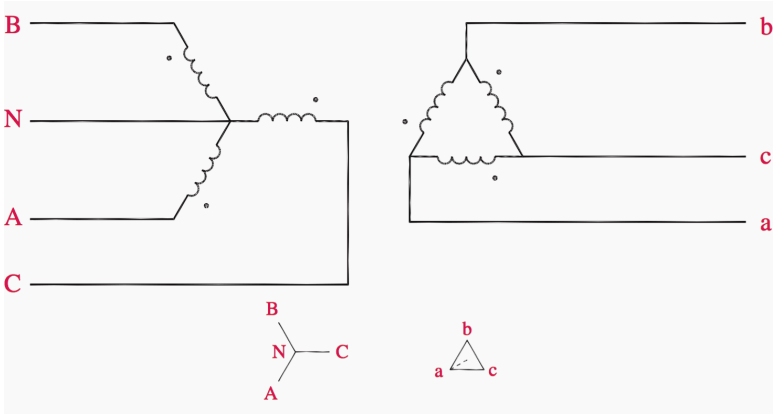
UL 508A





Voltage Service Types

- Models for all services
  - 100 to 600 Vac
  - Single-Phase or three-phase
  - Wye or delta
  - With or without neutral



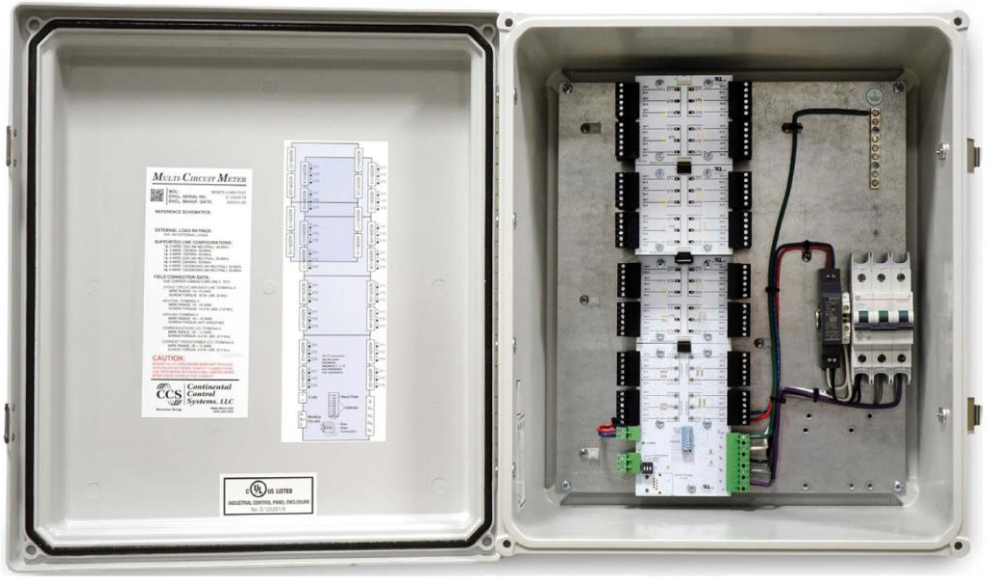
Enclosure Sizes

ME3 - Enclosure
- 12 to 48 CTs
- Steel NEMA 4
- 12 in. × 12 in. × 6 in.

ME4 - Enclosure
- 60 to 84 CTs
- Steel NEMA 4
- 16 in. × 14 in. × 6 in.

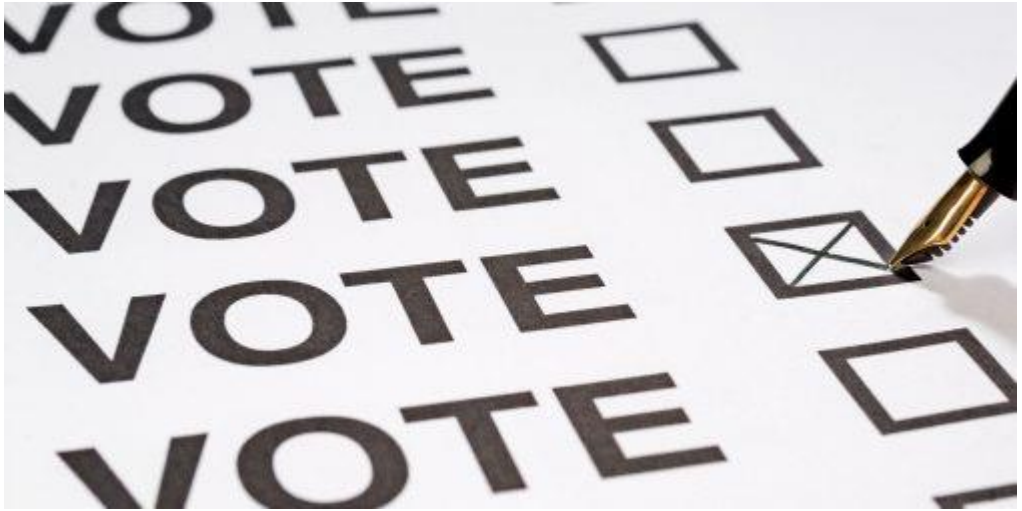
FE1 - Enclosure
- 12 to 48 CTs
- Fiberglass NEMA 4X
- 12 in. × 12 in. × 6 in.

FE2 - Enclosure
- 60 to 84 CTs
- Fiberglass NEMA 4X
- 16 in. × 14 in. × 8 in.



Poll on number of circuits

- Poll on CT inputs
  - Fill in expected CT inputs

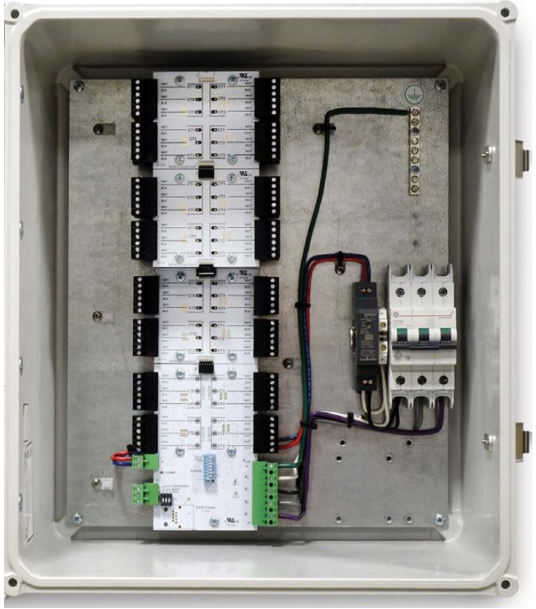


Features

- Correct wiring errors remotely
  - Assign a CT to a different phase voltage
  - Reverse a CT’s polarity
- Diagnostic LED’s
- SunSpec Compliant

Review

- Number of CTs 12 to 84
- Retail price $29 to $50 a circuit
- ANSI C12.20 class 0.5 accuracy
- Correct wiring errors remotely
- Services from 100 to 600 Vac
- Any CT with a 0.333 Vac output
- NEMA 4 fiberglass or steel enclosures



Question and Answers

- Q&A up to 15 minutes
- If a question is not answered during the webinar a response will be emailed
- Poll results, slides, and video link will be emailed

Contact Information

- www.ctlsys.com
- sales@ctlsys.com
- www.ctlsys.com/product/mcm
- (303) 444-7422
- (888) 928-8663

Q & A

Q: Operating Voltage and for what configuration (3/4-wire)

A: 100 to 347 Vac line-to-neutral, 100 to 600 Vac line-to-line, Single-phase or three-phase, two, three, or four wire, Single-phase, Split-phase, wye, and delta

Q: Are the wide-range meters essentially a replacement for previous models with specific voltage and configuration

A: The MCM uses the same measurement technology, replicated 4 to 28 times to provide more channels. The MCM does not include a wide-range power supply, but can measure 100 to 600 Vac. The WND-WR-MB is an upgraded replacement for our older WNC series Modbus meters.

Q & A

Q: How are the meters configured?

A: The Modbus address and baud rate are configured with DIP switches. The RS-485 termination and biasing are also configured with DIP switches. All other settings are configured with Modbus registers. A few settings may be configured with factory options (see the engineering datasheet) https://ctlsys.com/support/mcm/.

Q: How do you assign multiple CT, couple with voltage phases for a 3-phase or split single-phase load?

A: See the Install Guide https://ctlsys.com/support/mcm/

Q & A

Q: Can mix and match my CTs?

A: You can use different sizes and rated amperage CTs on each input. For three-phase loads, you will want to use the same CTs for all phases of a load.

Q: Can I meet the California energy logging requirement?

A: Yes, although the MCM is not yet listed on the California Solar Initiative site.

Q & A

Q: NIST Calibration or Factory?

A: The MCM is calibrated in our factory with NIST traceable test equipment.

Q: Do you have a fixed block of CTs for Panelboards to avoid wiring errors?

A: We do not

Q & A

Q: Are they available without the enclosure?

A: Yes, but you will need to contact sales for details, since this is not a standard product. The boards without the enclosure are UL recognized, but not UL Listed.

Q: Is the meter approved for NY PSC?

A: We have not sought or received NY PSC approval. Please contact us after the meeting and we can discuss seeking approval.

Q & A

Q: Can a 12 channel be used for 3 phase and single-phase on the same board?

A: Yes

Q: How much is the mod/tcp option?

A: The price is the same

Q & A

Q: Do you offer any other communication protocols?

A: For other models we offer BACnet, LonWorks, and pulse output. These are not available for the MCM.

Q: How frequently are the measurement parameters updated?

A: Most measurements can update as fast as every 100 milliseconds. This is configured with the Averaging register. The energy registers update once per second.

Q & A

Q: Is there a configuration software?

A: We do not supply configuration software, but there are several vendors of Modbus software that would work. See https://ctlsys.com/support/modbus_software/

Q: Does the meter work with Schneider EGX300, and Accuenergy AcuLink 810 logger? Do you provide support for integration?

A:We have not tested with these products, but our Modbus firmware has been used for over a decade and is compatible with all Modbus masters we are aware of. We will provide support for integration.

Q & A

Q: Do you have an integrated logger? For how long?

A: The MCM has minimal internal logging to meet the California Solar Initiative requirements. It logs energy once per day for seven days.

Q: How fast we can get data from CT? In other word what is the resolution of data logging in sec?

A: The power, voltage, and current readings will update as fast as every 100 milliseconds if you set the Averaging register to 100.

Q & A

Q: Do you have any Display module which shows current energy data locally?

A: We do not. There are some third-party displays available that you could use.

Q: Do you know if the version of Modbus you are using is compatible with Obvius brand loggers?

A: Our meters have been used with Obvius loggers in the past without any issues. We have not tested the MCM with an Obvius logger, but the Modbus is the same as our older meters and should work fine.

Q & A

Q: Will you be developing a cloud environment?

A: No, there are several third-party cloud providers that you could use with the MCM.

Q: Is it possible to calibrate the meter?

A: Only CCS can perform full calibrations. The meter does include GainAdjust and PhaseAdjust registers that can be used in the field to make adjustments to the power and energy readings.