



CET
Electric
Technology

PMC-53M-A
Digital Multifunction Meter



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

Designed For Reliability

Manufactured To Last



The PMC-53M-A Digital 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-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.

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

Ease of Use

- Large, backlit LCD display with wide viewing angle
- 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

Multifunction True RMS Measurements

- ULN, ULL 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)
- Optional 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
- Fundamental U, I and kW per Phase
- Total Fundamental kW & Total Harmonic kW
- U and I Symmetrical Components
- kvarh Q1-Q4
- Present, Predicted Demands and Max. Demands for kW/kvar/kVA Total and per Phase Current with Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)

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

- 100 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 Since Last Reset & Before 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 RS-485 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
- Easy integration into other Automation, SCADA or BMS systems via Modbus RTU

Inputs and Outputs

Digital Inputs (Optional)

- 4 channels, volt 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



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, kWh	IEC 62053-22 Class 0.5S	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	±0.5%	0.001
Frequency	±0.02 Hz	0.0Hz
THD	IEC 61000-4-7 Class B	0.001%
K-Factor	IEC 61000-4-7 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
Digital Inputs (DI1, DI2, DI3, DI4, DIC)	
Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum
Digital Outputs (DO11, DO12, DO21, DO22)	
Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC
Load Type	Resistive
Installation Torque	
Current Inputs	12lb-in (1.3 N.m)
Power Supply, Voltage Inputs, RS-485, I/O	5lb-in (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
Altitude	< 2000m
Pollution Degree	2
Location / Mounting	For indoor use only
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 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
cULus Listed	
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
Voltage Dips and Interruptions	EN 61000-4-11:2004+A1: 2017
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
Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements	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 Industrial Environments	EN 61000-6-4: 2007+A1: 2011
Mechanical Tests	
Spring Hammer Test	IEC 62052-11: 2003
Vibration Test	IEC 62052-11: 2003
Shock Test	IEC 62052-11: 2003

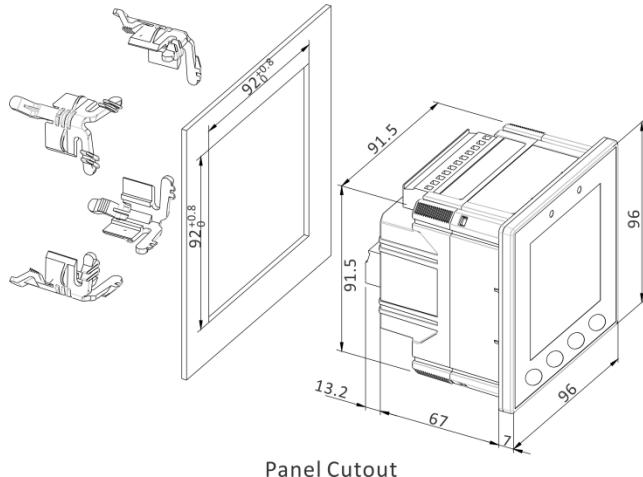
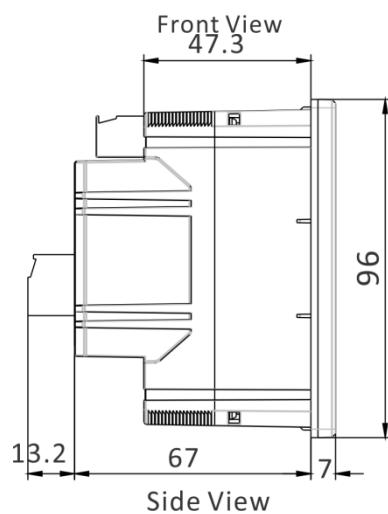
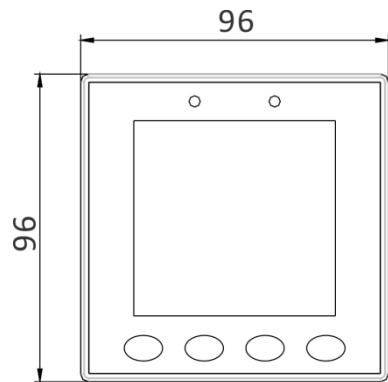


CET
Electric
Technology

PMC-53M-A

Digital Multifunction Meter

Device View and Dimensions



Ordering Information



CET
Electric
Technology

Version 20171128

Product Code	Description
PMC-53M-A DIN96 Intelligent Multifunction Meter	
Basic Function	
A	7-segment LCD, 1xRS-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
B*	4xDI+2xDO
Communications	
A	1xRS-485
Language	
E	English
PMC-53M - A - 5 9 2 5 X A E	
PMC-53M-A5925XAE (Standard Model)	

* Additional charges apply

Your Local Representative