



# PMC-340-A6

## Digital Three-Phase Energy Meter

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## Overview

**PMC-340-A6** Digital Three-Phase Energy Meter is CET's latest offer for the low voltage power/energy metering market featuring DIN-Rail mount, high accuracy, multifunction true RMS measurements and a large, easy to read LCD display. The PMC-340-A6 complies with the IEC 62053-21: 2020 & AS 62053.21: 2023 Class 0.5 for 100A Direct Connected Input and IEC 62053-22: 2020 & AS 62053.22: 2023 Class 0.5S for CT Input. The PMC-340-A6 comes standard with a LED as well as a Solid State Pulse Output for energy pulsing. The PMC-340-A6 provides 16MB on-board non-volatile memory for Data Recording and 1xDigital Input for status monitoring and pulse counting for collecting WAGES (Water, Air, Gas, Electric and Steam) information. The standard RS-485 port and Modbus protocol support allows the PMC-340-A6 to become a vital component of an intelligent, multifunction monitoring solution for any Power and Energy Management Systems.

## Typical Applications

- DIN-Rail mount energy metering
- Industrial, Commercial and Utility Substation Metering
- Building, Factory and Process Automation
- Sub-metering and Cost Allocation
- NMI compliant Energy Management

## Features Summary

### Ease of use

- Large, easy to read LCD for both data viewing and configuration
- Two LED indicators for Energy Pulsing and communication activities
- Password protected setup via Front Panel or free PMC Setup software
- Easy installation with DIN-Rail mounting, no tools required
- Direct Connected Input up to 100A without external CT

### SOE Log

- 128 events time-stamped to  $\pm 1\text{ms}$  resolution

### Basic Measurements

- Multifunction True RMS measurements
  - ULN, ULL, I, Phase Angle, In (calculated), P, Q, S, PF, dPF
  - Per-phase and Total kWh and kvarh Imp./Exp./Tot./Net and kVAh, 4-Quadrant kvarh as well as kWh/kvarh Imp./Exp./Tot./Net per Tariff
  - Voltage and Current THD, TOHD, TEHD, Individual Harmonics up to 31<sup>st</sup> and Unbalance
  - Current K-Factor, Crest Factor, TDD, TDD Odd and TDD Even
  - Demand and Max. Demand for I, P, Q, S, ULN, ULL and Temperature
  - Temperature and Operating Time
- Max./Min. Log
- 12 monthly recording of kWh, kvarh Imp./Exp./Tot./Net, kVAh and kvarh Q1-Q4 as well as kWh, kvarh Imp./Exp. and kVAh per Tariff
- Two TOU schedules, each providing
  - 12 Seasons
  - 20 Daily Profiles, each with 14 Periods
  - 90 Holidays or Alternate Days
  - 5 Tariffs, each providing the following information
    - kWh/kvarh Import/Export, kVAh
    - P/Q/S Max. Demand

### Setpoint

- 20 user-programmable Setpoints with extensive list of monitoring parameters including Voltage, Current, Power, Temperature and DI Status, etc.
- Configurable thresholds and time delay

### Pulse Outputs

- 1 Front Panel LED and 1 Solid State Pulse Output for energy pulsing application

### Tamper Detection and Alarm

- DI connected to external switch as Setpoint Parameter for Tamper Alarm
- Built-in sensors for Magnetic Tamper Detection
- Alarm Events are stored in SOE Log

### Digital Input

- 1 channel for external status monitoring or pulse counting
- Self-excited, internally wetted at 5VDC

### Data Recorder

- Two Data Recorder Log of Max. 16 parameters
- Recording Interval from 1 second to 40 days
- Configurable Recording Depth (Max. 65535) and Recording offset
- Capable of recording 16 parameters at 5-min interval for over 7 months
- Available parameters: U, I, P, Q, S, PF, Freq., Temperature, kWh Imp./Exp., kvarh Imp./Exp., Demands and Max. Demands for U, I, P/Q/S Total and DI Pulse Counter

### Communications

- Optically isolated RS-485 port, baud rate from 1,200 to 38,400 bps
- Modbus RTU protocol

### Security

- Programmable Password protection for configurations on Front Panel
- 3-level independent security Comm. password protection and different access permissions

### Real-Time Clock

- Battery backed RTC @ 6ppm ( $\leq 0.5\text{s/day}$ )
- Battery Life > 10 years

### System Integration

- Supported by our PecStar® iEMS and PMC Setup
- Easy integration into other Automation or SCADA systems via Modbus RTU protocol



# Accuracy

| Parameters  | Accuracy                                         | Resolution                                        |
|-------------|--------------------------------------------------|---------------------------------------------------|
| Voltage     | ±0.2%                                            | 0.01V                                             |
| Current     | ±0.2%                                            | 0.001A                                            |
| P, Q, S     | ±0.5%                                            | 0.001W/var/VA                                     |
| kWh, kVAh   | Direct Connected Input                           | CT Input                                          |
|             | IEC 62053-21: 2020 & AS 62053.21: 2023 Class 0.5 | IEC 62053-22: 2020 & AS 62053.22: 2023 Class 0.5S |
|             |                                                  | 0.01kXh                                           |
| kvarh       | IEC 62053-24: 2020 Class 1                       | 0.01kvarh                                         |
| PF          | ±0.5%                                            | 0.001                                             |
| Frequency   | ±0.02Hz                                          | 0.01Hz                                            |
| In (Cal.)   | ±1.0%                                            | 0.001A                                            |
| THD         | IEC 61000-4-7 Class II                           | 0.001%                                            |
| Temperature | ±1°C                                             | 0.1°C                                             |

# Technical Specifications

| Inputs (L1, L2, L3, N) |                          |        |        |
|------------------------|--------------------------|--------|--------|
| Voltage (Un)           | 220VAC                   | 230VAC | 240VAC |
| Overrange (%Un)        | 125%                     | 120%   | 115%   |
| Range (V)              | 88-276VAC (Self-powered) |        |        |
| Burden                 | <2VA/phase               |        |        |
| Direct Input           |                          |        |        |
| Current (In/Imax)      | 10A/100A                 |        |        |
| Range                  | 0.4% In to Imax          |        |        |
| Starting Current (Ist) | 0.4% In (40mA)           |        |        |
| Minimum Current (Imin) | 5% In (0.5A)             |        |        |
| Burden                 | <0.2VA/phase             |        |        |
| CT Input               |                          |        |        |
| Current (In/Imax)      | 1A/10A                   |        |        |
| Range                  | 0.1% In to Imax          |        |        |
| Starting Current (Ist) | 0.1% In (1mA)            |        |        |
| Minimum Current (Imin) | 1% In (0.01A)            |        |        |
| Burden                 | <0.2VA/phase             |        |        |
| Frequency              | 45Hz-65Hz                |        |        |

| Solid State Energy Pulse Output (Selectable - kWh/kvarh) |                           |
|----------------------------------------------------------|---------------------------|
| Isolation                                                | Optical                   |
| Max. Load Voltage                                        | 80V                       |
| Max. Forward Current                                     | 50mA                      |
| Pulse Width                                              | 30-500ms configurable     |
| Pulse Constant                                           | 1-0xFFFFFFFF configurable |
| Direct Connected Input                                   | 500 imp./kWh (default)    |
| CT Input                                                 | 10000 imp./kWh (default)  |

| Communications    |                                |
|-------------------|--------------------------------|
| RS-485            | Modbus RTU                     |
| Baud Rate         | 1.2/2.4/4.8/9.6/19.2/38.4 kbps |
| Maximum Wire Size | 1.5mm² (16AWG)                 |
| Maximum Torque    | 0.45 N.m                       |

| Environmental Conditions |                          |
|--------------------------|--------------------------|
| Operating Temperature    | -25°C to +70°C           |
| Storage Temperature      | -40°C to +85°C           |
| Humidity                 | 5% to 95% non-condensing |
| Atmospheric Pressure     | 70kPa to 106kPa          |
| Pollution Degree         | 2                        |

| Mechanical Characteristics |                       |
|----------------------------|-----------------------|
| Unit Dimensions            | 72(W)x95(H)x70(D) mm  |
| Mounting                   | DIN Rail              |
| IP Rating                  | 51 (Front), 30 (Body) |

# Standards of Compliance

| Safety Requirements                                                              |                                                                                               |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| CE LVD 2014/35/EU                                                                | EN 61010-1: 2010 + A1: 2019<br>EN 61010-2-030: 2010                                           |
| Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500 Vdc | IEC 61557-12: 2021 (PMD)                                                                      |
| Products Safety Requirements and Tests<br>NMI<br>AC Voltage<br>Impulse Voltage   | IEC 62052-31: 2015<br>AS 62052.31: 2017 + A1:2021<br>M13-1<br>4kV @ 1 minute<br>6kV, 1.2/50µs |

# EMC Compatibility

EMC 2014/30/EU (EN 61326: 2013)

| Immunity Tests                 |                                          |
|--------------------------------|------------------------------------------|
| Electrostatic Discharge        | EN 61000-4-2: 2009                       |
| Radiated Fields                | EN 61000-4-3: 2006 + A1: 2008 + A2: 2010 |
| Fast Transients                | EN 61000-4-4: 2012                       |
| Surges                         | EN 61000-4-5: 2014 + A1: 2017            |
| Conducted Disturbances         | EN 61000-4-6: 2014                       |
| Magnetic Fields                | EN 61000-4-8: 2010                       |
| Voltage Dips and Interruptions | EN 61000-4-11: 2004 + A1: 2017           |
| Ring Wave                      | EN 61000-4-12: 2017                      |

| Mechanical Tests   |                                                     |
|--------------------|-----------------------------------------------------|
| Spring Hammer Test | IEC 62052-31: 2015 &<br>AS 62052.31: 2017 + A1:2021 |
| Vibration Test     | IEC 62052-11: 2020 &<br>AS 62052.11: 2023           |
| Shock Test         | IEC 62052-11: 2020 &<br>AS 62052.11: 2023           |

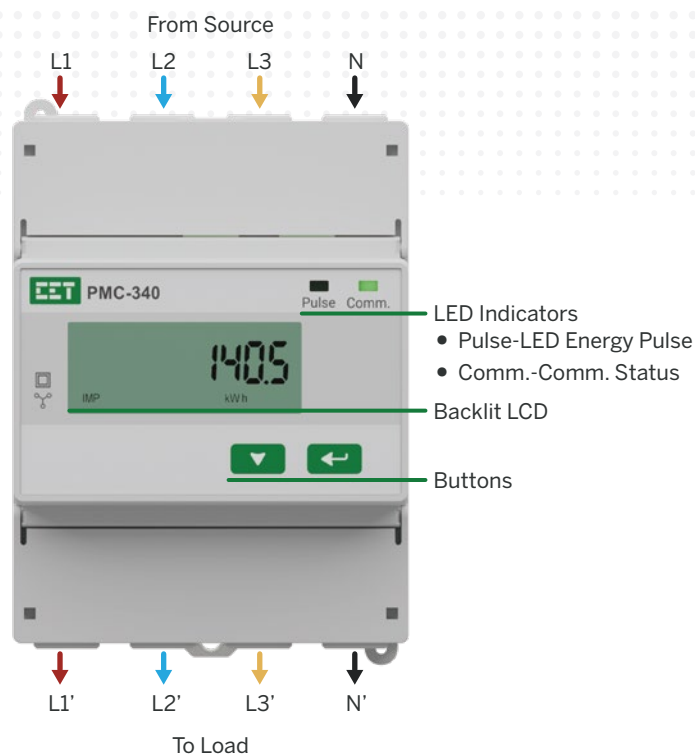
| Revenue Metering Approval |                             |
|---------------------------|-----------------------------|
| NMI M13-1 of Australia    | Approval Mark: NMI XX/X/XXX |

# Ordering Information

| Product Code                             |                       | Description                                                                                                                                                              |
|------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PMC-340 Digital Three-Phase Energy Meter |                       |                                                                                                                                                                          |
| Basic Function                           | A6                    | 3-Phase Metering, Bi-directional Energy, Demands and Max.Demands, Max.&Min., Monthly Energy Log, Multi-Tariff TOU, Setpoint, SOE Log, Data Recorder Log, 16MB Log Memory |
| Display                                  | L                     | 7-segment Backlit LCD Display                                                                                                                                            |
| Input Current~                           | A                     | 10A (100A), Direct Connected Input                                                                                                                                       |
|                                          | B                     | 1A (10A), CT Input                                                                                                                                                       |
| Input Voltage                            | 3                     | 110-240VLN/190-415VLL (-20% to +15%)                                                                                                                                     |
| System Frequency                         | 5                     | 45-65HZ                                                                                                                                                                  |
| I/O~                                     | A                     | 1xSS Pulse Output                                                                                                                                                        |
|                                          | B                     | 1xDI                                                                                                                                                                     |
|                                          | C                     | 1xSS Pulse Output + 1xDI                                                                                                                                                 |
| Communications                           | A                     | 1xRS-485 Port                                                                                                                                                            |
| Protocol                                 | M                     | Modbus                                                                                                                                                                   |
| Display Language                         | E                     | English                                                                                                                                                                  |
| PMC-340                                  | - A 6 L A 3 5 A A M E | PMC-340-A6LA35AAME (Standard Model)                                                                                                                                      |

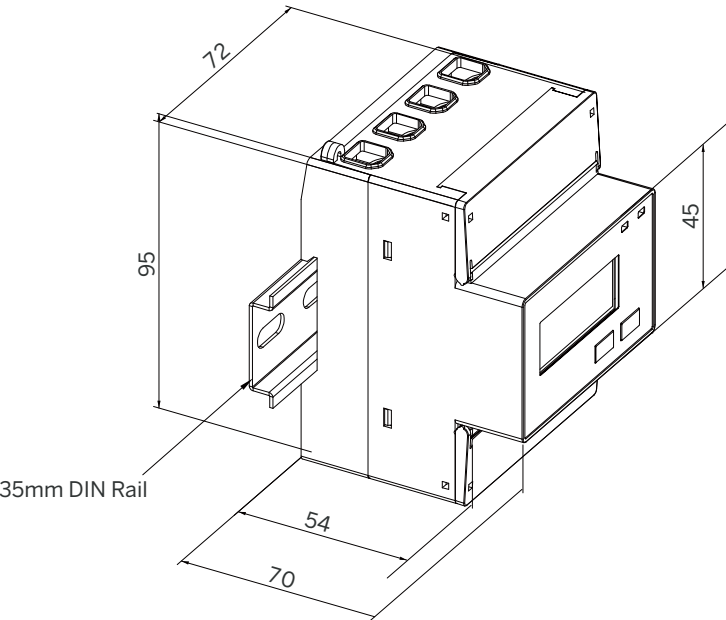
~ Device with Input Current "A" can work with I/O option "A" or "B"  
Device with Input Current "B" is only available with I/O option "C"

# Appearance and Terminals



# Dimensions and Installation

Unit: mm



Email: [sales@cet-global.com](mailto:sales@cet-global.com)  
Website: [www.cet-global.com](http://www.cet-global.com)

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