

# Digital Three-Phase Energy Meter



The PMC-330 Digital Three-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 display with automatic scrolling. The PMC-330 optionally provides two Digital Inputs for status monitoring and two Digital Outputs for alarming and remote control. The PMC-330 complies with the IEC 62053-21 Class 1 kWh Accuracy Standard. When equipped with the standard RS485 port and Modbus protocol support, the PMC-330 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
- Substation, building and factory automation
- Sub-metering
- Power quality monitoring

### Features Summary

#### Ease of use

- Easy to read LCD with automatic scrolling capability
- Five LED indicators – L1, L2, L3, energy pulsing and reverse indication
- Simple, password-protected setup via front panel or free PMC Setup software
- Easy installation with DIN rail mounting, no tools required
- 3-phase power supply, no external control power required
- Direct Input up to 80A without external CT

#### Basic Measurements

- Bi-directional and per-phase energy measurements
- 3-phase voltage, current and power measurements
- 12 monthly Energy recording of kWh, kvarh Import / Export / Net / Total and kVAh Total
- TOU tariff metering with 4 tariff rates, 6 seasons, 1 daily profile
- kW Total, kvar Total, kVA Total and Per Phase Current Demands

#### Power Quality

- Voltage and Current Unbalance
- THD, TOHD, TEHD and K-Factor

#### Max/Min Log

- Voltage, Current, Frequency, kW, kvar, kVA of this/last month
- Peak Demands of this/last month

#### SOE Log

- 64 events at 1ms timestamp
- Setup changes, Setpoint events and I/O operations

#### Setpoints

- 8 user programmable setpoints
- Configurable thresholds and time delays
- DO triggers

#### Digital Inputs

- 2 channels for external status monitoring
- Self-excited, internally wetted at 24VDC

#### Digital Outputs

- 2 channels for alarming or remote control, Form A Mechanical Relay

### 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 19200bps
- Modbus RTU protocol

### Real-time Clock

- Battery-backed real-time clock @ 6ppm
- Clock error ≤ 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

### Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.01V
Current	±0.5%	0.001A
kW, kvar, kVA	±1%	0.001kW/kvar/kVA
kWh, kVAh	IEC 62053-21 Class 1 for Direct Inputs	0.1kWh
	IEC 62053-22 Class 0.5S for 5A CT Inputs	
kvarh	IEC 62053-23 Class 2	0.1kvarh
P.F.	±1%	0.001
Frequency	±0.02Hz	0.01Hz
Harmonics	IEC 61000-4-7 Class B	0.1%
K-Factor	IEC 61000-4-7 Class B	0.1

### Features and Options

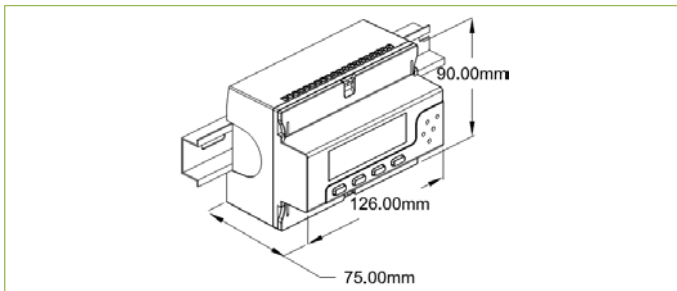
Features and Options	PMC-330 Models			
	Power, Energy and Demand	A	B	C
VLN/VLL per phase and Avg		▪	▪	
Current per phase and Avg		▪	▪	
kW/ kvar/ kVA per phase and Total		▪	▪	
PF per phase and Total		▪	▪	
Frequency		▪	▪	
kWh Imp, Exp, Net, Total	▪	▪	▪	
kvarh Imp, Exp, Net, Total	▪	▪	▪	
kVAh Total	▪	▪	▪	
kWh, kvarh and kVAh for 12 months	▪	▪	▪	
4-Quadrant kvarh		▪	▪	
TOU Tariff Metering		▪	▪	
kW, kvar, kVA, Ia, Ib, and Ic Demands		▪	▪	
<b>Power Quality</b>				
Voltage and Current Unbalance			▪	
THD, TOHD, TEHD and K-Factor			▪	
<b>Logging and Setpoint</b>				
Max/Min & Peak Demands Recording			▪	
SOE Log			▪	
Setpoint			▪	
<b>Inputs and Outputs</b>				
DI	2*	2*	2*	
DO (Mechanical)	2*	2*	2*	
Pulse Output (Solid State)	1*	1*	1*	
PPS (Solid State)	1*	1*	1*	
LED Pulse Output	1	1	1	
<b>Communications</b>				
RS-485 Port	1*	1	1	

▪ Standard \* Optional

**Technical Specifications**

Inputs (L1, L2, L3, N)	
Voltage (Vn)	240VLN/415VLL 0.8 to 1.1 Vn
Current (In/Imax)	5A/20A, 10A/40A, 20A/80A direct input (0.1% Imax to Imax) CT Input at 5A/6A (0.1% In to Imax)
Frequency	50/60Hz
Power Supply	3-phase power supply from 0.7 to 1.2 Vn
Digital Inputs (DI1, DI2, DIC)	
Type	Dry contact, 24VDC internally wetted
Pulse width	20ms
Digital Outputs (DO11, DO12, DO21, DO22)	
Type	Form A Mechanical Relay
Loading	5A @ 250VAC / 30VDC
Solid State Energy Pulse Output (Selectable - kWh/kvarh)	
Pulse constant	5000/3200/1000/400/100
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

**Dimensions and Installation**



**Ordering Information**

Product Code	Description
PMC-330	Digital Three-Phase Energy Meter
Basic Function	
A	Bi-directional Energy Metering + Energy Data for 12 Months
B	Model A + Multifunction Metering + TOU + Demands
C	Model B + THD + Setpoint + Max/Min + Peak Demands + SOE
Input Current	
A	20A (80A); Direct Input
B	10A (40A); Direct Input
C	5A (20A); Direct Input
D	5A (6A); CT Input
Input Voltage	
3	240VLN/415VLL
System Frequency	
5	50Hz
6	60Hz
DI/DO	
A	1 SS Pulse Output + 1 Pulse Per Second
B*	2 DO + 2 DI
Communications	
X	None
A*	1 RS-485 Port
Display Language	
E	English
PMC-330 C - D 3 5 B A E	PMC-330C-D35BAE (Standard Model)

**Standards of Compliance**

Safety Requirements		
CE LVD 2006/95/EC		EN61010-1-1-2001
Insulation		IEC 60255-5-2000
Dielectric test: 2kV @ 1 minute		
Insulation resistance: >100MΩ		
Impulse voltage: 5kV, 1.2/50μs		
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: 2000
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

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