



**NMI M6-1**



**Overview**

The PMC-230 Single-Phase Multifunction Meter is CET's latest offer for the low voltage energy metering market featuring DIN-Rail mount, compact construction, 63A direct connect with an internal UC3 Disconnect Relay compliant with the Australia National Electricity Rules (NER) schedule 7.5 for the ability to disconnect/re-connect from the supply. The PMC-230 also complies with the IEC 62053-21: 2020 Class 0.5 kWh Accuracy Standard and has received the certificate of approval from the National Measurement Institute (NMI) of Australia for compliance with the M6-1 Electricity Meters, Part 1: Metrological and Technical Requirements. The PMC-230 provides 4MB Log Memory for Data Recording, 3xDI for Status Monitoring or Pulse Counting, 1xLED and 1xSS Pulse Output for energy pulsing. Further, the standard RS-485 port supporting Modbus RTU protocol with password protection allows the PMC-230 to become a vital component of an intelligent, multifunction monitoring solution for any secured 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**

**Ease of use**

- Easy to read LCD for both data viewing and configuration
- Two LED indicators for Energy Pulsing and Disconnect Relay status
- Password protected setup via Front Panel or free PMC Setup software
- Easy installation with DIN-Rail mounting, no tools required

**Basic Measurements**

- IEC 62053-21: 2020 Class 0.5 and NMI M6-1 Certified by UL
- Direct connect up to 63A without external CT
- U, I, P, Q, S, PF, Frequency and Operating Time
- kWh and kvarh Imp./Exp. and kVAh
- Two TOU schedules, each providing
  - 4 Seasons
  - 12 Daily Profiles, each with 8 Periods in 15-minute interval
  - 30 Holidays or Alternate Days
  - 4 Tariffs, each providing kWh/kvarh Imp./Exp., kVAh
- Demands and Max. Demands for U, I and P/Q/S with timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)
- U and I THD
- DI Counters, Front Panel & Communication Programming Counters

**Disconnect Relay (Internal)**

- UC3 compliant Disconnect Relay that can be activated locally from the Front Panel or remotely via communications

**Energy Pulse Outputs**

- 1 LED Energy Pulse Output on the Front Panel
- 1 Solid State Relay Energy Pulse Output

**Digital Inputs**

- 3 channels for external status monitoring and pulse counting
- Self-excited, internally wetted at 12VDC
- 1000Hz sampling

**Data Recorder**

- One Data Recorder Log of 16 parameters
- Recording Interval from 1 second to 40 days.
- Configurable Depth (max. 65535) and Recording Offset
- 4MB Log Memory, capable of recording 16 parameters at 5-min interval for 6 months
- Available parameters: U, I, P, Q, S, PF, Freq., kWh Imp./Exp., kvarh Imp./Exp., kVAh, DI Counters, Relay Status, Demands and Max. Demands for U, I, P/Q/S.

**Monthly Energy Log**

- 12 historical monthly logs of kWh, kvarh Imp./Exp. and kVAh as well as kWh/kvarh Imp./Exp. and kVAh per Tariff

**SOE Log**

- 32 events time-stamped to ±1ms resolution

**Communications**

- Optically isolated RS-485 ports at 1,200 to 19,200 bps
- Modbus RTU protocol with configurable password protection

**Real-Time Clock**

- Battery backed RTC @ 6ppm (≤0.5s/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

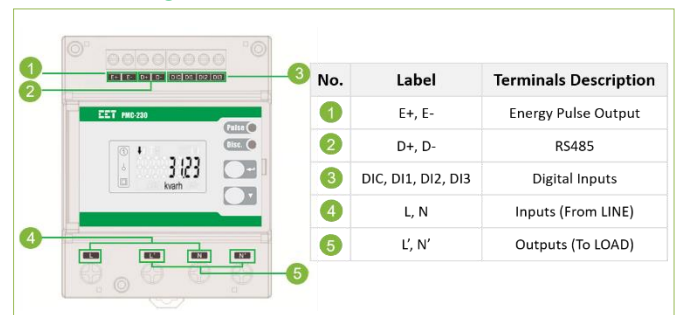
**Accuracy**

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.1V
Current	±0.5%	0.001A
P, Q, S	±1.0%	0.001kW/kvar/kVA
kWh	IEC 62053-21:2020 Class 0.5	0.01kWh
kvarh	IEC 62053-23: 2020 Class 2	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz

**Front Panel Display**



**Terminals Diagram**

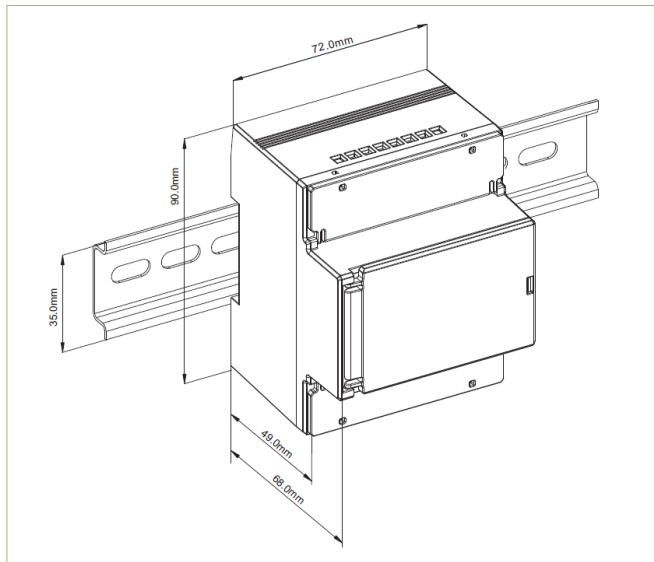




**Technical Specifications**

Measurement Inputs (L, N, L', N')	
Voltage (Un)	220VAC 230VAC 240VAC
Ovrange (% Un)	120% 115% 110%
Range	95-264VAC
Burden	<3VA
Current (Ib / Imax)	5A / 63A
Starting Current	0.4% Ib (20mA)
Minimum Current	5% Ib (0.25A)
Burden	<3VA
Frequency	50Hz/60Hz
Power Supply	Self-powered from 95 to 264VAC
Maximum Wire Size	25 mm <sup>2</sup> (4AWG)
Torque for L, N Terminals	2.5 N.m
Disconnect Relay	
Rated Load (Resistive)	100A @ 250VAC
Response Time	20ms
Short-time Overcurrents	7000A (-10% to +0%) @ 60ms
Service Life (Mech./Elec.)	100k/5k Operations
Rated Making Capacity @ 1.15Un and PF=1	63A Max.
Rated Breaking Capacity @ 1.15Un and PF=1	63A Max.
Dielectric (AC Voltage)	4kV @ 1minute (Contact to Coil) 2kV @ 1minute (Contact to Contact)
Insulation Resistance	1000MΩ/500VDC
Solid State Energy Pulse Output (E+, E-)	
Max. Load Voltage	80 VDC
Max. Forward Current	50 mA
Maximum Wire Size	1.5 mm <sup>2</sup> (16AWG)
Torque for Terminals	0.45 N.m
Pulse Width	500ms ± 0.5ms
Communications (D+, D-)	
RS-485 (Modbus RTU)	Optically isolated @ 5kVrms
Maximum Wire Size	1.5mm <sup>2</sup> (16AWG)
Torque for RS-485 Terminals	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	70kPa to 106kPa
Pollution Degree	2
Mechanical Characteristics	
Unit Dimensions	72(W)x68(D)x90(H)mm
Mounting	DIN-Rail Mounting
IP Rating	IP51 (Front) IP30 (Body)

**Dimensions and Installation**



**Standards of Compliance**

Safety Requirements	
CE LVD 2014/35/EU	EN 61010-1: 2010 + A1: 2019 EN 61010-2-030: 2010
Electrical safety in low voltage distribution systems up to 1000Vac and 1500 Vdc	IEC 61557-12: 2018 (PMD)
Products safety requirements and tests NMI	IEC 62052-31: 2015 AS 62052-31: 2017 M6-1
AC Voltage	4kV @ 1 minute
Impulse Voltage	12kV+0%, -15%, 1.2/50µs (NMI M6-1)
Electromagnetic Compatibility EMC 2014/30/EU (EN 61326: 2013)	
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
Vibration Test	IEC 62052-11: 2020
Shock Test	IEC 62052-11: 2020
Revenue Metering Approval	
NMI M6-1 of Australia	Approval Mark: NMI 14/2/109 UL Ref. # R4789222180_NMI

**Ordering Information**

Product Code	Description
<b>PMC-230 Single-Phase Multifunction Energy Meter</b>	
Basic Function	
B	4MB Memory, 1xData Recorder, 3xDI, 1xLED Pulse Output, 1xSS Pulse Output, 1xRS-485 and an Internal UC3 Compliant Disconnect Relay
Input Current	
C	5A (63A Max.), Direct Input
Input Voltage	
3	95V-240VAC, ±10%
System Frequency	
5	50Hz/60Hz
Communications	
A	1xRS-485
Language	
E	English
PMC-230 - B C 3 5 A E	PMC-230-BC35AE (Standard Model)

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**Your Local Representative**

