

CET



# Intelligent Multifunction Meter

[www.cet-global.com](http://www.cet-global.com)

# PMC-33M-A Intelligent Multifunction Meter

PMC-33M-A is 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, it is cost effective replacement for 3-phase analog meter and perfectly suited for industrial, commercial and utility applications for power and energy measurement. PMC-33M-A features a large, backlit, 7-segment LCD display, as well as one standard RS-485 port with Modbus RTU protocol support. These features make PMC-33M-A the most affordable smart metering devices for any Energy Management System.



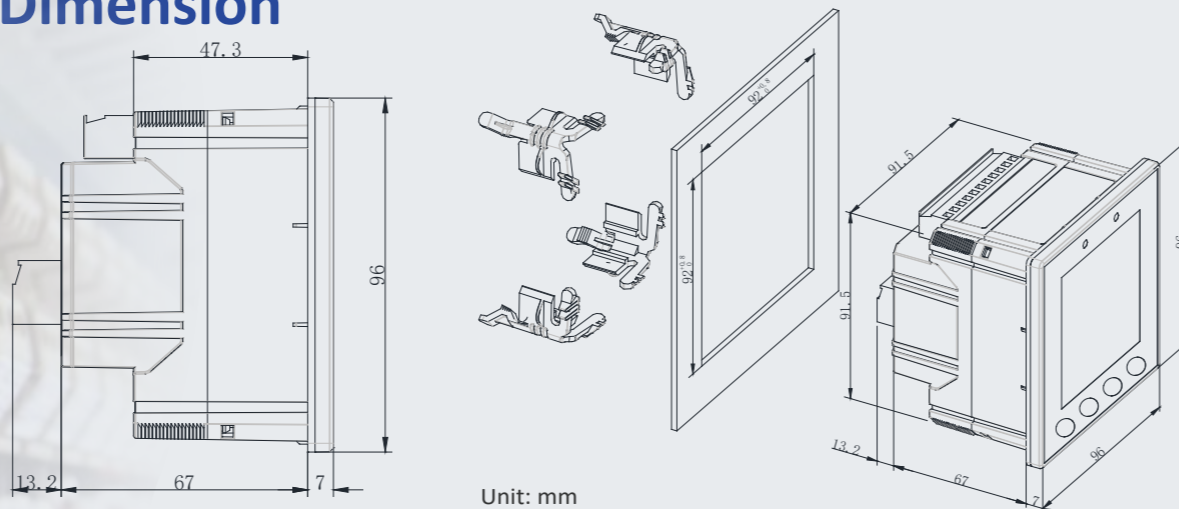
## Measurements

Voltage (ULN/ULL) (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	✓

## 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



## Appearance



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

## 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

## Power Quality

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

## SOE Log

SOE	100 entries
-----	-------------

## Communication

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

## Input/Output

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
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	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-, GND)

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 (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)
<b>Insulation</b> 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-33M	A	7-segment LCD, 1xR485 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	
Communications	A	1xRS-485	
Language	E	English	
PMC-33M	A 5 9 2 5 X A E	PMC-33M-A-5925XAE (LCD Standard Model)	

Phone: +86.755.8341.5187  
 Email: sales@cet-global.com  
 Website: www.cet-global.com

Copyright © CET Inc. All rights reserved.

Your Local Representative

V.00 03062020