CET Electric Technology

PMC-352-D
DIN-Rail DC Energy Meter

The PMC-352-D DIN-Rail DC Energy Meter is CET's latest offer for the low-cost DC metering market. Designed in a compact DIN form factor measuring 36x65x90mm, it is perfect for DC metering application in a space-limited environment. The PMC-352-D comes standard with 3xCurrent Inputs, 4xNTC Inputs for temperature monitoring and 3xDI for status monitoring. It also optionally provides 1xIresidual Input for Residual Current measurement. The standard SOE Log records meter events such as power-off, setup changes and DI operations in 1ms resolution. With a standard RS-485 port and optional LoRa supporting the Modbus RTU protocol, the PMC-352-D becomes a vital component of an intelligent, wireless, multifunction monitoring solution for any DC Power and Energy Management systems.

Typical Applications

- DC Inverter, DC Panel Metering and DC Charging Station
- Industrial and commercial DC metering
- DC Distribution Monitoring and Data Center
- Wireless Energy & Condition Monitoring of DC Charging Stations

Features Summary

Ease of use

- Easy installation with DIN Rail mounting, no tools required
- Simple commissioning and low-deployment cost with Solid Core & Split Core Hall Effect Sensors and optional wireless IoT communication

Basic Measurements

- 1xDC Voltage Input and 3xDC Current Inputs
- 3xDC Sub-Meters (SM), each with Current, kW, kWh, Current and kW Demand

Setpoints

- 10 user programmable Setpoints with extensive list of monitoring parameters including Current, kW and kW Total, Temperature, Residual Current and Demand measurements
- Configurable thresholds and time delays

SOE Log

- 16 events time-stamped to ±1ms resolution
- Setup changes, Setpoint Alarms, DI Status changes, Clear Actions, etc.

I/O

- 3xDI for Status Monitoring
- 4xNTC Inputs for Temperature Monitoring (sensor not included)
- Optional 1xIresidual Input for Residual Current Measurement

Communications

- Optically isolated RS-485 port at 1,200 to 38,400 bps
- Optional LoRa* @ 860-935 MHz, configurable for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925

*The LoRa option will be supported in the future.

System Integration

- Supported by our PecStar® iEMS and PMC EasyConfig
- Easy integration into other Automation or SCADA systems via Modbus RTU protocol or IoT based Energy Management System via LoRa

Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.001V
Current	±0.5% + Error of Hall Effect Sensor	0.001A
kW	±1.0%	0.001kW
kWh	IEC 62053-41: 2021 Class 1	0.01kWh
Residual Current	±0.5% + Error of Hall Effect Sensor	0.1mA
Temperature	±1°C	0.1°C

Technical Specifications

Voltage Inputs (V+, V-)	
Voltage (Un)	240VDC
Range	100 to 400 VDC
Starting Voltage	100V
Overload	400V continuous
Current Inputs (HALL)	
Current (In)	
Split Core Hall Sensor	20A/50A/100A/400A/600A/1000A
Solid Core Hall Sensor	100A
Range	0.8% to 100% In
Overload	1.2xIn continuous, 10xIn for 1s
Starting Current	0.8% In
Burden	< 2W
Hall Sensor Output	± 4V (Bi-directional Current Measurement)
Power Supply (Self-Powered via Voltage Input)	
Nominal Voltage	240VDC
Range	100 to 400VDC
Burden	< 3W
Digital Inputs (DI1, DI2, DI3, DIC)	
Type	240VDC Externally Excited
Sampling	1000Hz
Hysteresis	1ms minimum
Residual Current (IR)	
In	50mA/10mA (via Hall Effect Solid Core Residual Current Sensor)
Range	0 to 120% In
Hall Sensor Output	± 5V (Bi-directional Current Measurement)
Temperature Inputs (TC11, TC12, TC21, TC22, TC31, TC32, TC41, TC42)	
Type	2-Wire NTC Input (sensor not included)
Range	-20°C to +140°C
Communications	
RS-485 (Standard)	
Protocol	Modbus RTU
Baud Rate	1200/2400/4800/9600/19200/38400 bps
LoRa (Future)	
RF Range	860-935 MHz (Configurable)
ISM Bands	EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925
RF Output Power	19 dBm (Maximum)
Receiver Sensitivity	-137 dBm (Maximum)
Output Watts	0.03 (Typical)
FCC Part 15C	Certified by TCB
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
Pollution Degree	2
Mechanical Characteristics	
Mounting	DIN Rail
Unit Dimensions	36(W)x65(D)x90(H)mm
IP Rating	IP30

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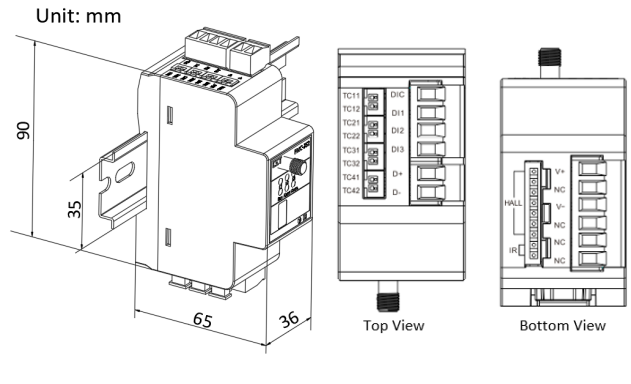
Standards of Compliance

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: 2018
Insulation AC Voltage: Insulation Resistance: Impulse Voltage:	IEC 62052-31: 2015 1.8kV @ 1 minute >100MΩ 6kV, 1.2/50μs
Electromagnetic 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: 2014+A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
Ring Wave	EN 61000-4-12: 2017
Emission Tests	
Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	EN 55011: 2016
Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	EN 55032: 2015
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 Residential, Commercial and Light-Industrial Environments	EN 61000-6-4: 2007+A1: 2011
Mechanical Tests	
Spring Hammer Test	IEC 62052-31: 2015
Vibration Test	IEC 62052-11: 2020
Shock Test	IEC 62052-11: 2020

Dimensions and Installation



Ordering Information

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Version 20240329

Product Code	Description
PMC-352-D DIN-Rail DC Energy Meter	
Basic Function	
A	1xDC Voltage & 3xDC Current Inputs from external Hall Effect Current Sensor @ ±4VDC Output, 4xNTC Inputs, 3xDI, 1xRS-485 and Modbus RTU
Input Voltage	
2	240VDC (100V to 400VDC)
Power Supply	
N	Self-powered from Internal Voltage Inputs
I/O	
A	3xDI @ 240VDC
Residual Current	
N	None
R~	1xIresidual Input, External Hall-Effect Current Sensor @ ±5V Secondary
Communication	
N	None
Language	
E	English

PMC-352-D	-	A	2	N	A	N	N	E	PMC-352-D-A2NANNE (Standard Model)

~Please refer to the Accessories sheet to order the NTC Sensor and Hall Effect Current Sensor for Sub Meter and optional Iresidual.

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PMC-352-D Accessories

Hall Effect Current Sensor for Sub Meter

Model #	Specification/Description	Accuracy	Aperture (mm)
	Split Core Current Sensor		
PMC-DCT-20A-4V-A	Max. 20A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	Ø21.0±0.15
PMC-DCT-50A-4V-A	Max. 50A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	Ø21.0±0.15
PMC-DCT-100A-4V-A	Max. 100A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	Ø41.0±0.50
PMC-DCT-400A-4V-A	Max. 400A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	13x41.5
PMC-DCT-600A-4V-A	Max. 600A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	13x41.5
PMC-DCT-600A-4V-B	Max. 600A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	Ø41.0±0.50
PMC-DCT-1000A-4V-A	Max. 1000A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	99.5x42
PMC-DCT-1000A-4V-B	Max. 1000A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	Ø40.5±0.20
	Solid Core Current Sensor		
PMC-DCT-B-100A-4V-A	Max. 100A DC Input, ±4VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	20x10

Hall Effect Residual Current Sensor

Model #	Specification/Description	Accuracy	Aperture (mm)
PMC-DCT-50mA-5V-B	50mA (Max. 60mA) DC Input, ±5VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	182x38
PMC-DCT-10mA-5V-A	10mA (Max. 12mA) DC Input, ±5VDC Output Signal, Bi-directional Current Measurement	±1.0% f.s.	Ø20.0±0.5

Current Sensor Adaptor

Model #	Specification/Description	Cable Length
PMC-BCC-352D-3	3xSub Meter Current Sensors can be connected through one Adaptor	0.5m
PMC-BCC-352D-4	3xSub Meter and 1xIresidual Current Sensors can be connected through one Adaptor	0.5m

1) Please refer to Cable Length for details and contact the factory in advance for special requirements.
2) The Hall Effect Current Sensor shall be powered by PMC-352-D through the Current Sensor Adaptor, no need for external power supply.
3) The PMC-BCC-352D-4 Adaptor must be selected when Residual Input is equipped.

NTC Conductors

Model #	Specification/Description
NTC-104, 0.3*	1xNTC Sensor with insulated metal protective sleeve and 0.3m cable
NTC-1043, 2	3xNTC-104 Sensor (Yellow, Green & Red) as one set, each with insulated metal protective sleeve and 2m cable
NTC-1044, 2	4xNTC-104 Sensor (Yellow, Green, Red & Black) as one set, each with insulated metal protective sleeve and 2m cable
NTC-104M4, 2	1xNTC Sensor with φ4mm ring connector and 2m cable
NTC-104M10, 1~	1xNTC Sensor with φ10mm ring connector and 2m cable

* We also offer NTC Sensor option with an insulated metal protective sleeve and a choice of 1.5m or 3m cable. Please contact us for any specific requirements.
~ We also offer an NTC Sensor option with Ø10mm ring connector and 2m cable. Please contact us for any specific requirements.

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Your Local Representative

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Designed For Reliability *Manufactured To Last*