






# PMC-512-A

## AC Multi-Circuit Power Monitor

-  Data Center and Telecom Base Station PDUs
-  Industrial and Commercial Distribution Boards
-  Other High-Density, Multi-Circuit Monitoring Applications

## Product Introduction

**PMC-512-A** is CET's latest offer for the economical multi-circuit monitoring of Data Centers, Telecom Base Stations, Industrial & Commercial Buildings. Housed in a compact DIN Rail Mount enclosure, the PMC-512-A is perfectly suited for high-density metering applications. The PMC-512-A features quality construction with multifunction and high-accuracy measurements with an optional color touch-screen HMI that supports up to 16 devices simultaneously over a RS-485 network. The PMC-512-A comes standard with 12xDIs for status monitoring, 1xDO for control or alarming as well as 1xAI for temperature measurement or other analogue input applications. The standard SOE Log records all setup changes, alarms and DI/DO operations in 1ms resolution. With dual RS-485 as standard feature supporting Modbus RTU, the PMC-512-A can easily be deployed in a stand-alone system with its Touch Screen HMI or simultaneously with a centralized monitoring and control system for an AC power distribution network.

- Class 0.5S Accuracy for Energy Measurements
- Built-in LCD display
- Optional support for 7" Touch-Screen HMI
- Compact, DIN Rail Mount for easy installation

## Feature Highlights



Multi-Circuit Monitoring



Embedded Data Recording



Alarming

- 12x1-Ø or 4x3-Ø Sub-Meters (SM)
- 4xVirtual Meters (VM) for the arbitrary aggregation of SMS
- 12xDigital Inputs for Trip Status monitoring
- 1xDO for Alarming or Control
- 1xAI (0-20mA)

- 4MB Log memory
- Up to 60 parameters at min. 1-minute recording interval for 5,000 logs with timestamps
- Non-volatile storage for data redundancy in the event of networking error

- 4 Alarm Levels for Voltage, Current and AI
- Frequency, Unbalance, DI, Phase Reversal & Phase Loss Alarms
- Programmable Digital Output Trigger
- Facilitate comprehensive monitoring and alarming for Mains & Branch Circuits

## Basic Features

### Measurements

- Class 0.5S Accuracy for Energy measurements
- 1-Ø SM: Voltage, Current, Phase Angle, Frequency, Loading Factor, kW, kvar, kVA, PF, kWh, kvarh Import/Export, KVAh
- 3-Ø SM: VLN & VLL per phase and average, I per Phase and average, Unbalance, Phase Angles, Frequency, kW, kvar, kVA, PF per phase and total, kWh, kvarh Import/Export, KVAh Total
- VM: kW, kvar, kVA Total, kWh, kvarh Import/Export, KVAh Total

### Inputs & Outputs

- 12xDI with external excitation @ 48VDC
- 1xDO, mechanical relay @ 250VAC/5A or 30VDC/5A
- 1xAI, 0-20mA

### Demand Measurements

- 1-Ø SM: Current, kW, kvar, kVA
- 3-Ø SM and VM: kW, kvar, kVA Total
- Max. Demands for This Month and Last Month
- Ability to reset any Max. Demands

### Data Recording

- 4MB Log memory
- Up to 60 parameters @ min. 1-min recording interval for 5,000 logs with timestamps
- 24 Monthly Energy Logs
  - 1-Ø SM, 3-Ø SM and VM: kWh, kvarh Import/Export & kVAh
- 1,000 Daily Freeze Logs
  - 1-Ø SM: Current, kW, kvar, kVA, kWh, kvarh Import/Export & kVAh
  - 3-Ø SM and VM: kW, kvar, kVA Total, kWh, kvarh Import/Export & kVAh

### SOE

- 512 events time-stamped to ±1ms resolution
- DI/DO changes, Alarms, Setup changes, Self-Diagnosis

### Power Quality

- THD, TOHD, TEHD
- Individual Harmonics up to 31<sup>st</sup>
- U and I Unbalance

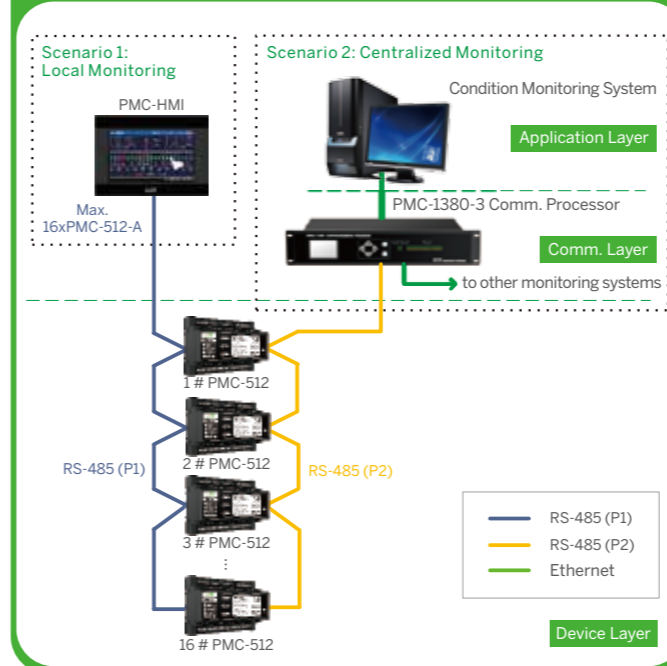
### Communications

- 2xRS-485, Modbus RTU protocol
- Baud rate @ 1,200 to 57,600 bps

## Communication and Networking

### Typical Applications

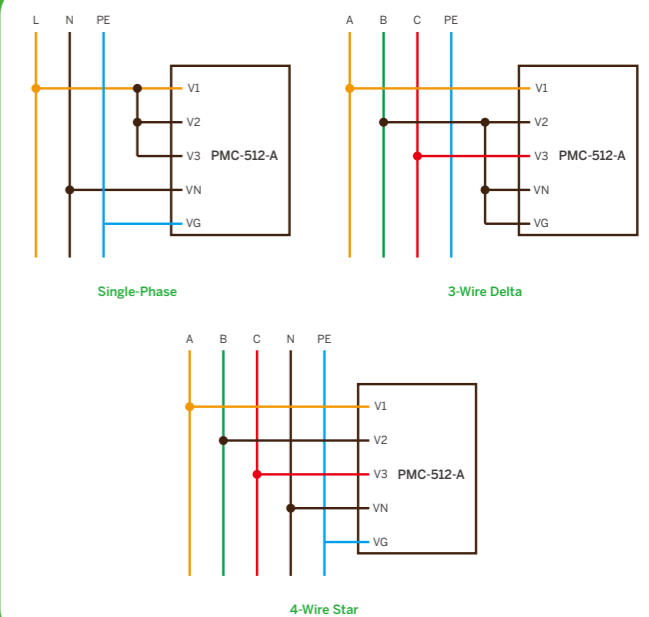
Two RS-485 ports @ max. 57,600 bps with Modbus RTU



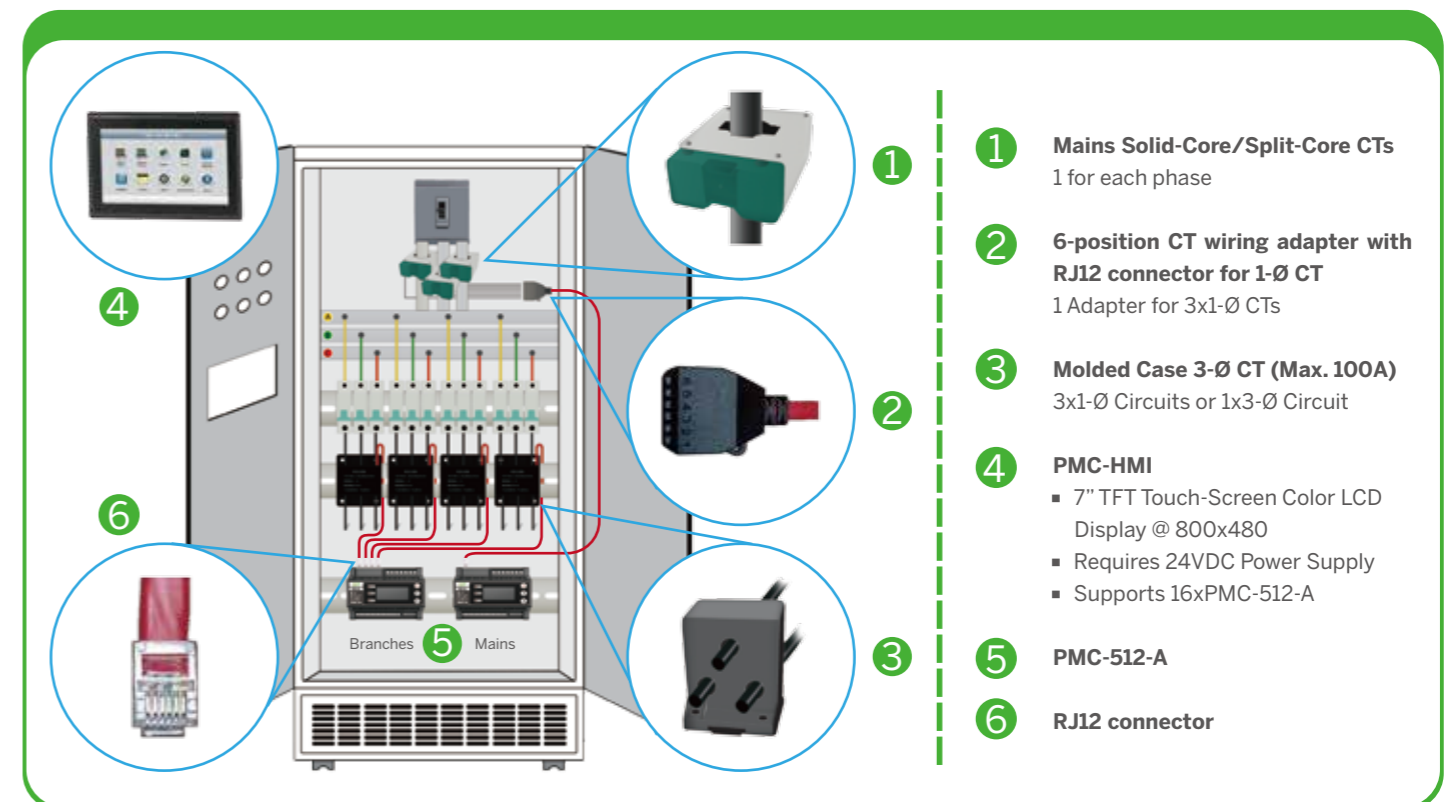
## Wiring

### Wiring of PMC-512-A

Single-Phase, 3-Wire Delta, 4-Wire Star



## Overall Setup



# Technical Specifications

## Power Supply

48VDC Power Supply	20-60VDC ±10%, <2W
240V Power Supply	95-250VAC 47-440Hz, <2W

## AC Voltage & Current

Voltage Input		Un=240VLN/415VLL, Range=10-520V
Current Input	Solid Core	100A/40mA Molded Case CT (3-phase)
		250A/40mA Solid Core CT (1-phase)
		400A/40mA Solid Core CT (1-phase)
	Split Core	5A/1.6mA SCCT (1-phase)
		100A/40mA SCCT (1-phase)
		200A/40mA SCCT (1-phase)
		400A/40mA SCCT (1-phase)
		800A/40mA SCCT (1-phase)

## Accuracy

Voltage / Current	±0.2%
kW / kvar / kVA	±0.5%
kWh, kVAh	0.5S
kvarh	Class 2
P.F.	±1.0%
Frequency	±0.02Hz

## Input & Output

Digital Input	12xDI, 48VDC External Excitation
Digital Output	1xDO, Normally Open, 250VAC/5A or 30VDC/5A
Analog Input	1xAI, 4-20mA

## Communications

RS-485	2xRS-485, Modbus protocol, 1,200-57,600 bps
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## Environmental Conditions

Operating Temp.	-25°C to 70°C
Storage Temp.	-40°C to 85°C
Humidity	5% to 98% (non-condensing)
Atmospheric Pressure	70kPa to 106kPa
Altitude	≤4,000m

## Mechanical Tests

Vibration Test	Response	IEC 60255-21-1: 1988 Level I
	Endurance	IEC 60255-21-1: 1988 Level I
Shock Test	Response	IEC 60255-21-2: 1988 Level I
	Endurance	IEC 60255-21-2: 1988 Level I
Bump Test		IEC 60255-21-2: 1988 Level I

# Safety Standards

## Safety Requirements

CE LVD 2014 / 35 / EU		EN 61010-1: 2010, EN 61010-2-030: 2010
Electrical safety in low voltage distribution systems up to 1,000VAC and 1,500VDC		IEC 61557-12: 2008
Insulation	Dielectric test:	2kV @ 1 minute
	Insulation resistance:	>100MΩ
	Impulse voltage:	6kV, 1.2/50μs
		IEC 60255-5: 2000

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# EMC Compatibility

CE EMC Directive 2014/30/EU (EN 61326: 2013)

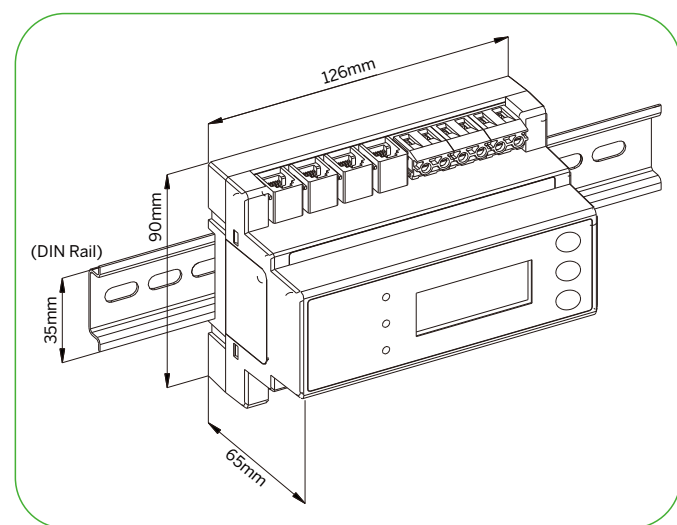
## Immunity Tests

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: 2006
Conducted Disturbances	EN 61000-4-6: 2009
Magnetic Fields	EN 61000-4-8: 2010
Oscillatory Waves	EN 61000-4-12: 2006

## Emission Tests

Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment	EN 55011: 2009+A1: 2010 (CISPR 11)
Limits and methods of measurement of radio disturbance characteristics of information technology equipment	EN 55022: 2010+AC: 2011 (CISPR 22)
Limits for harmonic current emissions for equipment with rated current ≤16 A	EN 61000-3-2: 2014
Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤16 A	EN 61000-3-3: 2013
Emission standard for industrial environments	EN 61000-6-4: 2007+A1: 2011
Testing and measurement techniques - Ring wave immunity test	EN 61000-4-12: 2006

# Dimensions



Your Local Representative

