



PMC-230

Single-Phase Multifunction Meter



Australian Government
Department of Industry,
Innovation and Science

National
Measurement
Institute



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, 63A direct connect with an internal UC3 Disconnect Relay for compliance with Australia National Electricity Rules (NER). The PMC-230 also complies with the IEC 62053-21 Class 0.5 kWh Accuracy Standard and has received the Certificate of Approval from The National Measurement Institute (NMI) of Australia. With 4MB Log Memory, 3xDI, 1xLED and 1xSS Pulse Output for energy pulsing as well as a RS-485 port supporting Modbus RTU protocol as standard features, the PMC-230 becomes a vital component of an intelligent, multifunction monitoring solution for any Energy Management Systems.

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

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 with 4 Seasons, 12 Daily Profiles and 4 Tariffs
- 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 ± 1 ms resolution

Communications

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

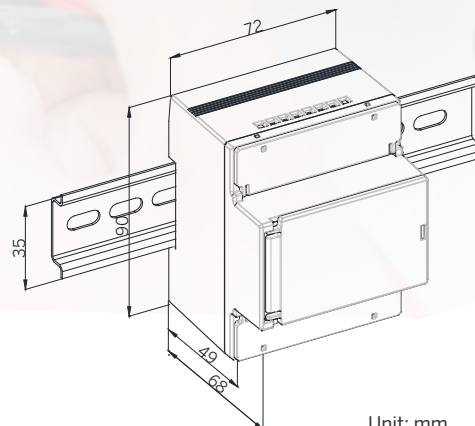
Real-Time Clock

- Battery backed RTC @ 6ppm (≤ 0.5 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

Dimensions and Installation



Unit: mm

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

Technical Specifications

Measurement Inputs (L, N, L', N')			
Voltage (Un)	220VAC	230VAC	240VAC
Overrange (% Un)	120%	115%	110%
Range	95-264VAC		
Burden	<3VA		
Current (Ib/I _{max})	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 ² (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 @ 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

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 Mounting
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 M6-1 4kV @ 1 minute 12kV+0%, -15%, 1.2/50μs (NMI M6-1)

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
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
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 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 Port
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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