

PMC-512-J

DC Multi-Circuit Insulation Monitor

- Data Center DC Distribution Boards
- Renewal Energy Applications

Product Introduction

PMC-512-J is CET's latest offer for a compact, multi-circuit insulation monitor for Data Center PDU and Renewable Energy applications. The PMC-512-J features quality construction, high-accuracy Residual Current measurements and Insulation Resistance calculation, Alarming and Data Logging with an optional color touch-screen HMI. The PMC-512-J comes standard with 2xDigital Inputs for status monitoring, 2xRelay Outputs for control or alarming as well as 1xAnalogue Input for auxiliary measurements. The standard SOE Log records all setup changes, alarms and DI/DO operations in 1ms resolution. With dual RS-485 and Modbus RTU support, the PMC-512-J can easily be deployed in a stand-alone system with its optional Touch-Screen HMI or simultaneously with a centralized condition monitoring system such as CET's PecStar® iEMS Integrated Energy Management System.

- 21 channels of Residual Current measurements with calculated Insulation Resistance
- 4MB Log memory, up to 48 parameters for 5,000 logs with timestamps
- 512 events time-stamped to ±1ms resolution

Feature Highlights



Multi-Circuit Monitoring

- 21 Residual Current measurements with calculated Insulation Resistance



Embedded Data Recording

- 4MB Log memory
- Up to 48 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



Alarming

- 2 Alarm Levels for Mains Voltage, Residual Current and Insulation Resistance
- 4 Alarm Levels for AI measurement
- Status Input Alarm
- Programmable Digital Output Trigger

Basic Features

Measurements

- Mains Voltage: V+ & V- to Ground DC Voltage
  V+ & V- to Ground AC Injection Voltage
- Voltage measurement: 0.2%
- Residual Current measurement: 1%
- Insulation Resistance (calculated):
  Mains Circuit: 10 to 60kΩ @ ±5%;
  60 to 200kΩ @ ±10%,
  Branch Circuits: 10 to 50kΩ @ ±15%;
  50 to 100kΩ @ ±25%

Data Recording

- 4MB Log memory
- Up to 48 parameters at min. 1-minute recording interval for 5,000 logs with timestamps

Inputs & Outputs

- 2xDI, self excitation @ 24VDC
- 2xDO, mechanical relay output @ 250VAC/5A or 30VDC/5A
- 1xAI, 0-20mA

SOE

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

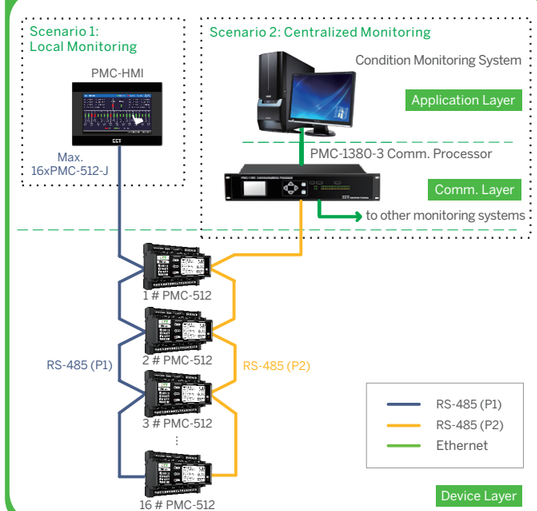
Communications

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

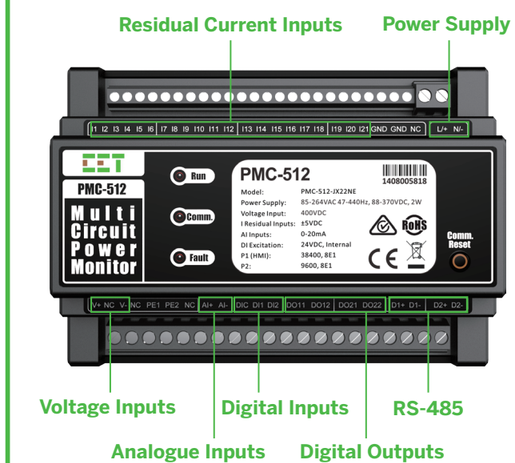
Communication and Networking

Typical Applications

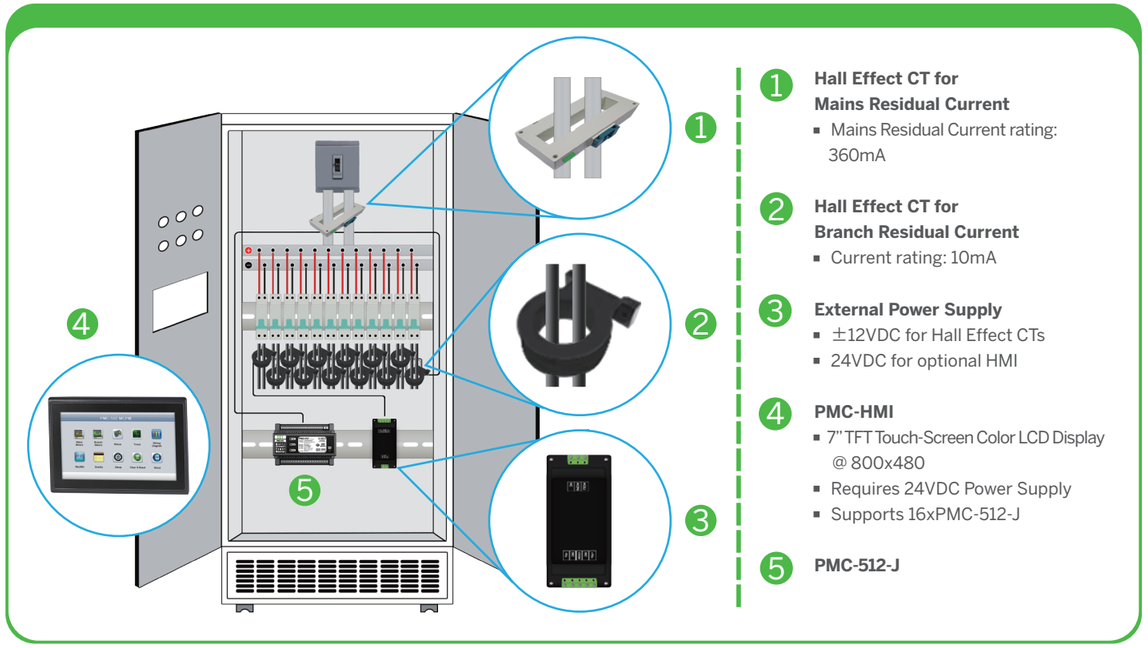
Two RS-485 ports @ max. 57,600 bps with Modbus RTU



PMC-512-J Terminals



Overall Setup



1. **Hall Effect CT for Mains Residual Current**
   - Mains Residual Current rating: 360mA
2. **Hall Effect CT for Branch Residual Current**
   - Current rating: 10mA
3. **External Power Supply**
   - ±12VDC for Hall Effect CTs
   - 24VDC for optional HMI
4. **PMC-HMI**
   - 7" TFT Touch-Screen Color LCD Display @ 800x480
   - Requires 24VDC Power Supply
   - Supports 16xPMC-512-J
5. **PMC-512-J**

Technical Specifications

Power Supply

48VDC Power Supply	20-60VDC±10%, <2W
240V Power Supply	85-264VAC 47-440Hz, 88-370VDC, <2W

Voltage & Current

Voltage Input	240VDC	Un=400VDC, Range: 0.05xUn-1.2Un
	Burden	<0.05VA/circuit @ 240VDC
	Overload	1.2xUn continuous, 2xUn for 30s
Residual Current Input	No. of Channels	21
	Hall Effect CT	Input: 300mA (Mains), 10mA (Branch Circuits) Range: 1% to 120% In Output: ±5VDC
	Burden	<0.1W
	Overload	1.2xIn continuous, 2xIn for 10s

Accuracy

Voltage		±0.2%
Residual Current		±1.0%
Insulation Resistance	Mains Circuit	10-60kΩ: ±5%, 60-200kΩ: ±10%
	Branch Circuits	10-50kΩ: ±15%, 50-100kΩ: ±25%
Analog Input		±0.5%

Input & Output

Digital Input	2xDI, 24VDC Self Excitation
Digital Output	2xDO, Normally Open, 250VAC/5A or 30VDC/5A
Analog Input	1xAI, 0-20mA

Communications

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

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	≤3,000m

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

EMC Compatibility

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

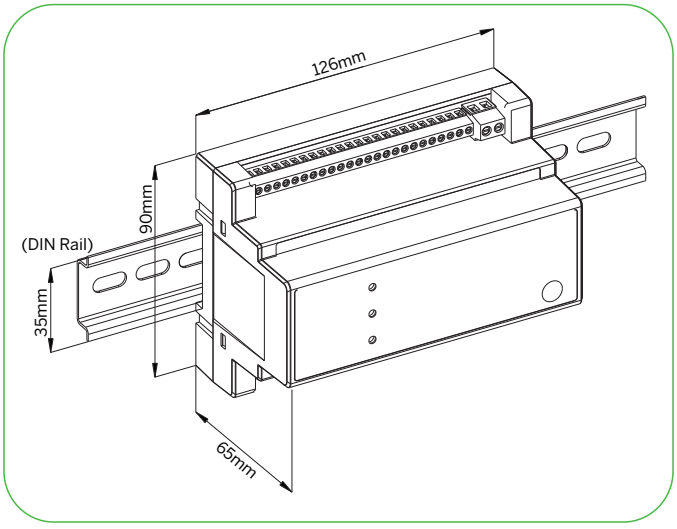
Immunity Tests

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



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