CET Electric Technology

PMC-340 NMI Approved Digital Three-Phase Energy Meter

Australian Government
Department of Industry, Innovation and Science
National Measurement Institute
NMI M6-1

The PMC-340 Series 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 complies with the IEC 62053-21: 2020 Class 0.5 and IEC 62053-22: 2020 Class 0.5S kWh Accuracy Standards for 100A Direct Input and 5A CT Input, respectively. In addition, the PMC-340-B has received the Certificate of Approval from the National Measurement Institute (NMI) of Australia and been verified by UL with reference to NMI M6-1 Electricity Meters, Part 1: Metrological and Technical Requirements. The PMC-340 comes standard with a LED as well as a Solid State Pulse Output for energy pulsing. The PMC-340 optionally provides 2MB memory for Data Recording and 3 Digital Inputs for status monitoring, Tariff switching or 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 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

- Multifunction True RMS measurements
  - Voltage, Current, kW, kvar, kVA, PF, Phase Angle and Frequency
  - Per phase and Total kWh and kvarh Imp/Exp/Tot/Net and kVAh
  - 4-Quadrant kvarh
  - Device Operating Time (Running Hour)
  - Voltage and Current THD, TOHD, TEHD, Individual Harmonics up to 31st and Unbalance
  - Current K-Factor, Crest Factor, TDD, TDD Odd and TDD Even
  - Ia, Ib, Ic, kW/kvar/kVA Total Demands and Max. Demands
- Max./Min. Log
- 12 monthly recording of kWh/kvarh Imp/Exp/Tot/Net, kVAh, 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 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

Advanced Features (PMC-340-B Only)

- 2MB Log Memory
- Data Recorder Log of 16 measurements @ 10-minute interval for 197 days
- 16 SOE events time-stamped to 1ms resolution
- Front Panel & Communication Programming Counters

Digital Inputs (PMC-340-B Only)

- 3 channels for external status monitoring and pulse counting
- Self-excited, internally wetted at 24VDC

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 1,200 to 19,200 bps
- Modbus RTU protocol

Real-Time Clock

- Battery-backed Real-time clock @ 6ppm
- Clock error ≤ 0.5s/day

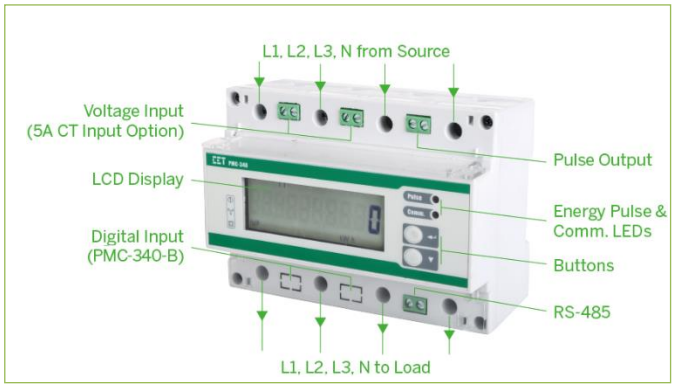
System Integration

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

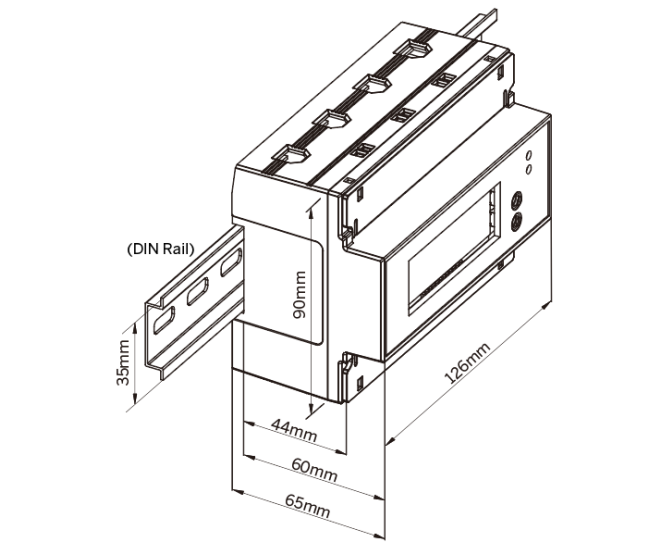
Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2%	0.01V
Current	±0.2%	0.001A
kW, kvar, kVA	±0.5%	0.01kW/kvar/kVA
kWh, kVAh	IEC 62053-21: 2020 Class 0.5 (100A Direct Input)	0.1kXh (PMC-340-A) 0.01kXh (PMC-340-B)
	IEC 62053-22: 2020 Class 0.5S (5A CT Input)	
kvarh	IEC 62053-23: 2020 Class 2	0.01kvarh
P.F.	±1%	0.001
Frequency	±0.02Hz	0.001Hz
Harmonics	IEC 61000-4-7 Class B	0.1%

Appearance and Terminals



Dimensions and Installation



Designed For Reliability **Manufactured To Last**

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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		
Direct Input			
Current (Ib/Imax)	20A/100A		
Range	0.4% Ib to Imax		
Starting Current (Ist)	0.4% Ib (0.08A)		
Minimum Current (Imin)	5% Ib (1A)		
Burden	<4VA/phase		
Maximum Wire Size	35mm² (3 AWG)		
Maximum Torque	2.5 N.m		
CT Input			
Current (In/Imax)	5A/6A		
Range	(0.1%-120%) In		
Starting Current (Ist)	0.1% In		
Burden	<0.5VA/phase		
Frequency	45Hz-65Hz		
Solid State Energy Pulse Output (Selectable - kWh/kvarh)			
Pulse Constant	1/10/100/500*/1000/3200/5000* imp/kWh (imp/kvarh)		
Isolation	Optical		
Max. Load Voltage	80V		
Max. Forward Current	50mA		
Pulse Width	60-150ms (PMC-340-A) 30-150ms (PMC-340-B)		
Communications			
RS-485	Modbus RTU		
Baud Rate	1200/2400/4800/9600/19200 bps		
Maximum Wire Size	1.5mm² (16AWG)		
Maximum Torque	0.45 N.m		
Environmental Conditions			
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		
Mechanical Characteristics			
Mounting	DIN Rail		
Unit Dimensions	126x90x65mm		
Shipping Dimensions	165x140x110mm		
Shipping Weight	0.68kg		
IP Rating	51 (Front), 30 (Body)		

*Available in PMC-340-B with Firmware V1.00.03 and Protocol V1.4 or later

Standards of Compliance

Safety Requirements	
CE LVD 2014 / 35 / EU	EN 61010-1: 2010 + A1: 2019 EN 61010-2-030: 2010
Insulation (Indoor Use) AC Voltage Impulse Voltage	IEC 62052-31: 2015 AS 62052-31: 2017 NMI M6-1 (PMC-340-B) 4kV @ 1 minute 12kV+0%, -15%, 1.2/50µs (NMI M6-1)
Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500Vdc	IEC 61557-12: 2018 (PMD)
Electromagnetic Compatibility CE EMC Directive 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 Waves	EN 61000-4-12: 2017
Emission Tests	
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
Mechanical Tests	
Spring Hammer Test	IEC 62052-31: 2015
Vibration Test	IEC 62052-11: 2020
Shock Test	IEC 62052-11: 2020
Revenue Metering Approval	
NMI M-6 of Australia	Approval Mark: NMI 14/2/102 UL Ref. # R4787950540-1-DC & R4787950540-2-CT

Ordering Information

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Version 20161124

Product Code	Description
PMC-340 Digital Three-Phase Energy Meter	
Basic Function	
A	Basic Model
B*	Model A + 3xDI + 2MB Log Memory
Input Current	
A	20A (100A), Direct Input
B	5A (6A), CT Input
Input Voltage	
3	240VLN/415VLL
System Frequency	
5	45-65Hz
Reserved	
X	None
Communications	
A	1xRS-485 Port
Display Language	
E	English

PMC-340	-	A	A	3	5	X	A	E	PMC-340-AA35XAE (Standard Model)

* Additional charges apply

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Your Local Representative

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