

CET



Intelligent Multifunction Meter

PMC-53M-A Intelligent Multifunction Meter PMC-53M-E

PMC-53M-A and PMC-53M-E are CET's latest offer for the low-cost Multifunction Digital Meter. Housed in a standard DIN form factor measuring 96x96x88mm, Compliance with the IEC 62053-22 Class 0.5S Standard, they are cost effective replacements for 3-phase analog meters and perfectly suited for industrial, commercial and utility applications for power and energy measurement. PMC-53M-A features a large, backlit, 7-segment LCD display while the PMC-53M-E features a high-contrast LED display. Both optionally provide four Digital Inputs for status monitoring, two Relay Outputs for control and alarm applications as well as one standard RS-485 port with Modbus RTU protocol support. These features make them the most affordable smart metering devices for any Energy Management System.



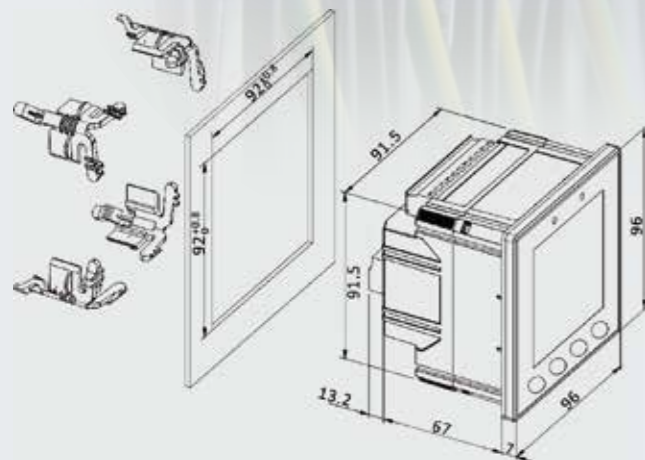
PMC-53M-A

PMC-53M-E

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

General

	PMC-53M-A	PMC-53M-E
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	400VLN/690VLL, 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 VLL	
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	High-contrast LED Display

Measurements

	PMC-53M-A	PMC-53M-E
Voltage (VLN/VLL) (Per phase & Avg)	✓	✓
Current (Per phase & Avg)	✓	✓
Neutral Current (Calculated)	✓	✓
Frequency	✓	✓
Phase Angles	✓	✓
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	✓	N/A

Power Quality

	PMC-53M-A	PMC-53M-E
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)	N/A
K-factor	✓	✓ (Via Comm. Only)
Crest Factor	✓	✓ (Via Comm. Only)
TDD (Odd/Even/Total)	✓	✓ (Via Comm. Only)
U/I Unbalance	✓	✓ (Via Comm. Only)

SOE Log

	PMC-53M-A	PMC-53M-E
SOE	100 entries	64 entries

Communication

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 (Form A Mechanical Relay, 5A @ 250VAC or 30VDC)
kWh & kvarh Pulse Output (LED)	✓
Communication Indicator (LED)	✓

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	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh (53M-A) 0.1kvarh (53M-E)
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	0.001
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% of 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 300VLL

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 (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
Conducted Disturbances	EN 61000-4-6: 2014
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 Class B

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: 2018 (PMD)
Insulation AC Voltage: 2.5kV @ 1 minute Insulation Resistance: >100MΩ Impulse voltage: 6kV, 1.2/50µs	IEC 62052-11: 2003 IEC 62053-22: 2003

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

Ordering Information

Product Code	Description
PMC-53M	A 7-segment LCD, 1xR485 with Modbus
	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	A 5 9 2 5 X A E PMC-53M-A-5925XAE (LCD Standard Model)
	E 5 9 2 5 X A E PMC-53M-E-5925XAE (LED Standard Model)

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