PMC-53M-E
Intelligent Multifunction Meter



CE

- IEC 62053-22 Class 0.5S
- True RMS Measurements
- THD with 31 Ind. Harmonics
- K-Factor, Crest Factor and TDD
- Unbalance & Phase Angles
- Demands and Peak Demands
- Max/Min Log with Timestamp
- High-contrast LED Display
- Setpoint Alarms and SOE Logs
- IP65 Enclosure with No Openings
- Standard Tropicalization
- Industrial Grade Components
- Extended Temperature
- Extended Warranty

Designed For Reliability *Manufactured To Last*

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The PMC-53M-E Intelligent Multifunction Meter is CET's latest offer for the low-cost 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-E features quality construction, multifunction true RMS measurements and a high-contrast LED display. 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 and two Relay Outputs for control and alarm applications. The standard RS-485 port and Modbus RTU protocol support makes the PMC-53M-E a smart metering component of an intelligent, multifunction monitoring solution for any Energy Management System.

Typical Applications

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

Features Summary

Multifunction True RMS Measurements

- VLN, VLL per phase and Average
- Current per phase and Average with calculated Neutral Current
- kW, kvar, kVA, PF per phase and Total
- kWh, kvarh Import / Export / Net / Total and kVAh Total
- Frequency
- Device Operating Time (Running Hours)
- DI Pulse Counters

Enhanced Measurements

- U and I THD, TOHD, TEHD and Individual Harmonics up to 31st
- Current TDD, TDD Odd, TDD Even, K-Factor and Crest Factor
- U and I Unbalance and Phase Angles
- Displacement PF
- kvarh Q1-Q4
- Demands, Predicted Demands and Peak Demands for kW/kvar/kVA Total and per phase Current with Timestamp for This Month/ Last Month or Since/Before Last Reset

Ease of use

- High-contrast LED display
- Intuitive user interface
- LED indicators for Energy Pulsing and Communication activities
- Password-protected setup via front panel or free PMC Setup software
- Easy installation with mounting clips, no tools required

Setpoints

- 9 user programmable setpoints with extensive list of monitoring parameters including Voltage, Current, Power, THD, … etc.
- Configurable thresholds, time delays and DO triggers

SOE Log

- 64 events time-stamped to ±1ms resolution
- Setup changes, Setpoint and DI status changes and DO operations

Max/Min Log

- Max/Min Log with Timestamp for real-time measurements such as Voltage, Current, In, Freq., kW, kvar, kVA, PF, Unbalance, K-factor, Crest Factor and THD.
- Configurable for This Month/Last Month or Before/Since Last Reset

Diagnostics

- Frequency Out-of-Range, Loss of Voltage / Current
- kW Direction per phase and Total, Possible incorrect CT Polarity
- Incorrect U & I Phase Sequence

Communications

- Optically isolated RS485 port at max. 38,400 bps
- Standard Modbus RTU support

Real-time clock

- Battery-backed Real-Time Clock with 25ppm accuracy (<2s per day)

System Integration

- Supported by CET's PecStar® iEMS and iEEM
- Easy integration into other Automation, SCADA or BMS systems via Modbus RTU

Inputs and Outputs

Digital Inputs (Optional)

- 4 channels, volts free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information

Digital Outputs (Optional)

- 2 Form A mechanical relays for alarming and general purpose control
- 5A @ 250VAC or 30VDC

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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.	0.001k
kWh, kVAh	IEC 62053-22 Class 0.5S	0.1kXh
kvarh	IEC 62053-23 Class 2	0.1kvarh
P.F.	±0.5%	0.001
Frequency	±0.02 Hz	0.01Hz
THD	IEC 61000-4-7 Class B	0.001%
K-Factor	IEC 61000-4-7 Class B	0.1
Phase angles	±1°	0.1°

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)	
Standard Un	400VLN/690VLL
Range	10V to 1.2Un
Overload	1.2xUn continuous, 2xUn for 1s
Burden	<0.02VA per phase
Measurement Category	CAT III up to 600VLL
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% In
Overload	2xIn continuous, 20xIn for 1s
Measurement Category	CAT III up to 600VLL
Burden	<0.15VA per phase
Power Supply (L+, N-, GND)	
Standard	95-250VAC/DC, ±10%, 47-440Hz
Burden	<2W
Overvoltage Category	CAT III up to 300VLN
Digital Inputs (DI1, DI2, DI3, DI4, DIC)	
Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	40ms minimum
Digital Outputs (DO11, DO12, DO21, DO22)	
Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC
Installation Torque	
Voltage / Current Inputs	1.3 N.m
Power Supply, RS485, I/O	0.5 N.m
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

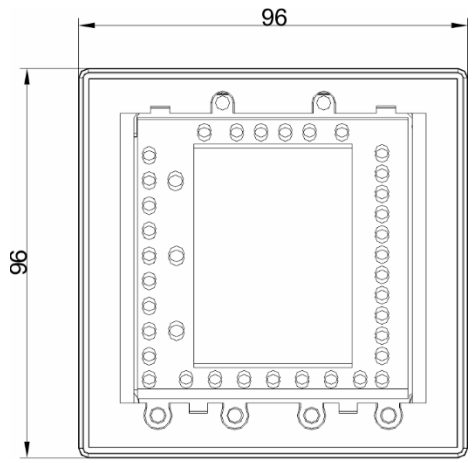
Standards of Compliance

Safety Requirements	
CE LVD 2014 / 35 / EU	EN61010-1: 2010, EN61010-2-030: 2010
Electrical safety in low voltage distribution systems up to 1000Vac and 1500 Vdc	IEC 61557-12: 2008 (PMD)
Insulation AC Voltage: 2kV @ 1 minute Impulse voltage: 6kV, 1.2/50µs	IEC 62052-11: 2003
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: 2004+A1: 2010
Surges	EN 61000-4-5: 2006
Conducted disturbances	EN 61000-4-6: 2009
Magnetic Fields	EN 61000-4-8: 2010
V Dips, Interruptions & Variations	EN 61000-4-11:2004
Oscillatory waves	EN 61000-4-12: 2006
Radio Disturbances	CISPR 22:2006, Level B
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
Mechanical Tests	
Spring Hammer Test	IEC 62052-11: 2003
Vibration Test	IEC 62052-11: 2003
Shock Test	IEC 62052-11: 2003

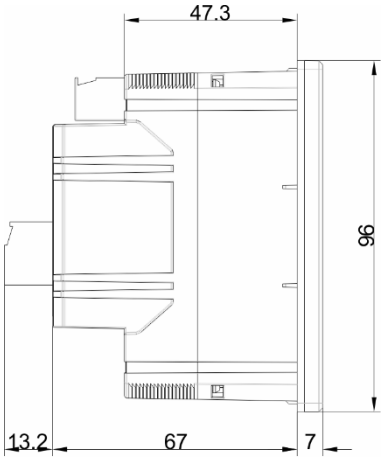
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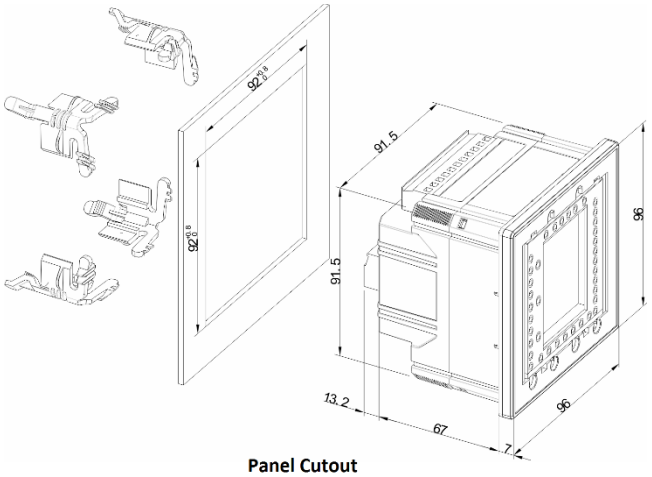
Device View and Dimensions



Front View



Side View



Panel Cutout

Ordering Information

Product Code	Description
PMC-53M-E DIN96 Intelligent Multifunction Meter	
Basic Funciton	
E	Multifunction Measurements, LED Display
Input Current	
5	5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)
Input Voltage	
9	400VLN/690VLL
Power Supply	
2	95-250 VAC/DC, 47-440Hz
Frequency	
5	45Hz-65Hz
I/O	
X	None
B*	4xDI+2xDO
Communications	
A	1xRS-485
Language	
E	English

PMC-53M	-	E	-	5	9	2	5	X	A	E	PMC-53M-E-5925XAE (Standard Model)

* Additional charges apply

Contact us

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