

Digital Single-Phase Energy Meter

Technical Specifications



The PMC-310 Digital Single-Phase Energy Meter is CET's latest offer for the low voltage power/energy metering market featuring DIN rail mount, compact construction, high accuracy, multifunction measurements and a large, easy to read LCD with automatic scrolling. The PMC-310 comes standard with one Solid State Digital Output for kWh/kvarh pulsing and one PPS Output for clock calibration. The PMC-310 complies with the IEC 62053-21 Class 1 kWh Accuracy Standard. When equipped with the standard RS485 port and Modbus protocol, the PMC-310 becomes a vital component of an intelligent, multifunction monitoring solution for any Power and Energy Management Systems.

Typical Applications

- Up to 80A direct input without CT
- DIN rail mount energy metering
- Industrial and commercial metering
- Building and factory automation
- Sub-metering
- Power quality monitoring

Features Summary

Ease of use

- Easy to read LCD with automatic scrolling capability
- Two LED indicators – energy pulsing and reverse indication
- Simple, password-protected setup via front panel or our free PMC Setup software
- Easy installation with DIN rail mounting, no tools required
- Self-powered, no external control power required
- Direct input up to 80A without external CT

Energy Measurements

- kWh and kvarh Import/Export/Net/Total, kVAh Total
- 12 monthly Energy Recording for kWh and kvarh Import / Export / Net / Total, kVAh Total

Other Measurements

- Voltage, current, power, power factor, frequency
- kW, kvar, kVA, Current Demands & Peak Demands for this/last month
- Voltage and Current THD

Time of Use - TOU

- TOU tariff metering with 4 tariff rates, 6 seasons, 1 daily profile

Pulse Outputs

- 1 LED Pulse Output on the front panel for energy pulsing application
- 1 Solid State Digital Output for energy pulsing application
- 1 PPS Solid State Digital Output for clock calibration

Communications

- Optically isolated RS485 port, baud rate from 1200 to 19,200 bps
- Modbus RTU protocol

Real-time Clock

- Battery-backed real-time clock @ 6ppm, clock error $\leq 0.5s/day$
- Can be set through front panel or via communications

System Integration

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

Inputs (L, N)	
Voltage (Vn)	240VLN 0.8 to 1.1 Vn
Current (In/Imax)	5A/20A, 10A/40A, 20A/80A direct input 0.1% Imax to Imax
Frequency	50/60Hz
Power Supply	Self-powered from 0.7 to 1.2 Vn
Solid State Energy Pulse Outputs (Selectable - kWh/kvarh)	
Pulse constant	1000/100
Isolation	Optical
Max. Load Voltage	80V
Max. Forward Current	50mA
1 Pulse Per Second Output (CLK+, CLK-)	
Duty Cycle	50%
Environmental Conditions	
Operating temp.	-25°C to +70°C
Storage temp.	-40°C to +85°C
Humidity	5% to 95% non-condensing
Atmospheric pressure	70 kPa to 106 kPa

Accuracy

Parameters	Accuracy	Resolution
Voltage	$\pm 0.5\%$	0.01V
Current	$\pm 0.5\%$	0.001A
kW, kvar, kVA	$\pm 1\%$	0.001kW/kvar/kVA
kWh, kVAh	IEC 62053-21 Class 1	0.1kWh
kvarh	IEC 62053-23 Class 2	0.1kvarh
P.F.	$\pm 1\%$	0.001
Frequency	$\pm 0.02Hz$	0.01Hz
THD	IEC 61000-4-7 Class B	0.1%

Features and Options


Features and Options	PMC-310 Models	
	A	B
Measurements		
Voltage		■
Current		■
kW / kvar/ kVA		■
Power Factor		■
kWh Import, Export, Net, Total	■	■
kvarh Import, Export, Net, Total	■	■
kVAh Total	■	■
kWh, kvarh and kVAh for 12 months	■	■
Frequency		■
TOU Tariff Metering		■
kW, kvar, kVA, Current Demands & Peak Demands		■
kW, kvar, kVA, and Current Peak Demands		■
Voltage and Current THD		■
Inputs and Outputs		
Pulse Output (Solid State)	1	1
PPS (Solid State)	1	1
LED Pulse Output (Front Panel)	1	1
Communications		
RS-485 Port	1	1

- Standard

Standards of Compliance

Safety Requirements		
CE LVD 2006/95/EC		EN61010-1-1-2001
Insulation		IEC 60255-5-00
20		
Dielectric test: 2kV @ 1 minute		
Insulation resistance: >100MΩ		
Electromagnetic Compatibility		
CE EMC Directive 2004/108/EC (EN 61326: 2006)		
Immunity Tests		
Electrostatic discharge		IEC 61000-4-2: 2001 Level IV
Radiated fields		IEC 61000-4-3:2008 (10 V/m)
Fast transients		IEC 61000-4-4:2004 Level IV
Surges		IEC 61000-4-5:2005 Level IV
Conducted disturbances		IEC 61000-4-6: 2006 Level III
Magnetic Fields		IEC 61000-4-8:2009 Level IV
Oscillatory waves		IEC 61000-4-12:1995 Level III
Radio Disturbances		CISPR 22:2006, Level B
Emission Tests		
Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment		EN 55011: 2009 (CISPR 11)
Limits and methods of measurement of radio disturbance characteristics of information technology equipment		EN 55022: 2006 A1: 2007 (CISPR 22)
Limits for harmonic current emissions for equipment with rated current ≤16 A		EN 61000-3-2: 2006+A1: 2009
Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤16 A		EN 61000-3-3: 2006
Emission standard for residential, commercial and light-industrial environments		EN 61000-6-3: 2007
Electromagnetic Emission Tests for Measuring Relays and Protection Equipment		IEC 60255-25: 2 000
Mechanical Tests		
Vibration Test	Response	IEC 60255-21-1 Level I
	Endurance	IEC 60255-21-1 Level I
Shock Test	Response	IEC 60255-21-2 Level I
	Endurance	IEC 60255-21-2 Level I
Bump Test		IEC 60255-21-2 Level I

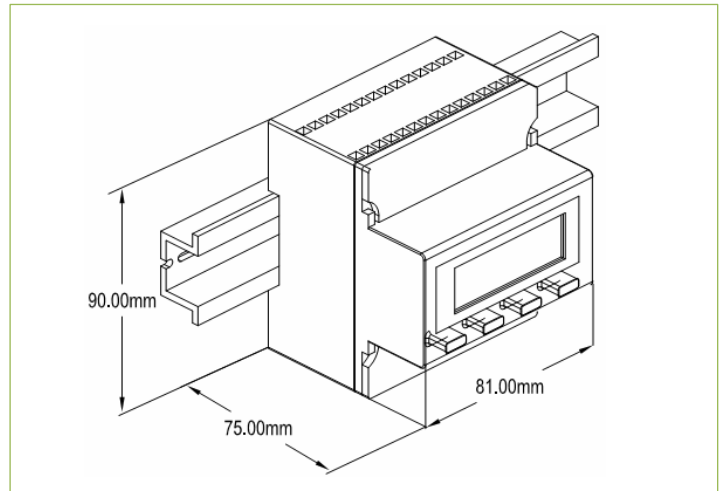
Ordering Information



Product Code	Description
PMC-310 Digital Single-Phase Energy Meter	
Basic Function	
A	Bi-directional Energy Metering + Energy Data for 12 Months
B	Model A + Multifunction Metering + TOU + Demands + THD
Input Current	
A	20A (80A); Direct Input
B	10A (40A); Direct Input
C	5A (20A); Direct Input
Input Voltage	
3	240VLN
System Frequency	
5	50Hz
6	60Hz
DI/DO	
A#	1 SS Pulse Output + 1 Pulse Per Second
Communications	
X	None
A#	1 RS-485 Port
Display Language	
E	English
PMC-310 B - B 3 5 A A E	PMC-310B-B35AAE (Standard Model)

* Standard Configuration

Dimensions and Installation



Contact us



EcoXplore PTE LTD
120 LOWER DELTA ROAD #/12-16
CENDEX CENTRE
SINGAPORE 169208
TEL: (65) 6274 4840
FAX: (65) 6274 2939
EMAIL: SALES@ECOXPLORE.COM

WWW.ECOXPLORE.COM