



PMC-351

Smart DIN Energy Meter



Overview

PMC-351 Smart DIN Energy Meter is CET's latest offer for the Low Voltage Power/Energy metering market. Equipped with an industrial-grade microprocessor in 1P compact size, it boasts high processing speed and the capability to achieve 64 Samples/Cycle. It provides high-accuracy true RMS measurements of up to two channels of single-phase or three-phase voltage, current, and power, and additionally features rapid refresh response for anti-reverse power flow data. Moreover, the PMC-351 is packed with functions including Demand, Power Quality, Setpoint, SOE as well as Wiring Diagnosis. It supports the connection of Split-Core CT and offers various optional wired and wireless communication modes, including WiFi, Bluetooth, Ethernet and RS-485. Thus, the PMC-351 becomes an ideal component for online monitoring and wireless communication in Balcony/Household PV Energy Storage Systems, Commercial and Industrial Power Systems, as well as Low-Voltage Distribution Systems.

Typical Applications

- Balcony PV Energy Storage System
- Residential PV Energy Storage System
- Residential Multi-Inverter AC Coupling System
- Industrial and Commercial Power System
- AC Medium-and-Low Voltage Distribution System

Features Summary

Ease of use

- Easy installation with DIN Rail mounting, no tools required
- Simple commissioning and low-deployment cost with Split-Core CT and wireless communications
- Press-Fit plug-in terminals and antenna plug-in interfaces simplify construction and wiring

Basic Measurements (Refresh cycle: 1s)

- 1- Φ SMs (1- Φ SM option)
 - Voltage and Frequency
 - I, I Angle, P/Q/S, PF, Fundamental PF/P and Harmonic P for SM1 and/or SM2
 - kWh/kvarh Import/Export/Net/Total, kVAh and kvarh Q1-Q4 for SM1 and/or SM2
 - Present Demands for Current and P/Q/S
 - Device Operating Time (Running Hours)
- 3- Φ SMs (3- Φ SM option)
 - ULN, ULL per Phase and Average and Frequency
 - I per Phase and Average, I_n (calculated) for SM1 and/or SM2
 - P/Q/S and PF per Phase and Total for SM1 and/or SM2
 - U and I Phase Angles
 - Fundamental P/PF per Phase and Total, and Total Harmonic P for SM1 and/or SM2
 - 3-phase and Per-phase kWh/kvarh Import/Export/Net/Total, kVAh Total and kvarh Q1-Q4 for SM1 and/or SM2
 - Present Demands for per Phase Current and P/Q/S
 - Device Operating Time (Running Hours)

High-Speed Measurements (Refresh cycle: <100ms)

- 1- Φ SMs (1- Φ SM option)
 - Voltage and Frequency
 - I, P/Q/S, PF for SM1 and/or SM2
- 3- Φ SMs (3- Φ SM option)
 - ULN, ULL per Phase and Frequency
 - I per Phase, P/Q/S and PF per Phase and Total

Setpoints

- 10 user programmable Setpoints with extensive list of monitoring parameters including Voltage, Current, Frequency, Power and THD, Unbalance, Phase Reversal, Demands for SM1 and/or SM2, etc.
- Configurable thresholds, time delays and parameters

SOE Log

- 16 events time-stamped to ± 1 ms resolution
- Setup changes, Setpoint, Clear actions, etc.

Smart DIN Energy Meter

Anti-Reverse Power Flow

- High sampling rate of power and current measurements, and communicates with energy storage systems to achieve the anti-reverse power flow function
- Response Time RS-485 @ 50ms and Wi-Fi @100ms

Enhanced Measurements

- 1- Φ SMs (1- Φ SM option)
 - K-Factor and Crest Factor for Current
 - U and I THD, TOHD, TEHD and Individual Harmonics up to 31st
- 3- Φ SMs (3- Φ SM option)
 - K-Factor and Crest Factor for Current
 - U and I Unbalance, Components (Zero, Positive and Negative Sequence)
 - U and I THD, TOHD, TEHD and Individual Harmonics up to 31st

Built-in Web Interface

- Access Point (AP) and Station Access (STA) Modes
- Support access to data, network configuration and parameters setup via local PC or Mobile

Diagnostics

- Frequency Out-of-Range, Loss of Voltage / Current
- P Direction per Phase and Total
- Incorrect U & I Phase Sequence

Communications

- Optically isolated RS-485 port at 1.2 to 38.4 kbps, supporting Modbus RTU
- 1 optional Ethernet Port with Modbus TCP support #
- Optional Wi-Fi-enabled (2412-2484MHz) with AP/STA dual modes, supporting RPC protocol
- Optional Bluetooth (2402-2480MHz) connects to 3rd party Mobile Apps, supporting Modbus RTU

System Integration

- Supported by our PecStar® iEMS and free configuration software
- Easy integration into other Automation or SCADA systems via Modbus RTU/TCP protocol and various wireless communication modes

Official release for Expansion Communication Option "WBE" with an Ethernet Port is scheduled for Q4 2026.

Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.01V
Current	±0.5%	0.001A
P, Q, S	±1.0%	0.001kW/ kvar/kVA
kWh	IEC 62053-21:2020 Class 1	0.01kWh
kvarh	IEC 62053-24: 2020 Class 1	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz
THD	IEC 61000-4-7 Class II	0.01%

Technical Specifications

Voltage Inputs (L, N or L1, L2, L3, N)

Voltage (Un)	1- Φ SM	3- Φ SM
	230VLN	230VLN/400VLL
Range (V)	90V-276VAC	
Burden	<0.02VA/phase	
Overload	1.2xUn continuous, 2xUn for 1s	
Frequency	45-65Hz	

Current Inputs (CT or CT1, CT2)

Current (In)	40mA
Range	5%-120%In
Starting Current	0.08A
External 3-Φ SM SCCT	
Model	PMC-SCCT-100A-40mA-16-B
Accuracy	0.5
Aperture	Ø16mm
Cable Length	1m
External 1-Φ SM SCCT	
Model	PMC-SCCT-50A-40mA-16-A PMC-SCCT-100A-40mA-16-A PMC-SCCT-200A-40mA-24-A PMC-SCCT-400A-40mA-35-A PMC-SCCT-800A-40mA-A PMC-SCCT-1600A-40mA-A
Accuracy	0.5
Aperture	Ø16/Ø16/Ø24/Ø35/80*50/130*55 mm
Cable Length	2m
Burden	<0.15VA/phase
Overload	1.2xIn continuous, 10xIn for 10s, 20xIn for 1s

Power Supply

Standard	90-276VAC, Self-Powered via Uan (U1) ~
Burden	<3W

Communications

RS-485 (Standard)	
Protocol	Modbus RTU
Baud Rate	1.2/2.4/4.8/9.6/19.2/38.4 kbps
Ethernet (Optional) #	
Protocol	Modbus TCP
Speed	10/100 Mbps
Wi-Fi (Optional)	
Protocol	RPC
RF Range	2412-2484 MHz
Bluetooth (Optional)	
Protocol	Modbus RTU
RF Range	2402-2480 MHz

Environmental Conditions

Operating Temp.	-30°C to + 70°C
Storage Temp.	-40°C to + 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	80 kPa to 106 kPa
Pollution Degree	2

Mechanical Characteristics

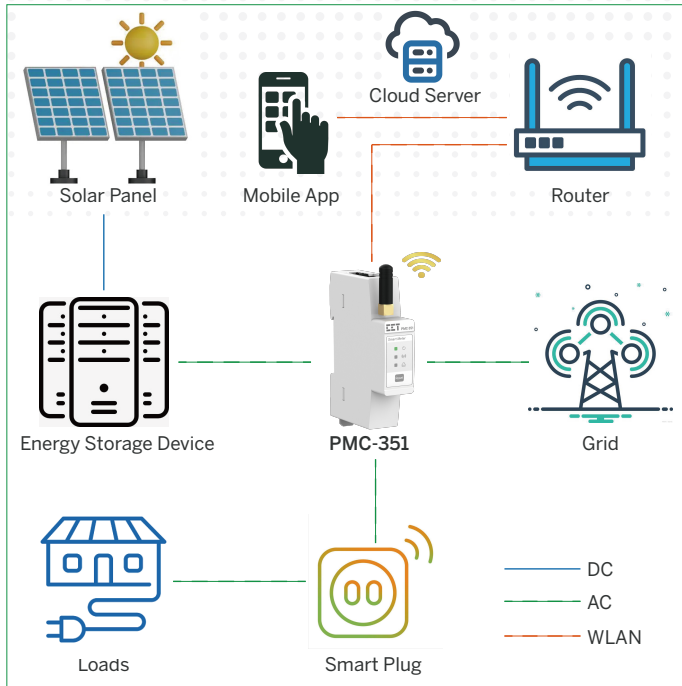
Mounting	DIN Rail
Unit Dimensions	20x66x90 mm
IP Rating	IP30

~ When the 1- Φ SMs option is selected, the device is powered by L/+ and N/-. When the 3- Φ SMs option is selected, it is powered by L1/+ and N/-.

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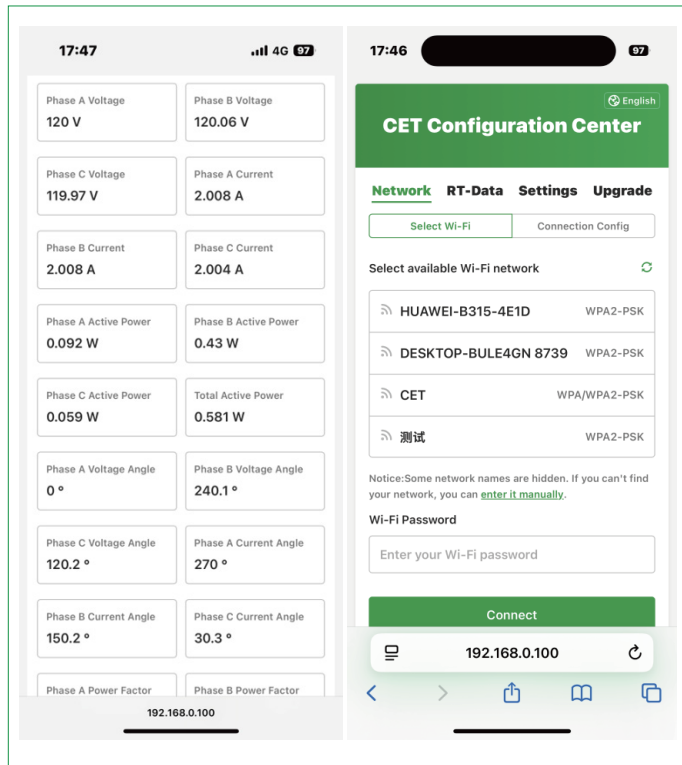
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Application Diagram

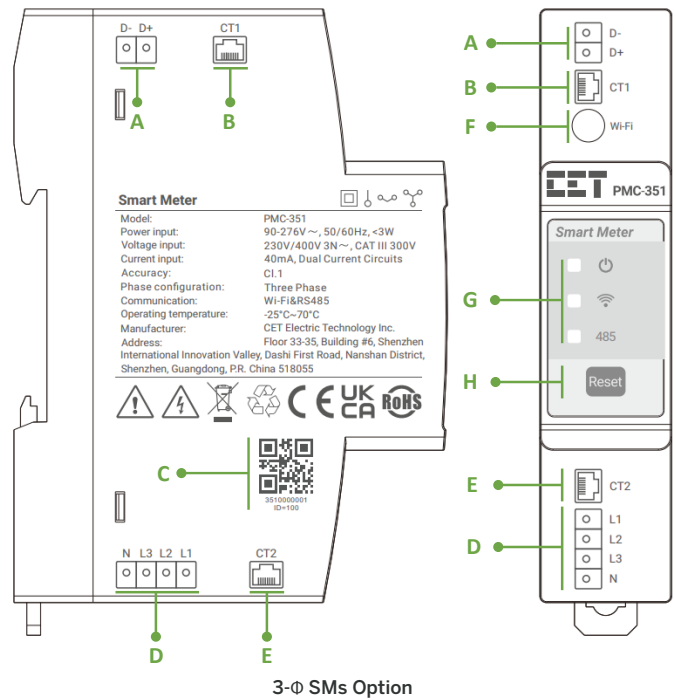
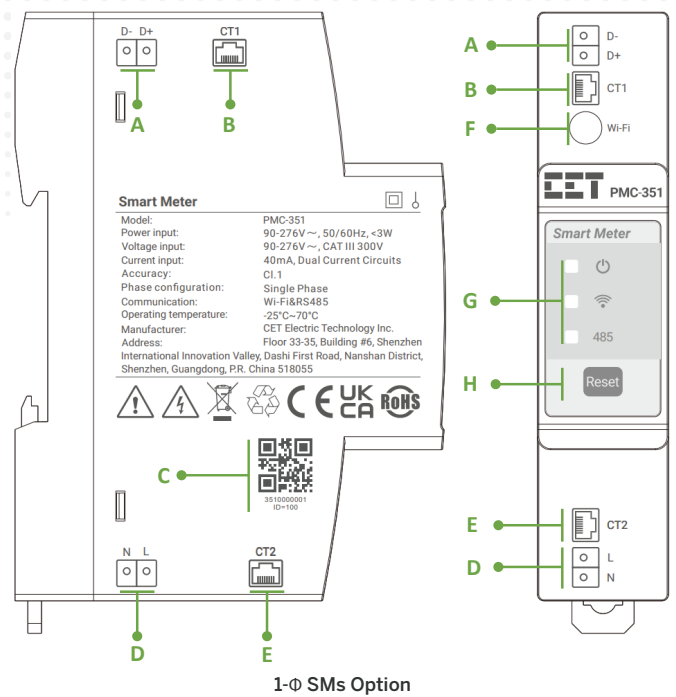


Note: The Mobile APP pictured above refers to a third-party APP, such as those provided by ESS manufacturers. The user pairs with the PMC-351 via Bluetooth using this APP and sends the local Wi-Fi credentials. After the PMC-351 joins the network, the app communicates with it over Wi-Fi for real-time monitoring.

Web Interface



Appearance and Terminals



Area	Description	Area	Description
A	RS-485 Port	E	Optional SM2 Current Input
B	SM1 Current Input	F	Wi-Fi Antenna Interface
C	QR Code	G	LED Indicators (Power supply, Wi-Fi status, RS-485 status)
D	Voltage Inputs	H	Reset Button

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Standards of Compliance

Safety Requirements

CE LVD 2014/35/EU	EN 61010-1: 2010 + A1 BS EN 61010-1: 2010 + A1 EN 61010-2-030: 2021 + A11: 2021 BS EN 61010-2-030: 2021 + A11: 2021
Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500 Vdc	IEC 61557-12: 2021 (PMD)
Insulation	IEC 62052-31: 2015 EN 61010-1: 2010 + A1 BS EN 61010-1: 2010 + A1 2kV @ 1 minute >100MΩ 6kV, 1.2/50μs
AC Voltage Insulation Resistance Impulse Voltage	

Mechanical Tests

Spring Hammer Test	IEC 62052-31: 2015
Vibration Test	IEC 62052-11: 2020
Shock Test	IEC 62052-11: 2020

EMC Compatibility

CE EMC Directive 2014/30/EU (EN IEC 61326-1: 2021)

Immunity Tests

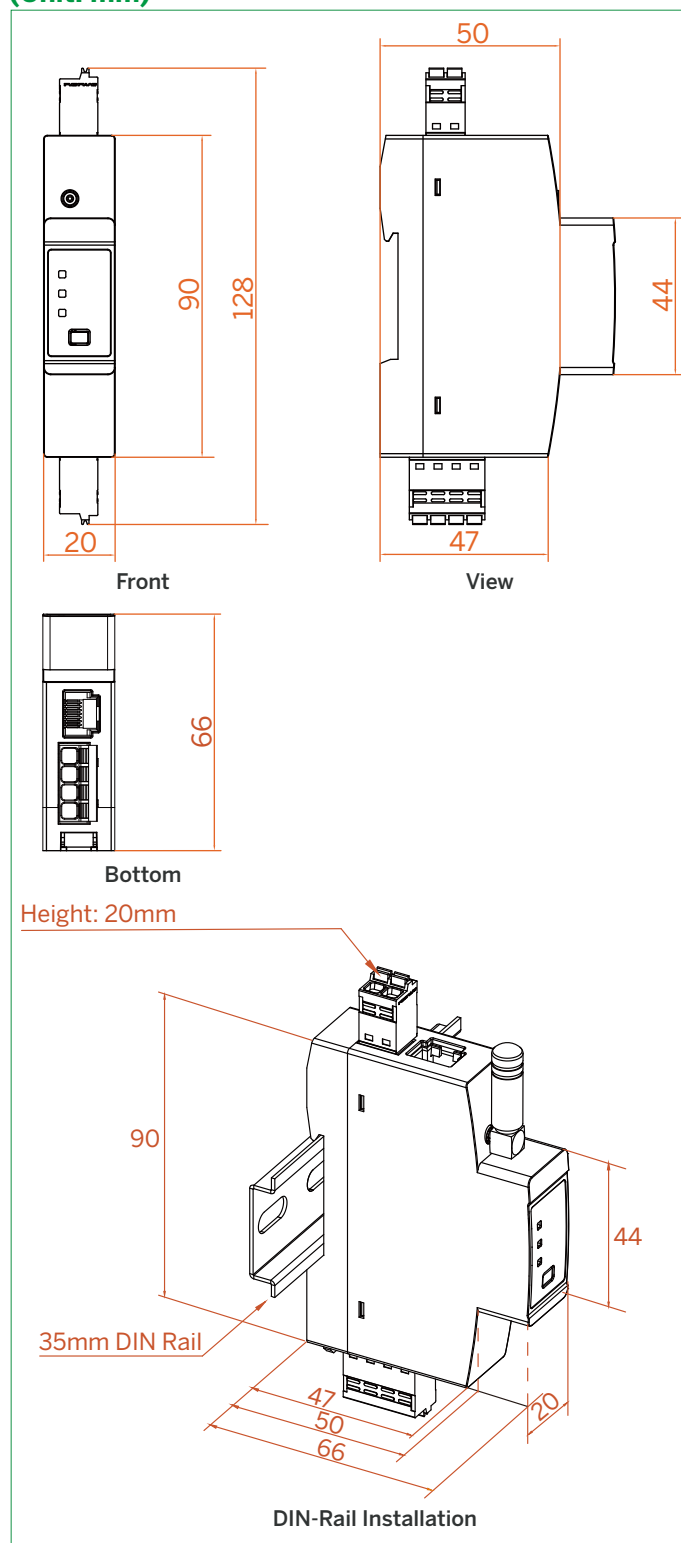
Electrostatic Discharge	EN 61000-4-2: 2009
Radiated Fields	EN IEC 61000-4-3: 2020
Fast Transients	EN 61000-4-4: 2019
Surges	EN 61000-4-5: 2014 + A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014 + AC: 2015
Magnetic Fields	EN 61000-4-8: 2010
Voltage Dips and Interruptions	EN IEC 61000-4-11: 2020
Ring Wave	EN 61000-4-12: 2017
Immunity standard for Residential, Commercial and Light-industrial Environments	EN IEC 61000-6-1: 2019
Immunity Standard for Industrial Environments	EN IEC 61000-6-2: 2019

Emission Tests

Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	EN 55011: 2016 + A1: 2017 + A11: 2020 + A2: 2021
Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements	EN 55032:2015 + AC: 2016 + A11: 2020 + A1: 2020
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤16A	EN IEC 61000-3-2: 2019 + A1 + A2
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤16A	EN 61000-3-3: 2013 + A1: 2019 + A2: 2021
Emission Standard for Equipment in Residential Environments	EN IEC 61000-6-3: 2019
Emission Standard for Industrial Environments	EN IEC 61000-6-4: 2019
Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services; Part 1: Common Technical Requirements	EN 301 489-1 V2.2.3: 2019
Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services	EN 301 489-17 V3.3.1: 2024
Wideband Transmission Systems; Data Transmission Equipment Operating in the 2.4 GHz Band; Harmonized Standard for Access to Radio Spectrum	EN 300 328 V2.2.2: 2019
Assessment of Electronic and Electrical Equipment Related to Human Exposure Restrictions for Electromagnetic Fields (0 Hz to 300 GHz)	EN IEC 62311: 2020

Installation and Dimensions

(Unit: mm)



Accessories



Note: The left-hand magnetic antenna comes as standard. If you need the rubber antenna, please contact CET for details.

Antenna Installation



Ordering Information

Product Code		Description
PMC-351 Smart DIN Energy Meter		
Basic Function	A5	Multifunction Measurements, 1xRS-485
Branch Feeders	1	1x SM (1x1-Φ or 3-Φ Sub-Meters)
	2*	2x SM (2x1-Φ or 3-Φ Sub-Meters)
Input Current	1	1-Phase 40mA Input for use with SCCT
	3*	3-Phase 40mA Inputs for use with SCCTs
Input Voltage	1	230VLN (-60% to +20%), for 1-Phase application
	3*	230VLN/400VLL (-60% to +20%), for 3-Phase application
Power Supply	N	90-276VAC, Self-Powered from Uan (or U1)
Frequency	5	45-65Hz
I/O	N	None
Expansion Comm.	R	1xRS-485
	WBE*	WiFi + Bluetooth + Ethernet
	WBR*	WiFi + Bluetooth + RS-485
Language	E	English
PMC-351 - A5111N5NR E		PMC-351-A5111N5NRE (Standard Model)

* Additional charges apply

- 1) Expansion Communication Option "WBE" is only available with Branch Feeders Option "1" + Input Current Option "3" + Input Voltage Option "3".
- 2) Input Current Option "1" is only available with Input Voltage Option "1", Input Current Option "3" is only available with Input Voltage Option "3"
- 3) Wi-Fi: Supports Wi-Fi 6 (802.11ax) in the 2.4 GHz band (2412-2484 MHz). The device supports concurrent AP and STA modes, facilitating both direct device connections and integration into existing local networks.
Bluetooth: Operates in the 2.4 GHz band (2402-2480 MHz) for seamless pairing and communication with companion mobile apps.
The WiFi AP mode and Bluetooth cannot operate simultaneously.
- 4) Please note that mass production for Expansion Communication Option "WBE" with an Ethernet Port is scheduled for Q4 2026.

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Your Local Representative

V1.0 17.07.2026