

CET



Intelligent Multifunction Meter

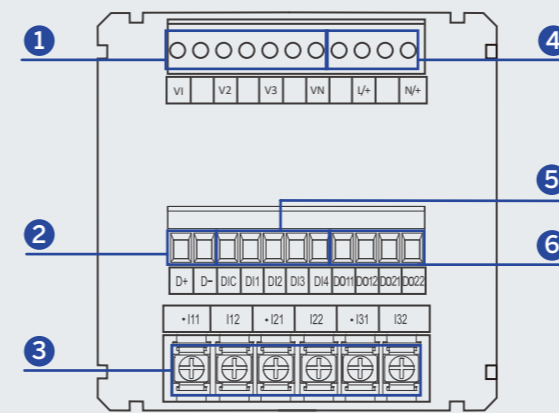
53M-A

PMC-53M-A Intelligent Multifunction Meter

PMC-53M-A Digital Multifunction Meter is CET's latest offer for the lowcost digital power/energy metering market. Housed in a standard DIN form factor measuring 96x96x88mm, it is perfectly suited for industrial, commercial and utility applications. The PMC-53M-A features quality construction, multifunction true RMS measurements and a large, backlit, 7-segment LCD. Compliance with the IEC 62053-22 Class 0.5S Standard, it is a cost effective replacement for analog instrumentation that is capable of displaying 3-phase measurements at once. It optionally provides four Digital Inputs for status monitoring, two Relay Outputs for control and alarm applications. The standard RS-485 port and Modbus RTU protocol support makes the PMC-53M-A a smart metering component of an intelligent, multifunction monitoring solution for any Energy Management System.



- 1 LED Pulse Output
- 2 Enclosure
- 3 Front Panel
- 4 Comm. Indicator
- 5 Units
- 6 Measurements
- 7 Buttons



- 1 Voltage Input
- 2 RS-485
- 3 Current Input
- 4 Power Supply
- 5 Digital Input (Optional)
- 6 Digital Output (Optional)

General

Power Supply	95-250VAC/DC, ±10%
Accuracy Class (kWh)	Class 0.5S
Accuracy for Voltage and Current	±0.2% Reading + 0.05% F.S.
Voltage Input	400ULN/690ULL, Range: 10V to 1.2Un
Current Input	1A/5A, Range: 0.1%-200%In
Humidity Conditions	5% to 95% non-condensing
Operating Temperature (°C)	-25°C to 70°C
Storage Temperature (°C)	-40°C to 85°C
Atmospheric Pressure	70 kPa to 106 kPa
Unit Dimensions/Panel Cutout (mm)	96x96x88 mm / 92x92 mm (3.62"x3.62")
Measurement Category	CAT III up to 600 ULL
True RMS Sampling Rate (samples/cycle)	64
Battery-backed Real-time Clock	25ppm accuracy (<2s per day)
IP Rating	IP65
Display	Backlit, 7-segment LCD Display

Measurements

Voltage (ULN/ULL) (per Phase & Avg.)	✓
Current (per Phase & Avg.)	✓
Neutral Current (Calculated)	✓
Frequency	✓
Phase Angle	✓
PF (True & Displacement)	✓
Operating Time (Running Hours)	✓
Active Power (per Phase & Total)	✓
Reactive Power (per Phase & Total)	✓
Apparent Power (per Phase & Total)	✓
Active Energy	Imp/Exp/Tot/Net
Reactive Energy (4 Quadrant)	Imp/Exp/Tot/Net
Apparent Energy	Total
Max./Min. of Instantaneous Values	With Timestamp
Demand (kW, kvar, KVA, I), Predicted & Peak	With Timestamp
Setpoints	9 (24 parameters for selection)
U/I Fundamental	✓

Power Quality

THD Voltage & Current (per Phase)	✓
TOHD Voltage & Current (per Phase)	✓
TEHD Voltage & Current (per Phase)	✓
Individual Harmonics	2 nd - 31 st
U/I Symmetrical Components	✓ (Via Comm. Only)
K-Factor	✓
Crest Factor	✓
TDD (Odd/Even/Total)	✓
U/I Unbalance	✓

SOE Log

SOE	100 entries
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Communications

Protocol	Modbus RTU
RS-485 Port	1 (max. 38,400 bps)

Input/Output

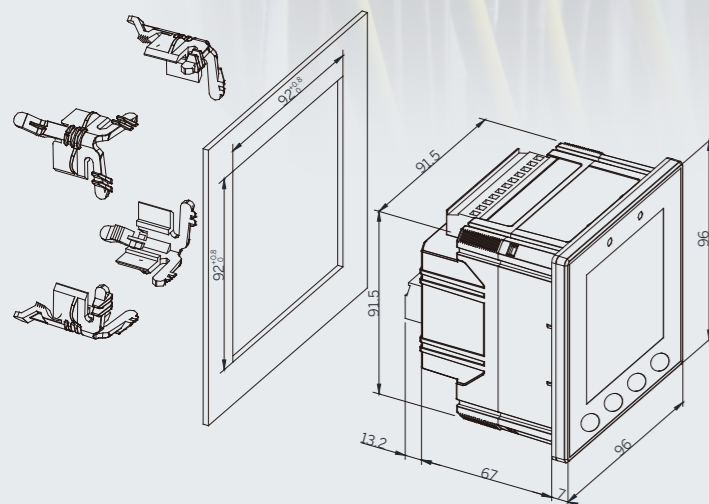
Digital Input (Optional)	4xDI (Dry contact, 24VDC internally wetted)
Digital Output (Optional)	2xDO, 5A @ 250VAC or 30VDC (Form A Mechanical Relay)
kWh & kvarh Pulse Output (LED)	✓
Communication Indicator (LED)	✓

Typical Applications

- Industrial, Commercial and Utility Substation Metering
- Building, Factory and Process Automation
- Sub-metering and Cost Allocation
- Energy Management and Power Quality Monitoring

Dimension

Unit: mm



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2% Reading + 0.05% F.S.	0.001V
Current	±0.2% Reading + 0.05% F.S.	0.001A
kW, kvar, kVA	±0.5% Reading + 0.05% F.S.	0.001kX
kWh, kVAh	IEC62053-22 Class 0.5S	0.01kXh
kvarh	IEC62053-23 Class 2	0.01kvarh
PF	±0.5%	0.001
Frequency	±0.02Hz	0.01Hz
THD	IEC61000-4-7 Class B	0.001%
K-Factor	IEC61000-4-7 Class B	0.001
Phase Angle	±1°	0.1°

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Standard Un	400ULN/690ULL
Range	10V to 1.2Un
Overload	1.2xUn continuous, 2xUn for 1s
Burden	<0.02VA per phase
Measurement Category	CAT III up to 600ULL
Frequency	45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

Standard In	5A (5A/1A Auto-Scaling)
Range	0.1% to 200% In
Starting Current	0.1% of In
Overload	2xIn continuous, 20xIn for 1s
Measurement Category	CAT III up to 600ULL
Burden	<0.15VA per phase

Power Supply (L+, N-)

Standard	95-250VAC/DC, ±10%, 47-440Hz
Burden	<2W
Overvoltage Category	CAT III up to 300ULN

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

Mechanical Characteristics

Panel Cutout	92x92 mm (3.62"x3.62")
Unit Dimensions	96x96x88 mm
IP Rating	65

Electromagnetic Compatibility

CE EMC Directive 2014/30/EU (EN61326: 2013)

Immunity Tests

Electrostatic Discharge	EN61000-4-2: 2009
Radiated Fields	EN61000-4-3: 2006 + A1: 2008 + A2: 2010
Fast Transients	EN61000-4-4: 2012
Surges	EN61000-4-5: 2014
Conducted Disturbances	EN61000-4-6: 2014
Magnetic Fields	EN61000-4-8: 2010
Voltage Dips and Interruptions	EN61000-4-11: 2004
Oscillatory Waves	EN61000-4-12: 2006
Radio Disturbances	CISPR 22: 2006 Class B
Ring Wave	EN61000-4-12: 2017

Standards of Compliance

Safety Requirements

CE LVD 2014/35/EU	EN61010-1: 2010 EN61010-2-030: 2010
cULus Listed	UL 61010-1 Ed. 3 CAN/CSA C22.2 NO. 61010-1-12 Ed. 3 UL 61010-2-030 Ed. 2 CSA C22.2 NO. 61010-2-030: 18 Ed. 2 UL 61010-2-201 Ed. 2 CSA C22.2 NO. 61010-2-201 Ed. 2
Electrical Safety in Low Voltage Distribution Systems Up to 1000Vac and 1500 Vdc	IEC61557-12: 2018 (PMD)
Insulation AC Voltage: 2.5kV @ 1 minute Insulation Resistance: >100MΩ Impulse Voltage: 6kV, 1.2/50µs	IEC62052-11: 2003 IEC62053-22: 2003

Emission Tests

Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific And Medical (ISM) Radio-Frequency Equipment	EN55011: 2016
Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	EN55032: 2015
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤16A	EN61000-3-2: 2014
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤16 A	EN61000-3-3: 2013
Emission Standard for Industrial Environments	EN61000-6-4: 2007 + A1: 2011

Ordering Information

Product Code	Description
PMC-53M A	7-Segment LCD, RS-485 with Modbus
Input Current 5	5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)
Input Voltage 9	400ULN/690ULL
Power Supply 2	95-250 VAC/DC, 47-440Hz
Frequency 5	45Hz-65Hz
I/O X	None
I/O B*	4×DI + 2×DO
Communications A	1×RS-485
Language E	English
PMC-53M - A 5 9 2 5 X A E	PMC-53M-A-5925XAE (LCD Standard Model)

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