

PMC-230

Single-Phase Multifunction Meter



Overview

PMC-230 Single-Phase Multifunction Meter is CET's latest offer for the low voltage energy metering market featuring DIN-Rail mount, compact construction, 65A Max. direct connected with an internal UC2 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 & AS 62053.21: 2023 Class 1 kWh Accuracy Standard and has received the certificate of approval from the National Measurement Institute (NMI) of Australia for compliance with the NMI M13-1 Active-Energy Electricity Meters (a.c.), 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, multi-function 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 PMC Setup Software
- Easy installation with DIN-Rail mounting, no tools required

Disconnect Relay (Internal)

- UC2 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

Basic Measurements

- IEC 62053-21: 2020 & AS 62053.21: 2023 Class 1 and NMI Certified
- Direct Connected Input up to 65A without external CT
- U, I, P, Q, S, PF, Frequency, Temperature* 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 0-60 min. 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, Temperature 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

Setpoint*

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

Digital Inputs

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

Tamper Detection and Alarm*

- DI1 as Setpoint Parameters is pre-configured for Tamper Alarm Detection
- Alarm Events are stored in SOE Log

Data Recorder

- One Data Recorder Log of max. 16 parameters
- Recording Interval from 1 second to 40 days.
- Configurable Recording 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., Temperature, kWh Imp./Exp., kvarh Imp./Exp., Demands and Max. Demands for U, I, P/Q/S Total, DI Pulse Counters as well as Disconnect Relay Status.

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~

- 64 events time-stamped to ± 1 ms resolution

Communications

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

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 (≤ 0.5 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
- Compatible with MV-90™

* Features supported in Firmware V2.00.02 and later
 ~ 32 SOE Logs were supported in Firmware V2.00.01 and previous versions

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 & AS 62053.21: 2023 Class 1	0.01kWh
kvarh	IEC 62053-23: 2020 Class 2	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz

Technical Specifications

Measurement Inputs (L, N, L', N')			
Voltage (Un)	220VAC	230VAC	240VAC
Overrange (% Un)	120%	115%	110%
Range	95-264VAC		
Burden	<3VA		
Current ((In/Imax)	5A/65A		
Starting Current (Ist)	0.4% In (20mA)		
Minimum Current (Imin)	5% In (0.25A)		
Burden	<3VA		
Frequency	50Hz/60Hz		
Power Supply	Self-powered from 95 to 264VAC		
Maximum Wire Size	25 mm ² (4AWG)		
Torque for L, N Terminals	2.5 N.m		

Disconnect Relay	
Rated Load (Resistive)	100A @ 250VAC
Response Time	20ms
Short-time Overcurrents	4500A (+5% 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 @ 1 minute (Contact to Coil) 2kV @ 1 minute (Contact to Contact)
Insulation Resistance	1000MΩ/500VDC

Solid State Energy Pulse Output (E+, E-)	
Pulse Width	500ms ±0.5ms
Max. Load Voltage	80VDC
Max. Forward Current	50mA
Max. Wire Size	1.5mm ² (16AWG)
Torque for Terminals	0.45 N.m

Communications (D+, D-)	
RS-485 (Modbus RTU)	Optically Isolated @ 5kVrms
Maximum Wire Size	1.5 mm ² (16AWG)
Torque for RS-485 Terminals	0.45 N.m

Digital Inputs (DI1, DI2, DI3, DIC)	
Type	Dry Contact, 12VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

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)x68(D)x90(H)mm
Mounting	DIN-Rail Rack Mounted in Cabinet
IP Rating	IP51 (Front), IP30 (Body)

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 AC Voltage Impulse Voltage	IEC 62052-31: 2015 AS 62052.31: 2017 +A1:2021 M13-1 4kV @ 1 minute 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 & AS 62052.31: 2017 +A1: 2021
Vibration Test	IEC 62052-11: 2020 & AS 62052.11: 2023
Shock Test	IEC 62052-11: 2020 & AS 62052.11: 2023

Revenue Metering Approval

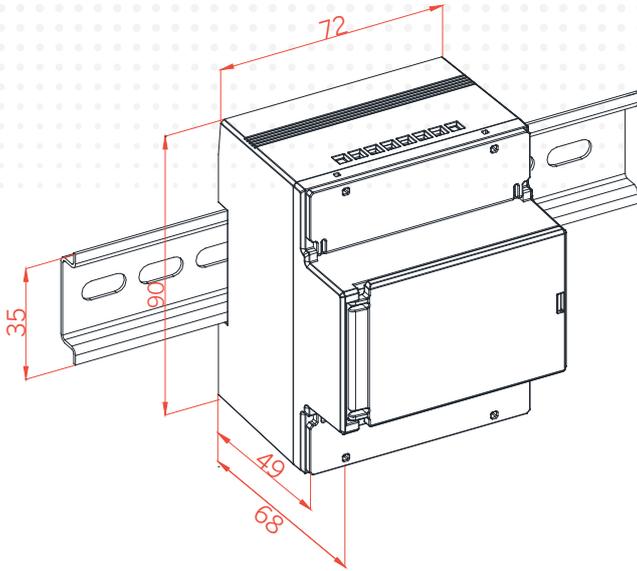
NMI M13-1 of Australia	Approval Mark: NMI 14/2/119
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Ordering Information

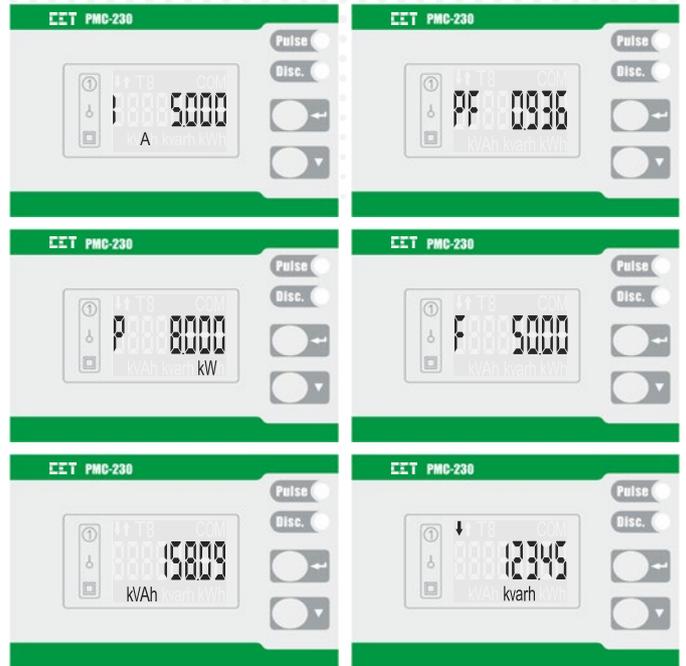
Product Code	Description
PMC-230 Single-Phase Multifunction Meter	
Basic Function	B 4MB Memory, 1xData Recorder, 3x DI, 1xLED Pulse Output, 1xSS Pulse Output, 1xRS-485 and an Internal UC2 Compliant Disconnect Relay
Input Current	C 5A (65A Max.), Direct Connected Input
Input Voltage	3 95V-240VAC, ±10%
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)

Dimensions and Installation

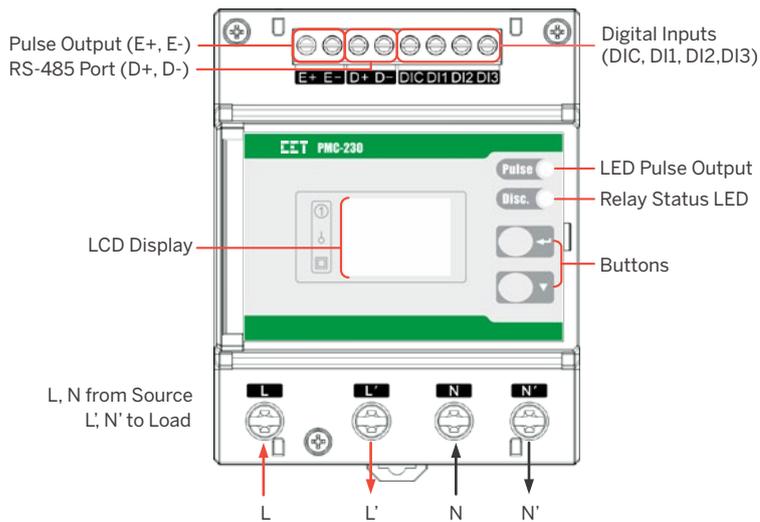
Unit: mm



Front Panel Display



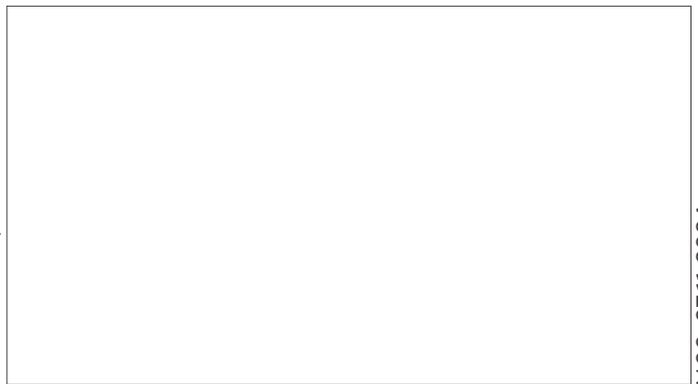
Terminals Diagram



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V.00 07.11.2024