



# Digital Three-Phase Energy Meter



The PMC-340-A 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-A complies with the IEC 62053-21 Class 1 and IEC 62053-22 Class 0.5S kWh Accuracy Standards for 100A Direct Input and 5A CT Input, respectively. The PMC-340-A comes standard with a front panel LCD, Energy Pulse & Comm. Activity LEDs as well as a Solid State Pulse Output for energy pulsing. The standard RS-485 port and Modbus protocol support allows the PMC-340-A 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 and commercial metering
- Substation, building and factory automation
- Sub-metering
- Power quality monitoring

### Features Summary

#### Ease of use

- Large, easy to read LCD
- 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
- 3-phase power supply, no external control power required

#### Basic Measurements

- ULN, ULL per Phase and Average
- Current per Phase and Average with calculated Neutral
- kW, kvar, kVA, PF per Phase and Total
- Per phase and Total kWh and kvarh Imp/Exp/Tot/Net and kVAh
- Frequency
- Device Operating Time (Running Hour)

#### Enhanced Measurements

- U and I THD, TOHD, TEHD, and Individual Harmonics up to 31<sup>st</sup>
- Current TDD, TDD Odd, TDD Even, K-Factor and Crest Factor
- U and I Unbalance and Phase Angle
- kvarh Q1-Q4
- Demands and Max. Demands for kW/kvar/kVA Total and per phase Current with Timestamp for This Month and Last Month (or Since Last Reset and Before Last Reset)

#### Max./Min. Log

- Max./Min. Log with Timestamp for Real-time measurements such as Voltage, Current, Inc, Freq., kW, kvar, kVA, PF, Unbalance, K-Factor, Crest Factor and THD.
- Configurable for This Month/Last Month or Before/Since Last Reset

#### Monthly Energy Log

- 12 monthly recording of kWh, kvarh Import/Export/Total/Net, kVAh, kvarh Q1-Q4 as well as kWh/kvarh Import/Export and kVAh per Tariff

#### Multi-Tariff TOU

- Two TOU schedules, each providing
  - 12 Seasons
  - 20 Daily Profiles, each with 12 Periods in 15-minute interval
  - 90 Holidays or Alternate Days
  - 4 Tariffs, each providing the following information
    - kWh/kvarh Import/Export, kVAh
    - kW/kvar/kVA Max. Demands

### Pulse Outputs

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

### Communications

- Optically isolated RS-485 port, baud rate from 1200 to 19,200 bps
- Modbus RTU protocol

### Real-time Clock

- Battery-backed real-time clock @ 23ppm
- Clock error  $\leq$  2s/day

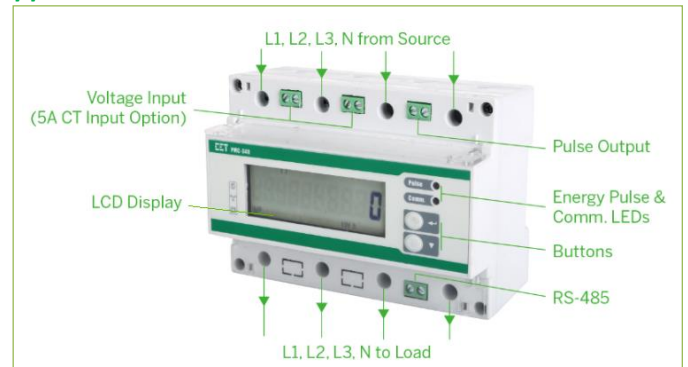
### System Integration

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

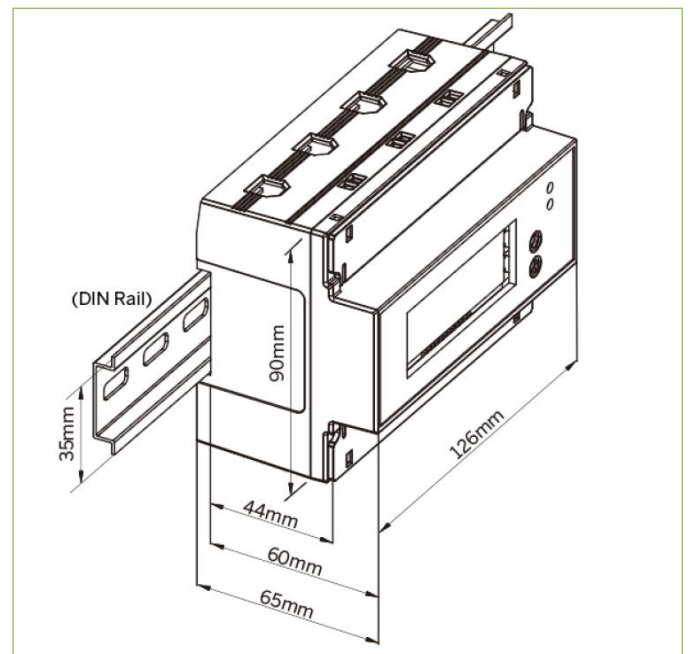
### Accuracy

Parameters	Accuracy	Resolution
Voltage	$\pm 0.5\%$	0.01V
Current	$\pm 0.5\%$	0.001A
kW, kvar, kVA	$\pm 1\%$	0.01kW/kvar/kVA
kWh, kVAh	IEC 62053-21 Class 1 for 100A Direct Input	0.1kWh
	IEC 62053-22 Class 0.5S for 5A CT Input	
kvarh	IEC 62053-23 Class 2	0.1kvarh
P.F.	$\pm 1\%$	0.001
Frequency	$\pm 0.02\text{Hz}$	0.001Hz
Harmonics	IEC 61000-4-7 Class B	0.1%

### Appearance and Terminals



### Dimensions and Installation





**Technical Specifications**

Inputs (L1, L2, L3, N)	
Voltage (Un)	220VAC 230VAC 240VAC
Overrange (%Un)	120% 115% 110%
Range (V)	168-264VAC (Self-powered)
Burden	<10VA/phase
<b>Direct Input</b>	
Current (Ib/Imax)	20A/100A
Range	0.4% Ib to Imax
Starting Current	0.4% Ib
Burden	<4VA/phase
Maximum Wire Size	35mm <sup>2</sup> (3 AWG)
Maximum Torque	2.5 N.m
<b>CT Input</b>	
Current (In/Imax)	5A/6A
Range	(0.1%-120%) In
Starting Current	0.1% In
Burden	<0.5VA/phase
Frequency	45Hz-65Hz
<b>Solid State Energy Pulse Output (Selectable - kWh/kvarh)</b>	
Pulse Constant	1/10/100/1000/3200 imp/kWh (imp/kvarh)
Isolation	Optical
Max. Load Voltage	80V
Max. Forward Current	50mA
Pulse Width	60-150ms
<b>Communications</b>	
RS-485	Modbus RTU
Baudrate	1200/2400/4800/9600/19200 bps
Maximum Wire Size	1.5mm <sup>2</sup> (16AWG)
Maximum Torque	0.45 N.m
<b>Environmental conditions</b>	
Operating temp.	-25°C to +70°C
Storage temp.	-40°C to +85°C
Humidity	5% to 95% non-condensing
Atmospheric pressure	70 kPa to 106 kPa
Pollution Degree	2
<b>Mechanical Characteristics</b>	
Mounting	DIN Rail
Unit Dimensions	126x90x65mm
Shipping Dimensions	165x140x110mm
Shipping Weight	TBD
IP Rating	51 (Front), 30 (Body)

**Standards of Compliance**

Safety Requirements	
CE LVD 2014 / 35 / EU	EN 61010-1: 2010 EN 61010-2-030: 2010
Insulation	IEC 62052-11: 2003 IEC 62053-21/22: 2003
AC Voltage Impulse Voltage	4kV @ 1 minute 6kV, 1.2/50µs
Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500 Vdc	IEC 61557-12: 2008 (PMD)
<b>Electromagnetic Compatibility CE EMC Directive 2014 / 30 / EU (EN 61326: 2013)</b>	
<b>Immunity Tests</b>	
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
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
V Dips, Interruptions & Variations	EN 61000-4-11: 2004
Oscillatory Waves	EN 61000-4-12: 2006
<b>Emission Tests</b>	
Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical (ISM) Radio-Frequency Equipment	EN 55011: 2009 + A1: 2010 (CISPR 11)
Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	EN 55022: 2010+AC: 2011 (CISPR 22)
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤16 A	EN 61000-3-2: 2014
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤16 A	EN 61000-3-3: 2013
Emission Standard for Industrial Environments	EN 61000-6-4: 2007+A1: 2011
Testing and Measurement Techniques- Ring Wave Immunity Test.	EN 61000-4-12: 2006
<b>Mechanical Tests</b>	
Spring Hammer Test	IEC 62052-11: 2003
Vibration Test	IEC 62052-11: 2003
Shock Test	IEC 62052-11: 2003

**Ordering Information**

Product Code	Description
PMC-340	PMC-340 Digital Three-Phase Energy Meter
<b>Basic Function</b>	
A	Class 0.5S Compliant, 3-Phase Metering, Maximum Demands, Max./Min., Monthly Energy Log, Multi-Tariff TOU and Individual Harmonics to 31st
<b>Input Current</b>	
A	20A (100A), Direct Input
B	5A (6A), CT Input
<b>Input Voltage</b>	
3	240VLN/415VLL
<b>System Frequency</b>	
5	45-65Hz
<b>I/O</b>	
X	None
<b>Communications</b>	
A	1xRS-485 Port
<b>Display Language</b>	
E	English
PMC-340 - A A 3 5 X A E	PMC-340-AA35XAE (Standard Model)

CET Electric Technology Inc.

E: [sales@cet-global.com](mailto:sales@cet-global.com)

W: [www.cet-global.com](http://www.cet-global.com)

**Your Local Representative**

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