SHARK® MP200™

MULTI-POINT WiFi COMMUNICATING MULTIFUNCTION POWER AND ENERGY METERING SYSTEM

www.electroind.com

MP200™ Multi-Circuit Metering System
24 Single Phase
8 Three Phase

MDLN
Touch Screen
HMI Display

For Remote Meter Reading

CE • cULus LISTED — ELECTRICAL & ELECTRONIC MEASURING & TEST EQUIP. 22CZ • ISO 9001:2008 REGISTERED FIRM

Multiple Meters in One Compact Unit

- Save Space by Metering 8 Three Phase or 24 Single Phase Circuits with One Unit
- Create Energy Reports and Submetering Bills
- Communicate via Ethernet, WiFi, RS485, or USB
- Up to 32 MegaBytes Memory for Energy Usage Trending

- Modbus RTU, ASCII or TCP/IP Standard Open Communication Protocols
- Highly Accurate: 0.5% Class Energy Accuracy per Circuit
- Field Upgradeable with V-Switch™ Technology
- Pre-configured Logging with V-Switch™ Keys 2 and 3
- Optional Touch Screen HMI Display for Remote Read

EIG Electro Industries/GaugeTech
The Leader in Power Monitoring and Smart Grid Solutions

The MP200™ high density metering system measures and reports on energy usage from up to 8 three phase Wye circuits or up to 24 single phase circuits. The unit is designed to consolidate many metering points to provide useful energy reporting. Its compact, highly rugged multi-circuit design saves you mounting space, installation time and equipment costs. The MP200™ unit is ideal for any industrial, campus or multi-tenant commercial installations. With the MP200™ unit, connecting multiple loads is both easy and highly cost effective. It is perfect for both new and retrofit projects.

Using EIG's software solutions with the MP200™ metering system, you can easily trend energy and other commodity usage; generate reports to analyze the data; compare usage for different customer locations, billing periods, and meters; and generate customer billing.

The MP200™ Metering System is Ideal for Use in:

- High Density Electrical Distribution Panels
- LEED Projects
- Shopping Malls
- Healthcare Facilities
- Data Centers
- Mixed-Use Commercial High Rise Complexes
- Branch Circuits
- Reducing Campus Carbon Footprints by Monitoring Cost Allocation

The MP200™ Metering System Lets You:

- Generate Accurate Reports of Energy Consumption
- Analyze Peak Demand per Measured Circuit
- Control Outputs to Curb Peak Demand Usage
- Bill Tenants Based on Usage and Demand

Advanced Communication Options:

- Two Standard RS485 Ports
- Optional RJ45 Wired or 802.11 Wireless Ethernet (WiFi)
- Standard USB Port
- Standard Protocol Support - Modbus ASCII, RTU, TCP/IP

V-Switch™ Keys:

- V1 - Basic Transducer with Real Time Data
- V2 - Basic Logger – 100 to 300 Days
- V3 - Advanced Logger – Up to 2400 Days

Collect Data from Remote Units over WiFi or other Communication Channels

KYZ Pulse Counting Inputs for Commodity Metering

The MP200™ metering system has 4 KYZ pulse counting inputs. These dry contact inputs are designed to count pulses from other devices such as gas meters, water meters, condensate (steam) meters or any other commodity meter that provides a pulse output. This feature is ideal for a total energy management solution and the information it provides can be used as part of a comprehensive energy usage reporting system.

### Control Outputs and Limit Alarms

The MP200™ metering system has 2 relay outputs for control applications. This is an essential feature when looking to control equipment on alarm condition or to reduce peak demand by shutting down equipment or generating a peak demand alarm. The meter can be configured to trigger relay output when an alarm condition occurs. Up to 16 limits can be assigned.

The MP200™ unit's KYZ pulse inputs count and store gas and steam usage data

The MP200™ unit collects data from electrical as well as commodity values and outputs data to usage reporting software

MP200™ UNIT ENERGY USAGE ANALYSIS AND BILLING

Use EnergyReporter EXT™ Software with the MP200™ Metering System to Analyze Energy and Other Commodity Usage:

- Automatically Import Usage Data from the MP200™ Unit
- Track Energy Use by Customer/Location/Meter
- Generate Tenant Submetering Billing
- Accurately Bill for Energy Use
- Reduce Energy Costs by Allocating Energy Properly
- Status Inputs Let You Count Pulses from Gas, Steam, and Other Commodity Meters
- Generate Custom Trends and Graphs
- Compare Locations for Energy Efficiency
- Analyze Peak Demand
- View Data Over Current and Prior Months
- Conduct Energy Efficiency Audits
- Copy and Paste Data or Charts into Word Processors, Spreadsheets or Emails
- Compare Usage with Temperature, Humdity, or Pressure
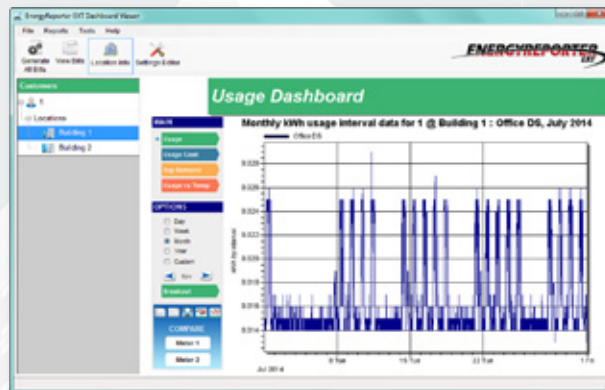
Energy Usage Over Time
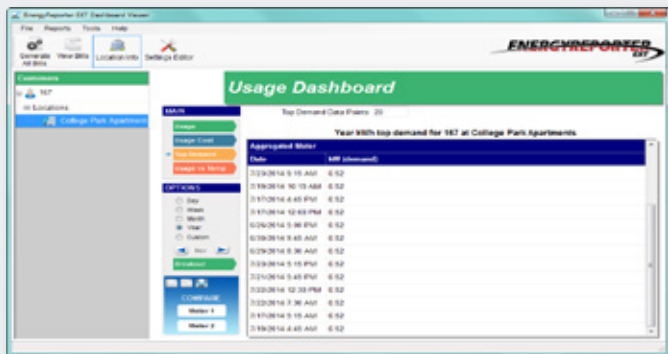

View Peak Demand Comparisons

Generate Utility Bills

MP200™ UNIT USAGE REPORTING

Use EnergyReporter EXT™ Software with the MP200™ Metering System to Generate Detailed Usage Reports:

- Select Customer

- Select Commodity

- Select Month and Starting Date

- Select Report Options - File Format, Commodity, Full Report or Summary, Display Usage and Interval Data Together or Separately, Display Demand

- Collect Useful Energy Usage Data System-wide for Smart Decisions

- View Enterprise Usage

- View Peak Demand
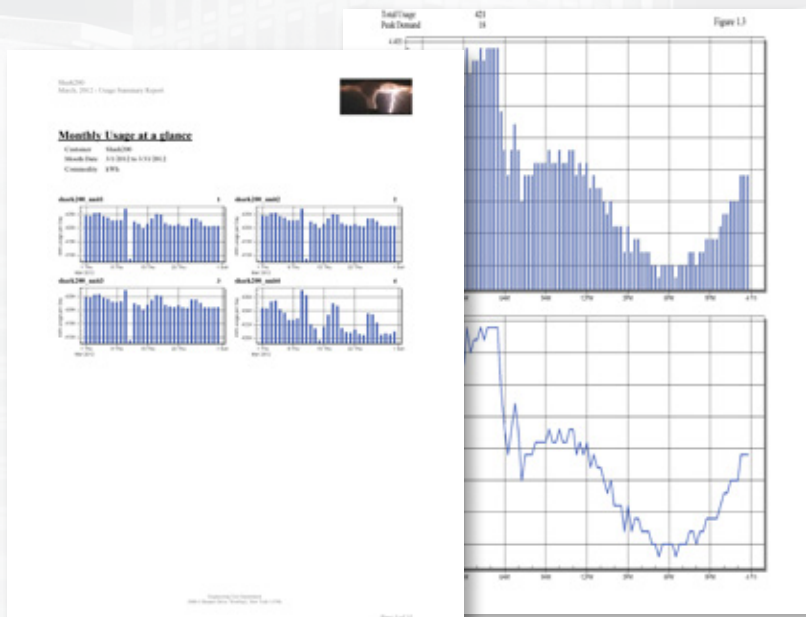
View Monthly Usage and Peak Demand

View Highest Peak Demand by Day

The MP200™ metering system offers an optional HMI 65k color touch screen LED display. The display comes in two sizes - the larger display (MDLN) is 5.7" and the smaller display (MDSN) is 3.5". The display is easy to install and operate. It can communicate with the MP200™ metering system through the MP200™ unit's Port 3 (RS485 serial) or through the optional RJ45 Ethernet port.

Easy-to-Install Display Kit:

The display is powered by 24VDC and comes equipped with a standard plug power supply to remotely power the unit. Also included with the display kit are tools for easily mounting the unit. The display comes pre-programmed and is ready to use out of the box, but you can easily make desired adjustments to the display settings, for example, changing the default touch screen settings, or configuring Ethernet communication settings.
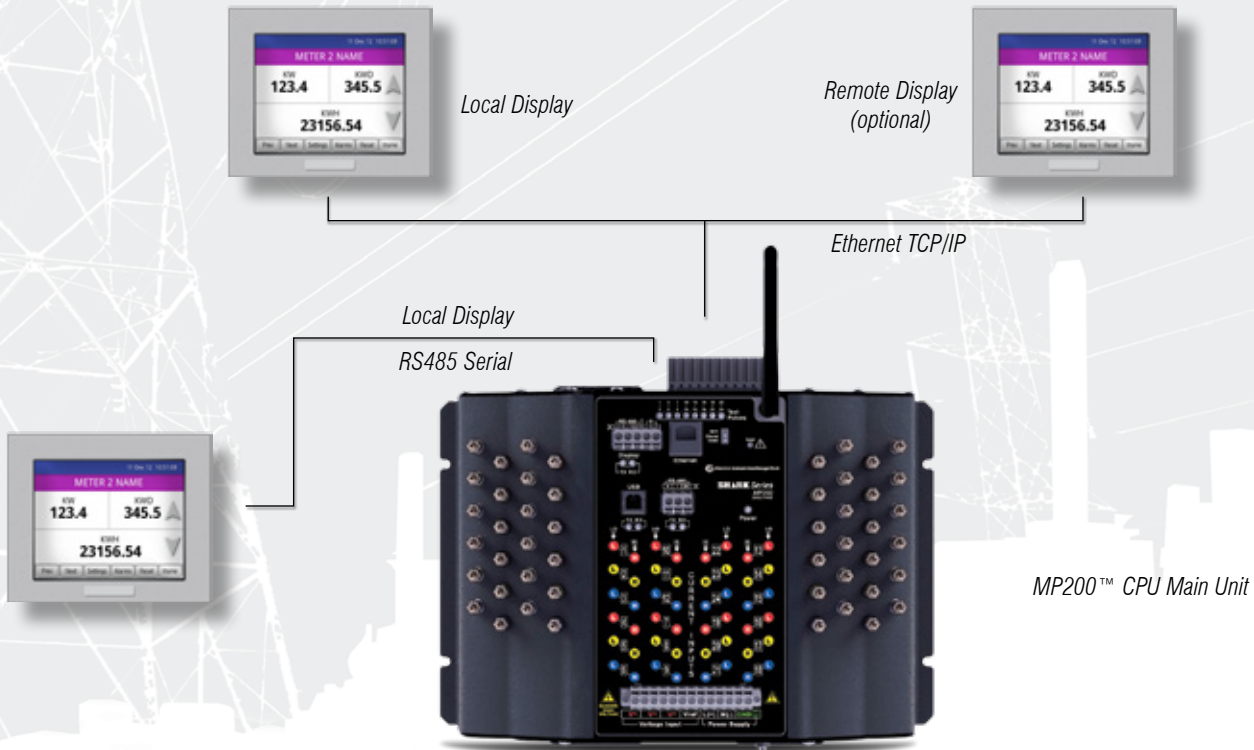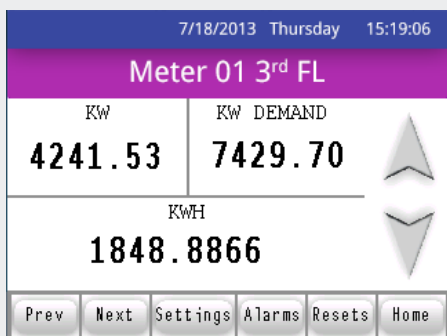
Features of the Display Include:

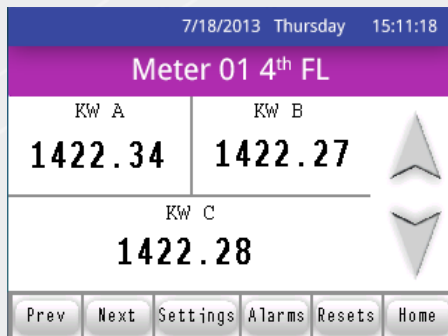- Two compact sizes - 3.5" or 5.7"
- Multiple connection types - serial and Ethernet (display auto-detects connection)
- Low power consumption
- Easy to install - fits in 22mm mounting hole for quick in-field installation
- Can be used for remote or local display
- 65k color, touch screen technology
- Pre-configured to provide readings for MP200™-Y three phase metering system and MP200™-S single phase metering system
- Pre-configured to provide Watts, Energy and Demand for every metering point
- Phasor diagrams for each circuit let you check wiring conditions

MDSN 3.5"

MDLN 5.7"

Color HMI Display Connected via Serial or Ethernet

Example of Local and Remote Display Connection

Local Display

Remote Display (optional)

Ethernet TCP/IP

Local Display

RS485 Serial

MP200™ CPU Main Unit

Connect Either Serial and/or Ethernet to Provide Local and Remote Display Capability

EXAMPLE SCREENS

Screen 1:
7/18/2013 Thursday 15:19:06
Meter 01 3rd FL
KW: 4241.53
KW DEMAND: 7429.70
KWH: 1848.8866
Prev | Next | Settings | Alarms | Resets | Home

KWatts, KW Demand, KWatt-hours

Screen 2:
7/18/2013 Thursday 15:11:18
Meter 01 4th FL
KW A: 1422.34
KW B: 1422.27
KW C: 1422.28

KWatts Phase A, KWatts Phase B, KWatts Phase C

Screen 3:
6/19/2013 Wednesday 14:35:08
Pulse Inputs

	SCALED	UNSCALED
Gas	12.343	45
Water	6.799	234
Condensate	51.923	320.11
Accumulator	9999.000	112

Back | Settings | Alarms | Resets | Home

Pulse Inputs

Screen 4:
6/19/2013 Wednesday 14:53:41
Out of Limit Alarm

Label	Value	Limit 1 (Above)	Limit 2 (Below)
Meter 01 Watts 3Ph Total	42.5K	IN	OUT
All Meters Volts A-N	87.9	OUT	IN
Meter 03 VAs 3Ph Total	127.5K	IN	OUT
Meter 08 VARs 3Ph Total	-81.0	IN	OUT

Out of Limit Alarm

Screen 5:
5/03/2013 Friday 00:28:40
Meter 01 3rd FL
VA 000, VB 114, VC 251, IA 000, IB 119, IC 251
PF-A 1.00, PF-B 0.99, PF-C 1.00

Three Phase Phasor Diagram MP200-Y Unit

Screen 6:
4/11/2013 Thursday 21:38:06
Meter 01 3rd FL
Power Factor 1.00
Amps Angle 1
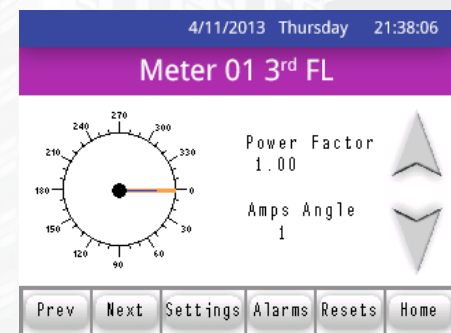
Single Phase Phasor Diagram MP200-S Unit

Screen 7:
4/11/2013 Thursday 21:22:43
Meter 01 meter 1
KVolts A-B: 24.99
KVolts B-C: 26.31
KVolts C-A: 23.47

Voltage Phase to Phase

Screen 8:
4/11/2013 Thursday 21:22:04
Meter 01 meter 1
KVolts A-N: 14.49
KVolts B-N: 14.35
KVolts C-N: 14.32
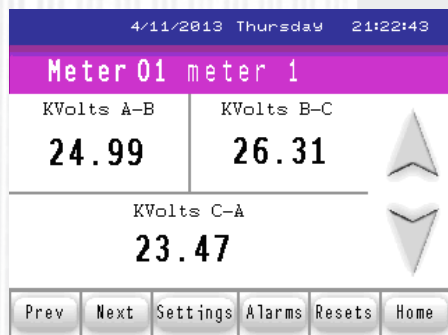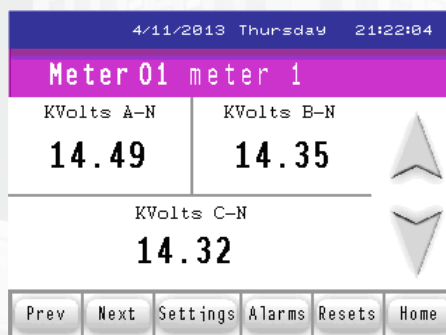
Voltage Phase to Reference

Screen 9:
4/11/2013 Thursday 21:23:40
Meter 01 meter 1
Frequency 60.07

Frequency

Screen 10:
4/11/2013 Thursday 21:23:16
Meter 01 meter 1
Amps A: 396.43
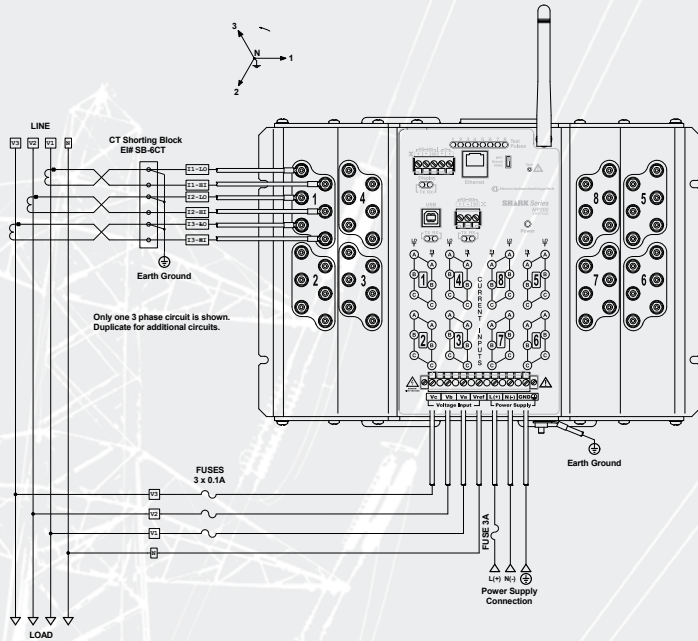Amps B: 392.33
Amps C: 390.16
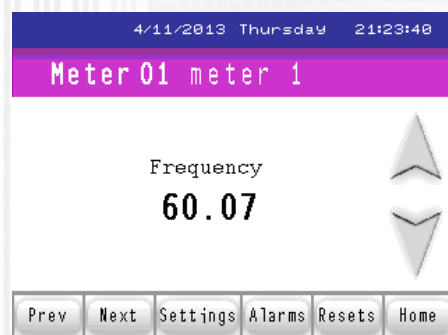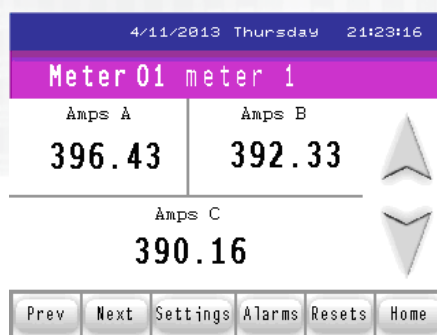
Current

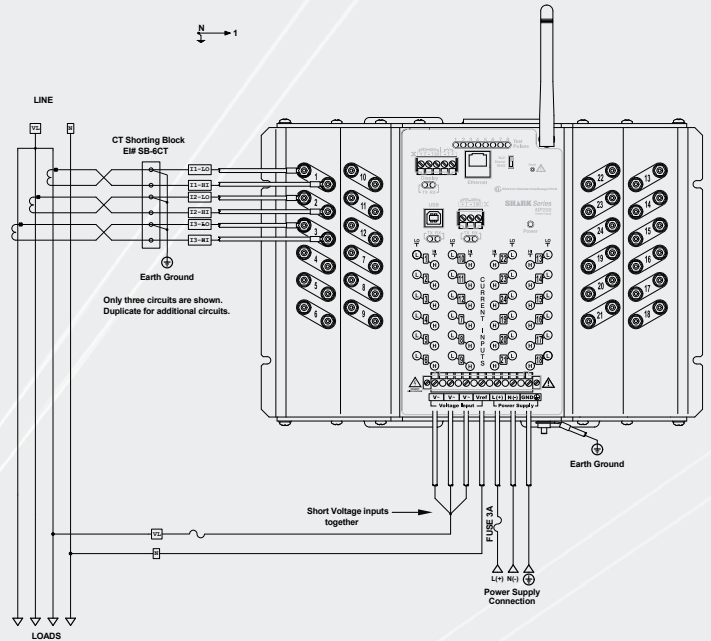**Simple to Read, User-friendly User Interface**

Note: See the *MP200™ Metering System Installation and Operation Manual* for additional wiring diagrams and instructions.

Three Phase, 4-Wire WYE System with 3 CTs: MP200™-Y Metering System
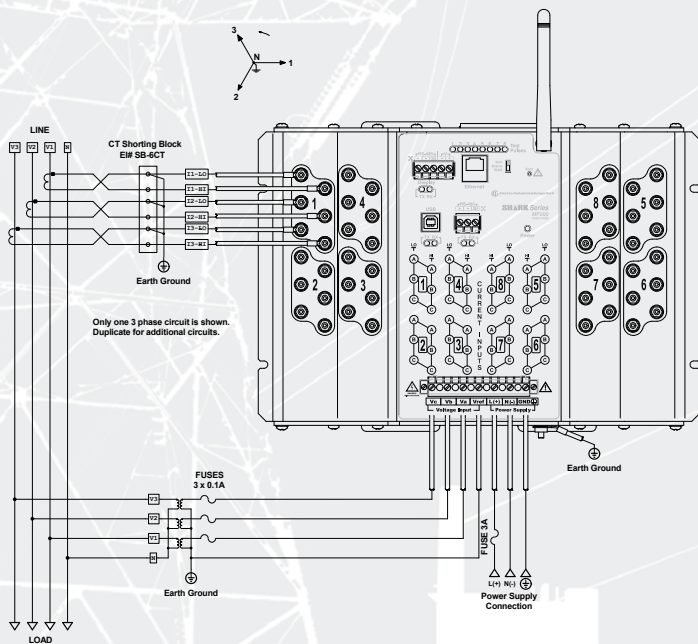
One 3 Phase circuit shown. Multiply by up to 8 circuits.
Note: All Voltages must be common per phase on each circuit.

Single Phase, 2-Wire Direct: MP200™-S Metering System
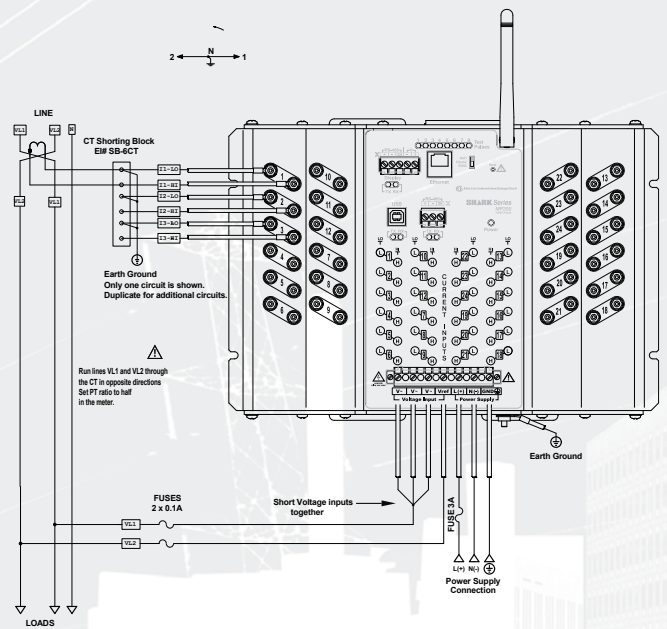
3 Circuits are shown. Multiply by up to 24 circuits.
Note: All Current must originate from a common Voltage source.

Three Phase, 4-Wire WYE System with 3 PTs, 3CTs: MP200™-Y Metering System

One 3 Phase circuit shown. Multiply by up to 8 circuits.
Note: All Voltages must be common per phase on each circuit.
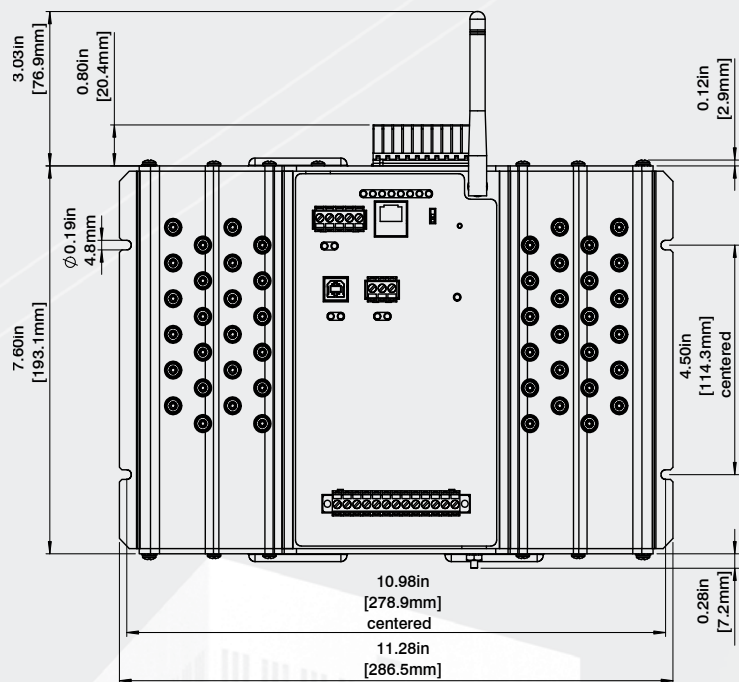

Single Phase, 3-Wire Direct with 1 CT: MP200™-S Metering System

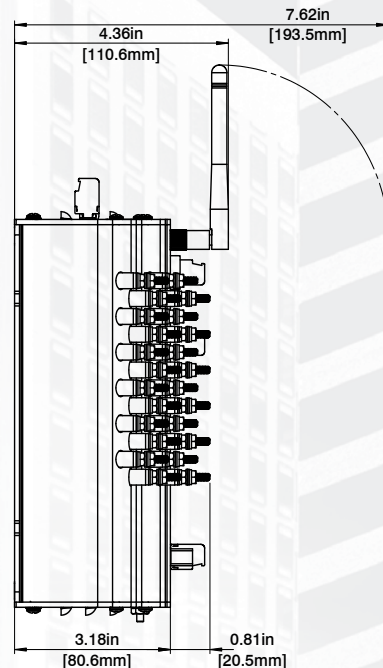1 Circuit is shown. Multiply by up to 24 circuits.
Note: All Current must originate from a common Voltage source.
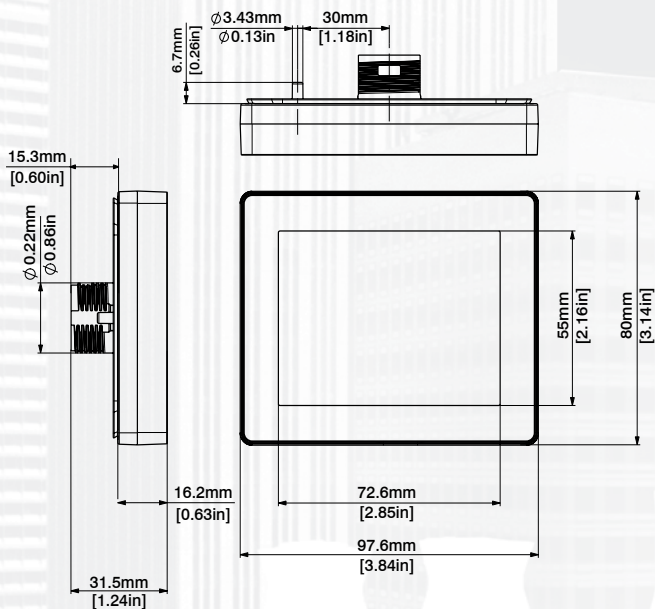
DIMENSIONAL DRAWINGS

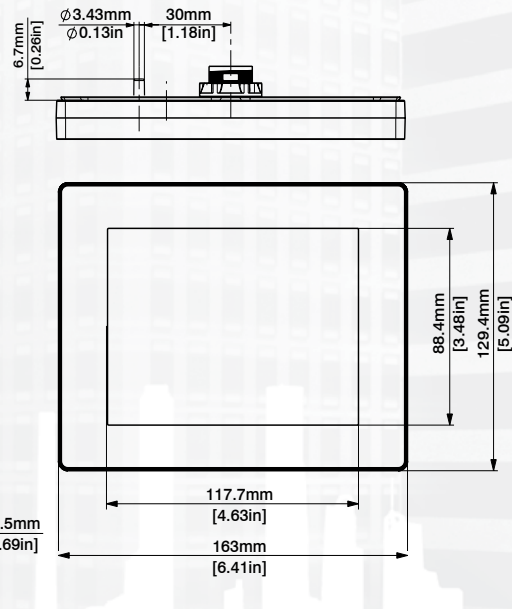**Note:** See the *MP200™ Metering System Installation and Operation Manual* for full installation instructions.

MP200™ Unit's Front Dimensions

MP200™ Unit's Side Dimensions

MDSN Dimensions
3.5" Display

MDLN Dimensions
5.7" Display

Specifications

Voltage Inputs
- Up to 576 Volts Line to Neutral, Up to 721 Volts Line to Line
- Universal Voltage Input
- Input withstand Capability - Meets IEEE C37.90.1 (Surge Withstand Capability)
- Programmable Voltage Range to Any PT Ratio
- Supports: 3 Element WYE, Single Phase 2 and 3 Wire
- Burden: 0.09VA/Phase Max at 600 Volts, 0.014VA at 120 Volts
- Input wire Gauge: AWG 12-26 (0.08-2.5)mm²

Current Inputs
- Class 10: (0 to 10)A, 5 Amp nominal, 10 Amp Maximum
- Class 2: (0 to 2)A, 1 Amp Nominal, 2 Amp Maximum
- Programmable Current to Any CT Ratio
- Burden 0.005VA Per Input Max at 11 Amps
- Pickup Current: 0.1% of Nominal
  ◦ Class 10: 5mA
  ◦ Class 2: 1mA
- Continuous Current Withstand: 20 Amps

Isolation
- All Inputs and Outputs are Galvanically Isolated to 2500 Volts

Environmental Rating
- Storage: (-20 to +70)° C / (-4 to +158)° F
- Operating: (-20 to +60)° C / (-4 to +140)° F
- Humidity: to 95% RH Non-Condensing

Sensing Method
- RMS
- Sampling at 400+ Samples per cycle on All channels Measured Readings Simultaneously

Update Rate
- Once per Second

Power Supply
- (90-300) Volts AC @50/60Hz or (150) Volts DC

Communication Format
- RS485 (Com 1 and Com 3)
  ◦ Baud Rate: 9,600 to 57,600
  ◦ Address: 001-247
  ◦ 8 Bit, Even, Odd, No Parity
  ◦ Modbus RTU, Modbus ASCII
- Ethernet/WiFi (Optional for Com 1)
  ◦ RJ45 or 802.11b Wireless
  ◦ 10/100BaseT Ethernet
  ◦ Modbus TCP/IP
- USB (Com 2)
  ◦ Port Baud Rate: 57,600
  ◦ Modbus ASCII

Dimensions and Shipping
- 7.6(L) x 11.28(W) x 4.36(H) in / 19.3(L) x 28.65(W) x 11.07(H) cm
- Weight: 7 lbs
- Display Weight : 0.62 kg/1.36 lb. or less (main unit)

Meter Accuracy
- Voltage L-N 0.3% of reading @ (69 to 480)V
- Voltage L-L 0.5% of reading @ (120 to 600)V
- Current Phase: 0.3% of reading @ (0.15 to 5)A
- W/Wh: 0.5% of reading @ (0.15 to 5)A @ (69 to 480)V @ +/- (0.5 to 1) lag/lead PF
- VAR/VARh: 1.0% of reading @ (0.15 to 5)A @ (69 to 480)V @ +/- (0 to 0.8) lag/lead PF
- VA/VAh/PF: 1.0% of reading @ (0.15 to 5)A @ (69 to 480)V @ +/- (0.5 to 1) lag/lead PF
- Frequency: +/- 0.01Hz

- See product documentation for complete accuracy specifications

Enclosure
- Rugged Aluminum for Transducer

MDLN/MDSN Specifications
- QVGA (320x240)
- LED Backlight - 50,000 MBTF
- UL, CE and RoHs Compliant
- Rated for Indoor Use
- Storage: (-20 to +60)° C / (-4 to +140)° F
- Operating: (0 to +50)° C / (+32 to +122)° F
- Power Consumption - 6.8 Watts
- 24 VDC Power Input

Compliance
- UL Listing: UL61010-1, CAN/CSA C22.2 No. 61010-1, UL file number E250818
- IEC 62053-22 (0.5% Class)
- ANSI C12.20 (0.5% Accuracy)
- ANSI (IEEE) C37.90.1 Surge Withstand
- ANSI C62.41 (Burst)
- EN61000-6-2 Immunity for Industrial Environments: 2005
- EN61000-6-4 Emission Standards for Industrial Environments: 2007
- EN61326 EMC Requirements: 2006

Ordering Information

All fields must be filled in to create a valid part number.

	Model	Circuit Configuration	Frequency	Current Class	V-Switch Pack	Com
Option Numbers:	-	-	-	-	-	
Example:	**MP200** -	**Y** -	**60** -	**10** -	**V2** -	**WIFI**
	MP200	**Y** Three Phase WYE **S** Single Phase ONLY	**50** 50Hz **60** 60Hz	**10** 10 Amp Secondary **2** 2 Amp Secondary	**V1** Transducer **V2** Basic Logger **V3** Advanced Logger	**X** RS485 Only **WIFI** Ethernet and WIFI

Optional LCD Displays

MDSN : 3.5" Touch Screen HMI Display with installation kit

MDLN : 5.7" Touch Screen HMI Display with installation kit

Display Installation Kit includes: Display and Rear Module, RS485 Serial cable, Power Supply, Mounting Hardware

Additional Accessories

Communication Converters
Unicom 2500 : RS485 to RS232 Converter

Unicom 2500-F : RS485 to RS232 to Fiber Optic Converter

Compliance Documents
Certificate of Calibration, Part #: CCal - This provides Certificate of Calibration with NIST traceable Test Data.

Software Option Numbers
COMEXT4P : Communicator EXT™ Software Single License

Shorting Block
EI SB-6TC : CT Shorting Block

Solid Core Current Transformers*
EI-2DARL-101 : ANSI Rated 100/5A solid core CT with 1.0" window

EI-2DARL-201 : ANSI Rated 200/5A solid core CT with 1.0" window

EI-5ARL-401 : ANSI Rated 400/5A solid core CT with 1.5" window

Split Core Current Transformers*
EI-1SP-100-00 : 100/5A split core CT with 0.84" x 2.00" window

EI-1SP-200-00 : 200/5A split core CT with 0.84" x 2.00" window

EI-WC4-400-RA05 : 400/5A split core CT with 1.3" x 1.7" window

NEMA 1 Rated Enclosure available

*Note: For three phase applications EIG recommends the EI SB-6TC Shorting Block and 3 CTs per three phase circuit.

Electro Industries/GaugeTech
1800 Shames Drive • Westbury, NY 11590
1-877-EIMETER (1-877-346-3837) • **E-Mail:** sales@electroind.com
Tel: 516-334-0870 • **Web Site:** www.electroind.com • **Fax:** 516-338-4741

ENCMP200
Web Page

MP200
Web Page