# ELKOR

# WATTSON®-MCM

## MULTI CIRCUIT POWER & ENERGY METER

The WattsOn-MCM is a multi circuit power & energy meter utilizing a highly flexible and modular design. The system features the same high resolution, ultra-high precision metering architecture as our industry leading WattsOn-Mark II platform. Multiple communication options, flexible API, simple configuration, and expandability make it a unique solution to branch and multi tenant monitoring.

### FEATURES:

♦ Measurement from 10-347Vac (600Vac line-to-line)
♦ Modular Design, various input modules
♦ From 3 to 60 current input channels
♦ Accepts single & three phase circuits
♦ Per channel configurable CT ratios
♦ Per channel voltage/current mapping
♦ Digital communication via RS-485, Ethernet and WiFi
♦ Modbus/RTU, Modbus TCP, HTTP web server, HTTP Post
♦ Ultra High Accuracy, High-Resolution Power and Energy measurements
♦ Compatible with mA, mV, or Rogowski Coil Inputs
♦ Customizable Modbus Register Map
♦ NEMA Enclosure



### PRODUCT DESCRIPTION:

The WattsOn-MCM is a modular power and energy metering system. The product consists of a main board, voltage interface, and expandability for up to 20 input cards (3 channels per card) a power supply and communication interface card.

The modular design allows for flexible deployment, and possibility of easy future expansion. Each AC power metering card features up to three channels of measurements, and with 20 card slots, this translates to a total of 60 possible metering points.

The on-board communication coordinator features RS-485, Ethernet and WiFi interfaces. With Modbus/RTU, Modbus TCP, HTTP Post, web server, and API, the architecture allows for flexible integration with many third-party platforms and devices. Additionally, the Elkor Cloud service may be used for monitoring and trending.

Configuration is handled through the on-board webserver, with a straightforward wizard. This allows configuration of existing and newly added cards including proper CT configuration, in addition to channel naming and channel voltage mapping.

Voltages need only be wired once into the voltage interface, which provides a safe, isolated signal to the WattsOn-MCM. This prevents the need for additional wiring, and limits the line voltages to a small area of the enclosure.

A highly flexible template and configuration design allows for user created virtual metering points. This allows a number of math functions to be performed on multiple data points, which may be used to aggregate data from user specified channels. Using the incorporated math and scripting allows for user defined calculations to be carried out on arbitrary register sets.

Future expandability means that the system can grow with demand. The plug-and-play design will feature multiple module types including Power Monitoring (Simple, Full, Advanced)**.

*** Pulse/Relay Input, Pulse/Relay Output, Analog Input, Analog Output modules in development.*

## SPECIFICATIONS:

### INPUTS

| | |
|---|---|
| Power Supply | 100-240VAC (nominal), or 24VDC (customer supplied) |
| Supported Wiring Types | Up to 347/600V Delta, Wye<br>Single-phase installations up to 347V RMS<br>Split-phase (two phase) installations |
| Frequency | 40-70 Hz nominal (30-300 Hz max) |
| Voltage | 20Vac - 347Vac L-N (600Vac L-L),<br>(450Vac L-N, 780V L-L absolute max.) |

| Current | -mA Model | -mV Model | -RC Model |
|---|---|---|---|
| Input Rating | Up to 200mA CTs<br>(ie: Elkor mA output CTs) | 333mV (400mV max) | Up to 360mV via Rogowski Coils |
| Input Impedance | 1.5Ω typ. | 800kΩ min, 1.2MΩ typ. | 600kΩ min. |
| Wire Size | Voltage: AWG 30-12, (AWG 16-22 recommended)<br>Current: AWG 24-12, (AWG 12-16 recommended for 5A CTs) | | |
| Overload | 20% continuous (voltage & current) maintaining full accuracy. | | |

### OUTPUTS

| | |
|---|---|
| Modbus/RTU | RS-485 2-wire, 9600 to 115200 baud |
| Ethernet / WiFi | Modbus/TCP, Webserver, HTTP/HTTPS POST |
| Display (optional) | Color, touchscreen HMI.<br>Through front panel, or remote installation. |

### ENVIRONMENTAL (Protected Installation)

| | |
|---|---|
| Operating Temperature | -40°C to +70°C |
| Storage Temperature | -40°C to +70°C |
| Humidity | 10 to 90% non-condensing |

### ACCURACY

| Standards | Class 0.2 Accuracy<br><br>Supports EN 50470-1, EN 50470-3, IEC 62053-21, IEC 62053-22, and IEC 62053-23 standards. | |
|---|---|---|
| Current (A) | 0.05% typ | 0.1% max |
| Voltage, L-N (V) | 0.2% typ | 0.5% max |
| Voltage, L-L (V) | 0.2% typ | 0.5% max |
| Power* (W, VA, VAR) | 0.2% typ | 0.5% max |
| Energy* (Wh, VAh, VARh) | 0.2% typ | 0.5% max |
| Power Factor | 0.5% max | |
| Frequency | 0.01% max | |
| Input Bandwidth | 2 kHz<br>(33rd Harmonic @ 60Hz, 40th Harmonic @ 50Hz) | |
| Data Update Frequency | 2Hz (every 500ms) for all parameters | |

### MECHANICAL

| | |
|---|---|
| Dimensions | 12 in x 10 in x 4 in<br>(305 mm x 254 mm x 102 mm) |
| Mounting | Wall Mount Enclosure |

### COMPLIANCE

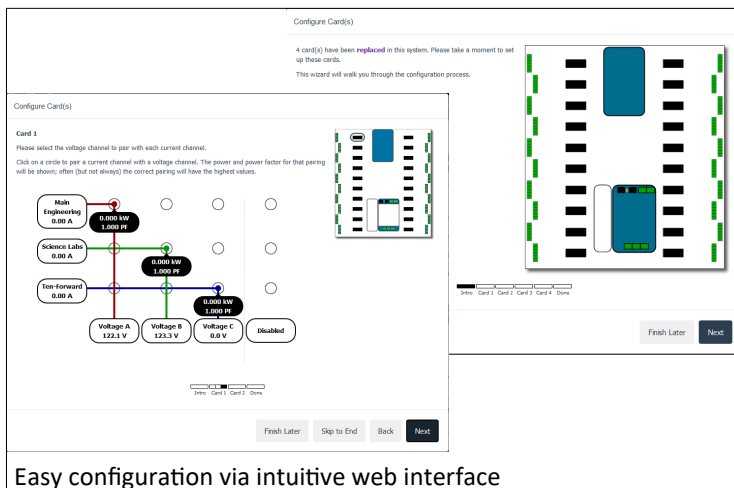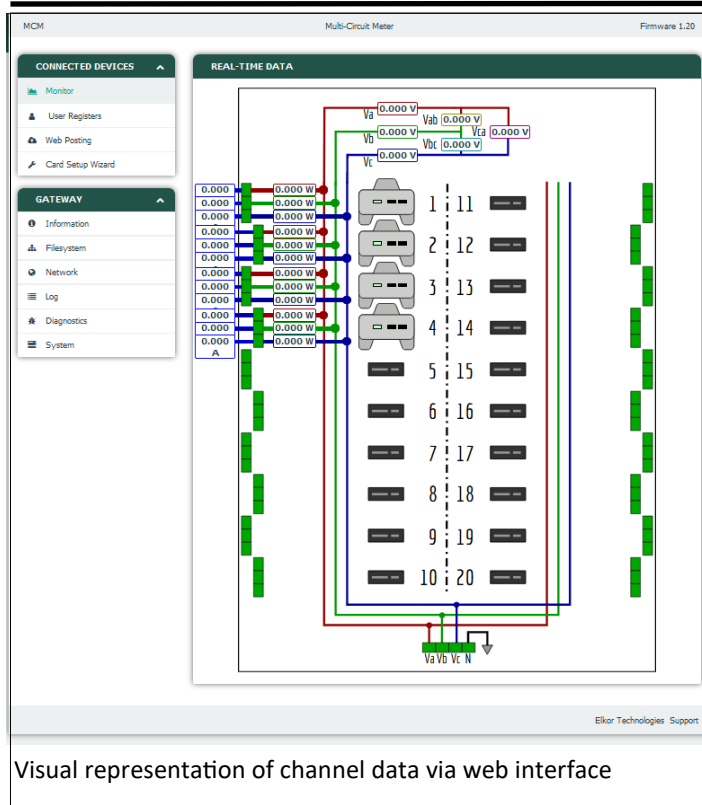| | |
|---|---|
| Safety | UL Listed (#E250395) |
| Isolation | 3,500VAC (min) input-to-output |
| Electromagnetic Emissions | FCC part 15 Class A |
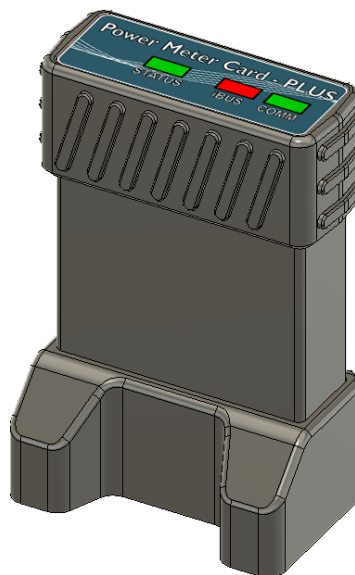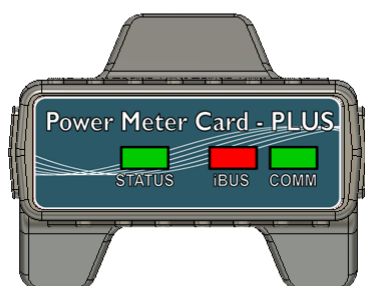


\* Available measurement parameters depend on card model:

`WMC-PM-L-XY` : (Lite): Three channels of V, A, PF, kW, kWh (absolute)

`WMC-PM-B-XY` : (Bi-Directional): Three channels of V, A, PF, kW, kWh (import/export)

`WMC-PM-P-XY` : (Plus): Three channels of V, A, PF, kW, kVAR, kVA, kWh, kVARh, kVAh (import/export)

Where `-XY` represents the desired CT input type (`-mA, -mV, -RC`)

Visual representation of channel data via web interface



Easy configuration via intuitive web interface



User defined registers allow math functions on any number of available datapoints allowing creation of arbitrary "virtual metering" data.

## Ordering Guide

| Part | Description |
|------|-------------|
| WMC-MB20 | WattsOn-MCM Main Panel<br>• NEMA4X Polycarbonate Enclosure (12"x10"x4")<br>• 120/240VAC Power supply<br>• Motherboard with 20 Card Slots<br>• Ethernet/WiFi (Modbus/TCP, BACnet/IP, MQTT, API, Webserver, HTTP Posting)<br>• RS-485 (Modbus/RTU)<br><br>*Metering cards sold separately* |
| WMC-PM-L-xy* | Metering Card (Lite): Three channels of V, A, PF, kW, kWh (absolute) |
| WMC-PM-B-xy* | Metering Card (Bi-Directional): Three channels of V, A, PF, kW, kWh (import/export) |
| WMC-PM-P-xy* | Metering Card (Plus): Three channels of V, A, PF, kW, kVAR, kVA, kWh, kVARh, kVAh (import/export) |
| WMC-LCD | Optional front panel color, touch screen LCD |

\* Where -XY represents the desired CT input type (-mA, -mV, -RC)
*CTs are sold separately*

OPTIONAL front panel (or remotely mounted) touchscreen display. Clearly shows all measured data, as well as diagnostics, custom registers, configuration, etc.