Honeywell

# Class 500 Advanced KWh/Demand Meter

## SPECIFICATION DATA


## FEATURES

- **Direct-read 8-digit LCD display of cumulative kWh.**
- **0-2 volt output split-core current sensors allow for enhanced safety and accurate remote mounting of current sensors up to 500 feet from meter without power interruption.**
- **Current sensor installation diagnostic indicator.**
- **Communication Options: Provides 40 data registers (see Table 2 for Modbus points)**
  - — RS485 (BACnet MS/TP, Modbus RTU)
  - — Ethernet (BACnet IP, Modbus TCP/IP)
  - — LON Twisted Pair
- **Modbus version supports two external inputs from gas, water, etc. meters. (Dry contact, 10 Hz max. input.)**
- **Available in standard JIC Industrial-grade steel enclosure.**
- **UL/CUL Listed; meets or exceeds ANSI C12 national accuracy standards.**
- **Optional power failure contact for alarming.**

## SPECIFICATIONS

**Input Voltage Configuration:** 3-Wire (Delta) or 4-Wire (Wye)

**Mains Voltage Input:** Up to 600 VAC RMS Available

**Input Power:** 6VA Maximum Rating

**Current Sensor Rating:** Up to 3200 Amp RMS AC Available

**Power Factor:** .5 leading or lagging

**Line Frequency:** 50 - 60 Hz.

**Metering Accuracy:** Certified to ANSI C12.16

**Voltage Operating Range:** +/-10% of rated load

**Operating Temperature Range:**
NEMA 4 (Outdoor) Housing: -4ºF to +158ºF (-20ºC to +70ºC)
NEMA 12 (Indoor) Housing: -4ºF to +122ºF (-20ºC to +50ºC)

**Relative Humidity Range:** 0-95% Non-Condensing

**Altitude:** 2000 meters maximum

**Voltage Overload:** +25% Continuously; +100% for 20 Cycles

**Current Sensor Overload:** 100% for 1 minute without damaging meter

**Pollution Degree:** Degree 2 In accordance with IEC 664

**Installation (Overvoltage) Category:** Category III

**Measurement Category:** Category III

**Outdoor Housing Rating (Model numbers with an R at the end):** NEMA 4

**Indoor Housing Rating (Model numbers without an R at the end):** NEMA 12

**Display Readout:** KWh Accumulated

**Standard Ranges:**
(3 or 4 Wire) 120/208-240V: 100,200,400,800,1600, 3200 Amp
(3 or 4 Wire) 277/480V: 100,200,400,800,1600, 3200 Amp
(4 Wire) 346/600V: 100,200,400,800,1600, 3200 Amp

**RS485 Serial Communication Interface:**
**Cable Specifications:** UL Listed/Rated Telephone Cord, 4 Conductor, 300VAC, stranded conductors, 22-26AWG.
**Input/Output Voltage:** Ground Isolated +/-5.4 VDC
**Cable Connector:** 45 male IDC or Screw Terminal Termination

63-1338-03

**Ckt Input Isolation:** 5.3KVAC
**Max Cable Distance:** 4000 feet
**Max Network Nodes:** Maximum cabling nodes 52 including master node
**Baud Rate:** 9600

**Communications Options:**
RS232/RS485 (Standard) (Requires E-Mon Energy.)
Telephone Modem (Requires E-Mon Energy.)
Ethernet (Requires E-Mon Energy.)
Modbus RTU or TCP/IP (Requires third-party EMS/BMS.)
BACnet IP or MS/TP (Requires third-party EMS/BMS.)
LONworks TP (Twisted Pair) (Requires third-party EMS/BMS.)

**Recommended In-Line Fuse:**
**Manufacturer** Littelfuse
**Mfg Part No.:** KLDR.100
**Rating:** 100mA, Time Delay. 600VAC Cartridge Fuse

**Battery Cell:**
**Description:** Non-Rechargeable Cell used for memory retention.
**Manufacturer:** Eagle-picher
**Mfg Part No.:** LTC-3PN
**Working Voltage:** 3.5Vdc
**Current Capacity:** 350mAHr
**Electrolyte:** Lithium Thionyl Nitrate

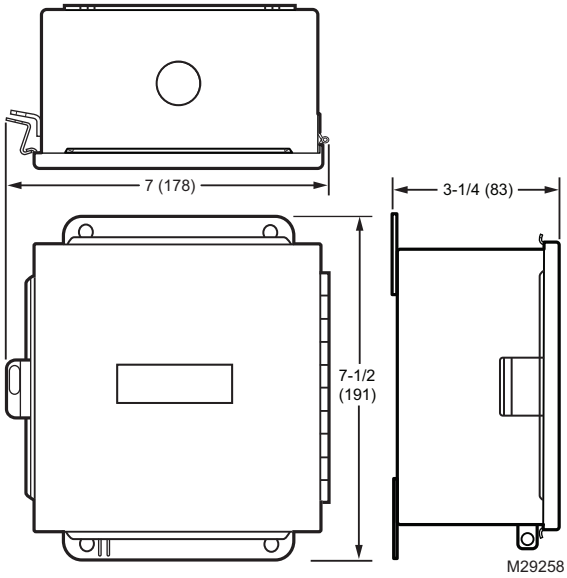


**Fig. 1. Class 500 meter enclosure dimensions in in. (mm).**

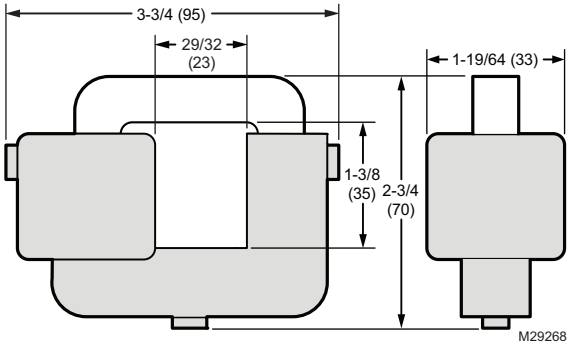


**Fig. 2. 100 & 200 Amp current sensor dimensions in in. (mm).**

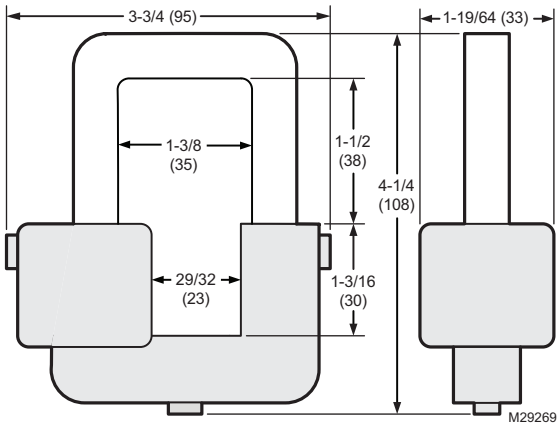


**Fig. 3. 400 Amp current sensor dimensions in in. (mm).**

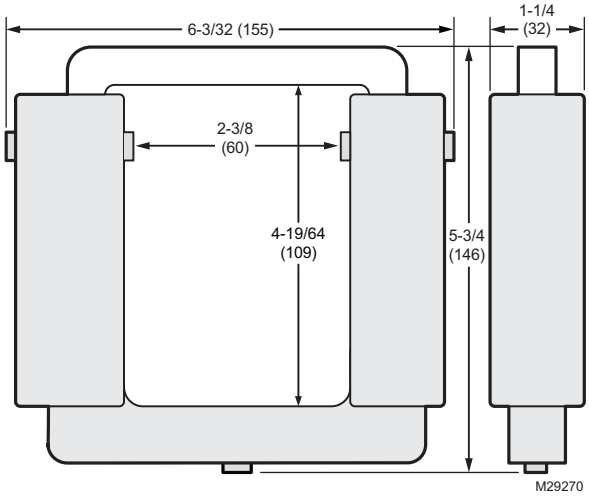


**Fig. 4. 800 & 1600 Amp current sensor dimensions in in. (mm).**

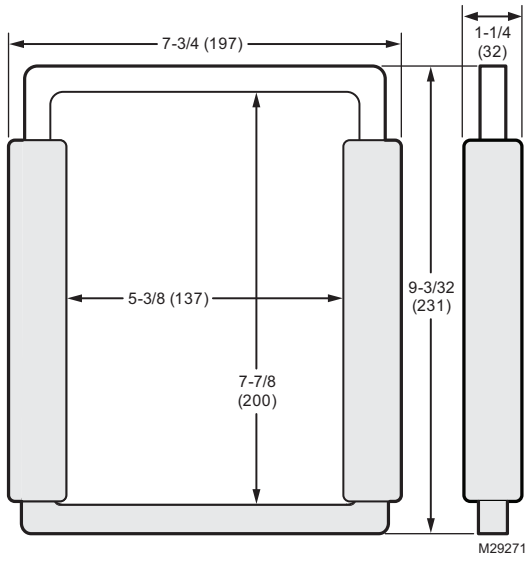


**Fig. 5. 3200 Amp current sensor dimensions in in. (mm).**

# ORDERING INFORMATION

**Table 1. Part Number Configuration Table.**

| Honeywell Meter | Output | Voltage | | Current | Class | Enclosure |
|---|---|---|---|---|---|---|
| **SUB** | **Blank**: Modbus RTU | **208**: 208 volts | | **100**: 100 Amps | **C**: Class 500 | **R**: NEMA 4X |
| | **M**: Modbus TCP/IP | **480**: 480 Volts | | **200**: 200 Amps | **Blank**: Class 200 | **Blank**: NEMA 12 |
| | **E**: Ethernet (EZ-7) | **600**: 600 Volts | — | **400**: 400 Amps | | |
| | **B**: BACnet MS/TP | | | **800**: 800 Amps | | |
| | **AC**: BACnet IP | | | **1600**: 1600 Amps | | |
| | **L**: LON Twisted Pair | | | **3200**: 3200 Amps | | |
| | **Z**: RS485 (EZ-7) | | | | | |

**Example** SUBAC480-400CR: BACnet output, 480 Volts, 400A, Class 500, NEMA 4X

NOTE: NOTE: All meter kits include one set of three (3) split-core current sensors

**Table 2. Class 500 Modbus Point Map.**

| | Integer | W | Float | UOM | Calc. | Mem | OP | Description | CL500 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4001 | 2 | 41001 | kWh | T-del | NV | R/W | Energy delivered | Y |
| 2 | 4003 | 2 | 41003 | kWh | T-rec | NV | R/W | Energy received | Y |
| 3 | 4005 | 2 | 41005 | kVARh | T-del | NV | R/W | Reactive energy delivered | Y |
| 4 | 4007 | 2 | 41007 | kVARh | T-rec | NV | R/W | Reactive energy received | Y |
| 5 | | | 41009 | kW | T | | R | Real power | Y |
| 6 | | | 41011 | kVAR | T | | R | Reactive power | Y |
| 7 | | | 41013 | kVA | T | | R | Apparent power | Y |
| 8 | | | 41015 | % | T | | R | Power factor | Y |
| 9 | | | 41017 | Amps | T | | R | Current total | Y |
| 10 | | | 41019 | Amps | A | | R | Current average | Y |
| 11 | | | 41021 | Volts-N | A | | R | Voltage line-neutral | Y |
| 12 | | | 41023 | Volts-L | A | | R | Voltage line-line | Y |
| 13 | | | 41025 | Hz | A | | R | Frequency | Y |
| 14 | | | 41027 | Degree | A | | R | Phase angle | Y |
| 15 | | | 41029 | kW | ØA | | R | Real power, phase A | Y |
| 16 | | | 41031 | kW | ØB | | R | Real power, phase B | Y |
| 17 | | | 41033 | kW | ØC | | R | Real power, phase C | Y |
| 18 | | | 41035 | kVAR | ØA | | R | Reactive power, phase A | Y |
| 19 | | | 41037 | kVAR | ØB | | R | Reactive power, phase B | Y |
| 20 | | | 41039 | kVAR | ØC | | R | Reactive power, phase C | Y |
| 21 | | | 41041 | kVA | ØA | | R | Apparent power, phase A | Y |
| 22 | | | 41043 | kVA | ØB | | R | Apparent power, phase B | Y |
| 23 | | | 41045 | kVA | ØC | | R | Apparent power, phase C | Y |
| 24 | | | 41047 | %PF | ØA | | R | Power factor, phase A | Y |
| 25 | | | 41049 | %PF | ØB | | R | Power factor, phase B | Y |
| 26 | | | 41051 | %PF | ØC | | R | Power factor, phase C | Y |
| 27 | | | 41053 | Amps | ØA | | R | Current, phase A | Y |
| 28 | | | 41055 | Amps | ØB | | R | Current, phase B | Y |
| 29 | | | 41057 | Amps | ØC | | R | Current, phase C | Y |
| 30 | | | 41059 | Volts-N | ØA | | R | Voltage, line to neutral, phase A-N | Y |

**Table 2. Class 500 Modbus Point Map.**

| | Integer | W | Float | UOM | Calc. | Mem | OP | Description | CL500 |
|---|---|---|---|---|---|---|---|---|---|
| 31 | | | 41061 | Volts-N | ØB | | R | Voltage, line to neutral, phase B-N | Y |
| 32 | | | 41063 | Volts-N | ØC | | R | Voltage, line to neutral, phase C-N | Y |
| 33 | | | 41065 | Volts-L | ØA | | R | Voltage, line to line, phase A-B | Y |
| 34 | | | 41067 | Volts-L | ØB | | R | Voltage, line to line, phase B-C | Y |
| 35 | | | 41069 | Volts-L | ØC | | R | Voltage, line to line, phase C-A | Y |
| 36 | | | 41071 | Degree | ØA | | R | Phase angle, phase A | Y |
| 37 | | | 41073 | Degree | ØB | | R | Phase angle, phase B | Y |
| 38 | | | 41075 | Degree | ØC | | R | Phase angle, phase C | Y |
| 39 | | | 41077 | | | | | | |
| 40 | | | 41079 | | | | | | |
| 41 | | | 41081 | | | | | | |
| 42 | | | 41083 | Pulse | | | | Auxiliary Input 1 | Y |
| 43 | | | 41085 | Pulse | | | | Auxiliary Input 2 | Y |

**Table 3. Class 500 Modbus Point Map.**

| PM-I | W | Data (Sample) | Description | |
|---|---|---|---|---|
| 46001 | 8 | 504D 324B 0106 0421 0800 454D 4F4E 2020 | Firmware version: PM 5K, Ver, Ver date/time | R |
| 46009 | 8 | 456E 6572 6779 204D 6574 6572 0000 0000 | Device description: Energy Meter | R |
| 46017 | 8 | 1356 4503 0613 0300 0000 0000 0000 0000 | Initialize device with date/time | W |
| 46025 | 8 | 1356 4503 0613 0300 0000 0000 0000 0000 | RTC date/time, will accept broadcast command | R/W |
| 46033 | 8 | 1356 4503 0527 0300 0000 0000 0000 0000 | CPU date/time (7 bytes, rest is reserved for future formats | R/W |
| 46041 | 8 | 0001 0001 0000 0000 0000 0311 0020 1100 | Group, location, Device ID number | R/W |
| 46049 | 8 | 0041 0000 0000 0000 0000 0311 0020 1100 | Dev. ID, hookup, Serial numbers... | R/W |
| 46057 | 8 | 0592 0007 0000 0000 0000 0000 0000 0000 | Recorder info.: idr, dem. int., dem. win., dem. syn., timezone, DST... | R/W |
| 46065 | 8 | 0101 0001 0D03 3531 1000 0320 0000 0000 | Meter info.: SN1&2, pulse rate, Volt/Amp/CTs, PF/mult1&2, CT, PT | R/W |
| | | | | |
| 46513 | 8 | 0000 0101 0000 0000 0000 0100 0000 0000 | Flags L1 | |
| 46521 | 8 | 0000 0000 0000 0000 0000 0000 0613 0316 | Flags L2 | |
| 46529 | 8 | 0000 0000 0000 0000 0000 0000 0000 0000 | Flags L3 | |
| 46537 | 8 | 0000 0000 0000 0000 0000 0000 0000 0000 | Flags L4 | |

Note: To change device ID, set single point at 46049 with data set to new device ID (e.g. 1 to 247)
To set date/time, set multiple points at 46025 for 4 points with data set to HHMM SSDW MMDD YYYY (DW=day of week)
To clear single meter kWh/kW, set single point at 41001 with data set to 0000 (similarly for 41003, 41005, 41007)
Note: Jumper J5 & J6 must be closed in order for kWh del/rec and kVARh del/rec to be cleared

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