



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, 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, 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 & 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

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

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

* Features supported in Firmware V2.00.02 and later

~ 32 SOE Logs were supported in Firmware V2.00.01 and previous versions

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 over 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 $\pm 1\text{ms}$ 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 ($\leq 0.5\text{s/day}$)
- 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
- Compatible with MV-90™

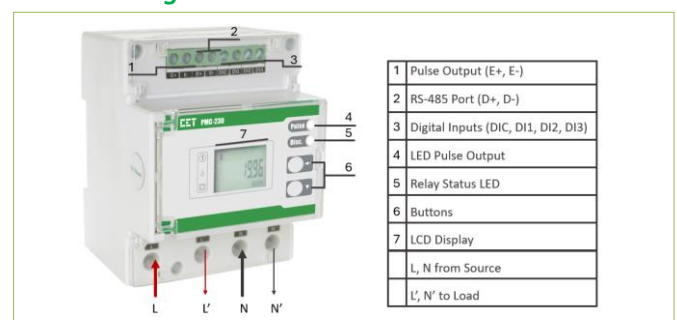
Accuracy

Parameters	Accuracy	Resolution
Voltage	$\pm 0.5\%$	0.1V
Current	$\pm 0.5\%$	0.001A
P, Q, S	$\pm 1.0\%$	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	$\pm 1.0\%$	0.001
Frequency	$\pm 0.02\text{Hz}$	0.01Hz

Front Panel Display



Terminals Diagram

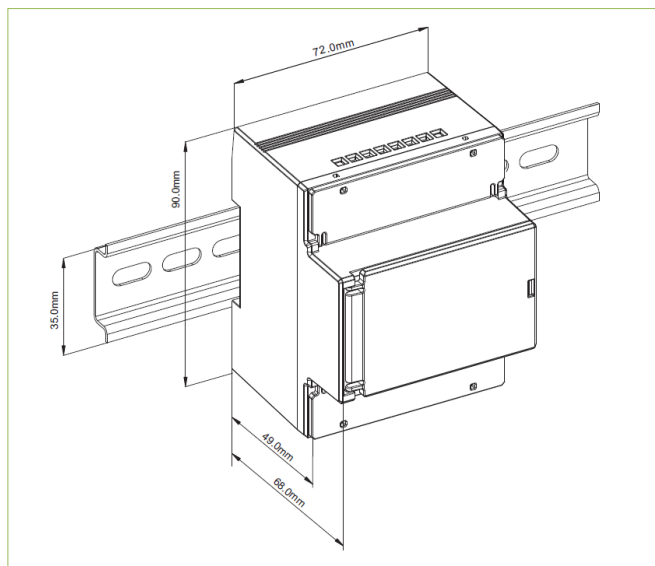


1	Pulse Output (E+, E-)
2	RS-485 Port (D+, D-)
3	Digital Inputs (DI1, DI2, DI3)
4	LED Pulse Output
5	Relay Status LED
6	Buttons
7	LCD Display
	L, N from Source
	L', N' to Load

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 mm² (4AWG)		
Torque for L, N Terminals	2.5 N.m		
Disconnect Relay			
Rated Load (Resistive)	100A @ 250VAC		
Response Time	20ms		
Short-time Overcurrent	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 @ 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 mm² (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	1.5mm² (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 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 Rack Mounted in Cabinet		
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	IEC 62052-31: 2015 AS 62052.31: 2017+A1:2021
NMI	M13-1
AC Voltage	4kV @ 1 minute
Impulse Voltage	6kV, 1.2/50μs
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 & 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

Ordering Information

										Version 20241107									
Product Code										Description									
PMC-230 Single-Phase Multifunction Meter																			
Basic Function																			
B					4MB Memory, 1xData Recorder, 3xDI, 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)									

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Your Local Representative

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