

Single-Phase Multifunction Meter



Overview

The PMC-220-A6 Single-Phase Multifunction Meter is CET's latest offer for the low voltage energy metering market featuring DIN-Rail mount, compact construction, high accuracy, multifunction true RMS measurements and a large, easy to read LCD display. The PMC-220-A6 complies with the IEC 62053-21: 2020 & AS 62053.21: 2023 Class 1. The PMC-220-A6 comes standard with an LED and a Solid State Pulse Output for energy pulsing. The advanced version of PMC-220-A6 provides 16MB on-board non-volatile memory for Data Recording and an optional Digital Input for status monitoring and pulse counting for collecting WAGES (Water, Air, Gas, Electric and Steam) information. With the standard RS-485 port and Modbus RTU protocol, the PMC-220-A6 becomes a vital component of an intelligent, multifunction monitoring solution for any Power and Energy Management Systems.

Application

- DIN-Rail mount energy metering
- Industrial, Commercial and Utility Substation Metering
- Building, Factory and Process Automation
- Sub-metering and Cost Allocation
- NMI and MID compliant Energy Management

Features Summary

Ease of Use

- Large, Backlit, 7-Segment LCD for both Data viewing and Configuration
- Two LED indicators for Energy Pulsing and Communication activities
- Easy installation with DIN-Rail mounting, no tools required
- Direct Connected Input up to 80A without external CT
- Password protected setup via Front Panel or free software

Basic Measurements

- Multifunction true RMS measurements
 - Voltage (U), Current (I), P, Q, S, PF and Frequency
 - kWh and kvarh Imp./Exp./Tot./Net. and kVAh
 - Device Operating Time (Running Hour)
 - Front Panel & Communication Programming Counters
- Demands and Max. Demands for U, I, P/Q/S and Temperature with timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)
- 12 Monthly recording of kWh/kvarh Imp./Exp., kVAh as well as kWh Imp./Exp. per Tariff
- Temperature

Multi-Tariff TOU

- Two TOU schedules, each providing
 - 12 Seasons
 - 12 Daily Profiles, each with 14 Periods
 - 20 Holidays or Alternate Days
 - 5 Tariffs, each providing kWh/kvarh Imp./Exp. and kVAh

Setpoint

- 10 user-programmable Setpoints with extensive list of monitoring parameters including Voltage (U), Current (I), Frequency, P/Q/S/PF Total, P Demand, Temperature and DI Status.
- Configurable thresholds and time delay

Overcurrent Alarm

- Configurable threshold @ 0.1-100 A and time delay @ 1-99 s
- Alarm Events are stored in SOE Log

SOE Log

- 128 events time-stamped to $\pm 1\text{ms}$ resolution
- Setup changes, Setpoint, DI status changes and Overcurrent Alarm, etc.

Data Recorder (Advanced Version Only)

- Two Data Recorder Log of Max. 16 parameters
- Recording Interval from 1 second to 40 days
- Configurable Recording Depth (Max. 65535) and Recording offset
- Capable of recording 16 parameters at 5-min interval for over 7 months
- Available parameters: U, I, P, Q, S, PF, Freq., kWh Imp./Exp., kvarh Imp./Exp., Demands and Max. Demands for U, I, P/Q/S Total, DI Pulse Counter, Temperature, and Demand for Temperature

Freeze Logs

- 12 Daily Freeze Logs for Total kWh Imp. and kWh Imp. Per Tariff
- 12 Monthly Freeze Logs for Total kWh Imp. and kWh Imp. Per Tariff

Tamper Detection and Alarm (Advanced Version Only)

- DI connected to external switch as Setpoint Parameter for Tamper Alarm
- Built-in sensor for Strong Magnetic Tamper Detection
- Alarm Events are stored in SOE Log

Communications

- Optically isolated RS-485 port, baud rate from 1,200 to 38,400 bps
- Modbus RTU protocol

Security

- Programmable Password protection for configurations on Front Panel
- 3-level independent security Comm. password protection and different access permissions

Pulse Outputs

- 1 LED Pulse Output on the Front Panel and 1 Solid State Pulse Output for energy pulsing application

Digital Input (Advanced Version Only)

- Optional 1 channel for external status monitoring or pulse counting
- Self-excited, internally wetted

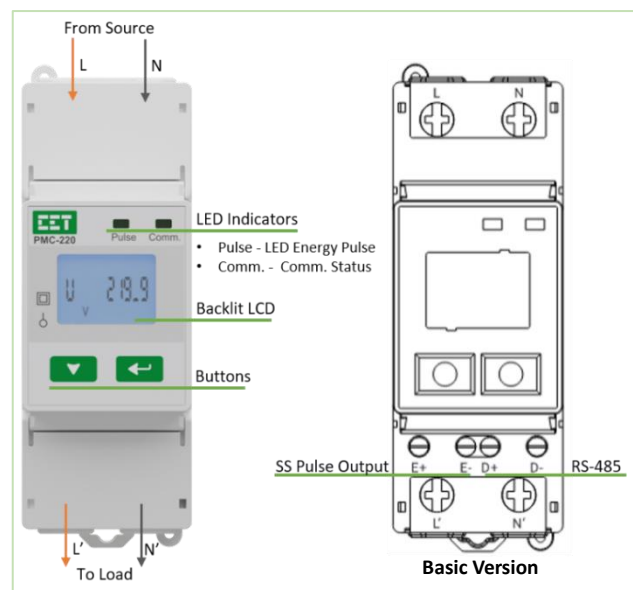
Real-Time Clock (Advanced Version Only)

- Battery backed RTC @ 6ppm ($\leq 0.5\text{s/day}$)

System Integration

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

Appearance and Terminals



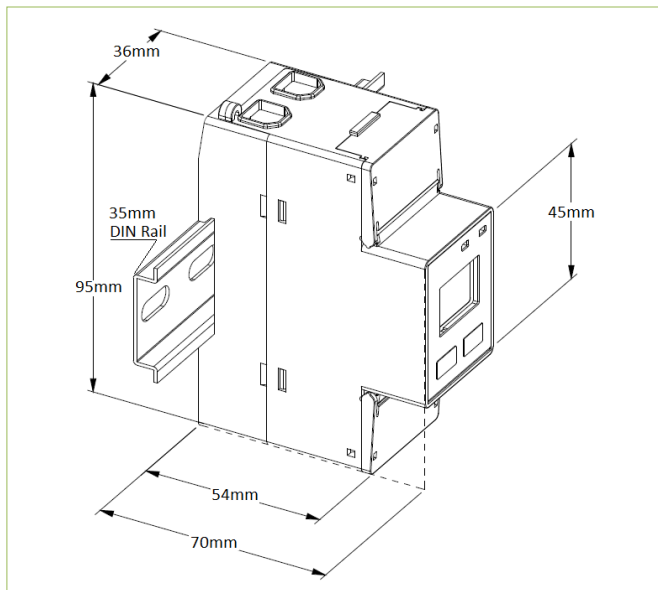
Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.1V
Current	±0.5%	0.001A
P, Q, S	±1.0%	0.01kX
kWh	IEC 62053-21: 2020 & AS 62053.21: 2023 Class 1	0.01kWh
kvarh	IEC 62053-24: 2020 Class 1	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.001Hz

Technical Specifications

Measurement Inputs (L, N, L', N')				
Voltage (Un)	100VAC	220VAC	230VAC	240VAC
Overrange (% Un)	276%	125%	120%	115%
Range (V)	85-276VAC			
Current (In/Imax)	5A/80A, Direct Connected Input			
Starting Current (Ist)	0.4% In (0.02A)			
Minimum Current (Imin)	5% In (0.25A)			
Burden	<0.1VA			
Frequency	45Hz-65Hz			
Solid State Energy Pulse Output (Selectable - kWh/kvarh)				
Type	Optically Isolated Solid State Relay			
Max. Load Voltage	80 VDC			
Max. Forward Current	50 mA			
Pulse Constant	10/100/1000/2000/3200 imp/kXh			
Pulse Width	30-500 ms			
Communications				
RS-485	Modbus RTU			
Baud Rate	1.2/2.4/4.8/9.6/19.2/38.4 kbps			
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	70kPa to 106kPa			
Pollution Degree	2			
Mechanical Characteristics				
Unit Dimensions	36x95x70mm			
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: 2021 (PMD)
Products Safety Requirements and Tests NMI	IEC 62052-31: 2024 AS 62052.31: 2017 + A1: 2021 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 XX/X/XXX

Ordering Information

Eco xplore		Version 20250320									
Product Code		Description									
PMC-220 Digital Single-Phase Energy Meter											
Basic Function											
A6		Multifunction measurements, Bi-directional Energy, Demands and Max. Demands, Monthly Energy Log, Setpoint, SOE Log, Multi-Tariff TOU, Daily & Monthly Freeze Log									
Enhanced Features											
A**		Advanced Version (MID, NMI and CE Certified)									
B*		Basic Version (CE Certified)									
Input Current											
A		5A (80A Max.), Direct Connected Input									
Input Voltage											
3		100-240V AC, ±15%									
System Frequency											
5		45-65Hz									
I/O											
A		1xSS Pulse Output									
B		1xDI									
Communications											
A		1xRS-485 Port									
Protocol											
M		Modbus									
Display Language											
E		English									
PMC-220	-	A6	B	A	3	5	A	A	M	E	PMC-220-A6BA35AAME (Standard Model)

* Additional charges apply
 * Device with Enhanced Features Option "A" supports additional functions including 16 MB on-board memory, Battery-Backed Real-Time Clock, Data Recorder Log, and Strong Magnetic Tamper Detection, which are not supported on Option "B".
 * Device with Enhanced Features Option "B" can only work with I/O option "A".

Your Local Representative

Revision Date: March 29, 2025