PMC-630 Series
Advanced Multifunction Meter



- IEC 62053-22 Class 0.5S Compliant
- 2MB Log Memory
- Power Quality Monitoring
- Waveform Recording
- SOE Log
- Setpoint Alarms
- RS-485 and I/O Capabilities
- I residual Monitoring
- Large, Bright, Backlit LCD Display with Wide Viewing Angle
- Extended Warranty
- Extended Temperature Range
- Industrial Grade Components
- Standard Tropicalization
- Metal Enclosure with No Openings
- IP52 Rated

Designed For Reliability *Manufactured To Last*

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The PMC-630 Series Advanced Multifunction Meter is CET's latest offer for the low, medium and high voltage power/energy metering market. Housed in an industry-standard DIN form factor measuring 96mmx96mmx125 mm, the PMC-630 is perfectly suited for utility, industrial or commercial applications. The meter features quality construction with metal enclosure, multifunction and high-accuracy measurements, transient detection and waveform recording capabilities, extensive I/O and communication configurations, and an easy-to-read, back-lit LCD display, capable of displaying 3-phase measurements at once. The meter comes standard with six Digital Inputs for status monitoring and two Digital Outputs for control or alarming applications. Further, the PMC-630 optionally provides two additional Digital Outputs, an I residual Input or an Analog Input, and an Analog Output. The standard SOE Log records all setup changes, DI and Setpoint status changes, and DO operations in 1ms resolution. With the standard RS485 port and Modbus protocol support, the PMC-630 becomes a vital component of an intelligent, multifunction monitoring solution for any Power and Energy Management systems.

Typical Applications

- Analog meter replacement
- Low, medium and high voltage applications
- Industrial and commercial metering
- Substation, building and factory automation
- I residual monitoring
- Extensive logging capability with 2MB on-board memory
- Power quality monitoring and waveform recording

Features Summary

Ease of use

- Large, backlit, easy to read LCD display with wide viewing angle
- Password-protected setup via front panel or free PMC Setup software
- Easy installation with mounting slide bar, no tools required

Basic Measurements

- 3-phase voltage, current , I4, frequency and power measurements
- Bi-directional energy measurements
- TOU metering that can accommodate 4 tariff rates, 6 seasons and 1 daily profile with 10 periods

Power Quality

- Voltage and Current Unbalance
- THD, TOHD, TEHD and K-Factor
- Individual harmonics up to 31st on-board
- WF Capture at 128 samples/cycle for harmonics analysis up to 63rd
- WF Recording of all Voltage and Current inputs at 16 samples/cycle for 12 cycles with 3 pre-fault cycles
- I residual ALARM and TRIP protection functions

Sliding Window Demands

- 3-phase voltage, current, power, PF, Frequency, V and I Unbalance, and THD
- Max/Min values per demand interval
- Peak Demands for This Month and Last Month

SOE Log

- 64 events time-stamped to ±1ms resolution
- Setup changes, Setpoint events and I/O operations

Max/Min Log

- Voltage, Current, Frequency, kW, kvar, kVA, Power Factor, Unbalance, VTHD and ITHD of This Month and Last Month

Data Recorders

- 16 Data Recorder Logs of 16 parameters each for real-time measurements, harmonics, interval energy, demand, ….etc
- Recording interval from 1s to 40 days
- Configurable depths and recording offsets
- 2MB log memory

Setpoints

- 9 user programmable setpoints with extensive list of monitoring parameters
- Configurable thresholds and time delays
- WF Recording, Data Recorder and DO trigger
- Transient Voltage and Current setpoints

Digital Inputs

- 6 channels, volts free dry contact, 24VDC internally wetted
- External status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES information
- 1000Hz sampling

Digital Outputs

- Up to a maximum of 4 channels
- Form A Mechanical relays – 2 or 4 channels
  - DO1 is reserved for I residual ALARM if present AND enabled
  - DO2 is reserved for I residual TRIP if present AND enabled
  - DO3 and DO4 are available for general purpose control
- Form A SS relays – 2 optional channels for energy pulsing applications
  - DO3 is reserved for kWh pulsing
  - DO4 is reserved for kvarh pulsing

I residual Input (Optional)

- Requires an optional, external Zero Sequence CT (1A nominal)
- Two levels of alarm – ALARM and TRIP. Each alarm level:
  - Can be enabled individually
  - Has its own programmable threshold and time delay
  - Log an SOE event AND trigger a dedicated DO when activated

Analog Input (Optional)

- 0-20 / 4-20mA DC input
- Can be used to measure external transducer signal
- Programmable zero and full scales

Analog Output (Optional)

- 0-20 / 4-20mA DC output
- Can be "keyed" to any measured quantity
- Programmable zero and full scales

Real-time clock

- 6ppm battery-backed real-time clock (<0.5s per day)

Communications

Port 1 (standard) and Port 2 (optional)

- Optically isolated RS485 port
- Baud rate from 1200 to 19200bps
- Modbus RTU protocol

Profibus (optional)

- Auto baud from 9600 bps to 12 Mbps
- Profibus-DP protocol

System Integration

- Supported by our PecStar® iEMS and iPQMS
- Easy integration into other Automation or SCADA systems via Modbus RTU and Profibus-DP protocol

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Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2% reading	0.01V
Current	±0.2% reading + 0.05%FS	0.001A
I4 Calculated	1.0% F.S.	0.001A
kW, kVA	IEC 62053-22 Class 0.5S	0.001k
kWh, kVAh	IEC 62053-22 Class 0.5S	0.01kXh
kvar, kvarh	IEC 62053-23 Class 2	0.001k / 0.01kvarh
P.F.	IEC 62053-22 Class 0.5S	0.001
Frequency	±0.02 Hz	0.01Hz
Harmonics	IEC 61000-4-7 Class B	0.01%
K-Factor	IEC 61000-4-7 Class B	0.1
Phase angles	±1°	0.1°
I residual	±1% F.S.	0.01mA
AI	±1% F.S.	-
AO	±1% F.S.	-

Models and Measurements

Features and Options	PMC-630 Models		
Power and Energy	**A**	**B**	**C**
VLN and VLL per phase and Avg	▪	▪	▪
Current per phase and Avg, I4	▪	▪	▪
Voltage and Current phase angles	▪	▪	▪
kW, kvar, kVA per phase and Total	▪	▪	▪
PF per phase and Total	▪	▪	▪
Frequency	▪	▪	▪
kWh, kvarh Imp/Exp/Total/Net	▪	▪	▪
kVAh Total	▪	▪	▪
V/I/kW/kvar/kVA/PF/Freq/Unblance/ THD Demands	▪	▪	▪
Peak Demands for This/Last Month	▪	▪	▪
kWh & kvarh LED Pulse Outputs	▪	▪	▪
TOU, Setpoint and Logging			
Setpoint (9)	▪	▪	▪
Max/Min Log	▪	▪	▪
SOE Log (64)	▪	▪	▪
TOU		▪	▪
Data Recorder Log (16)		▪	▪
Log memory		2MB	2MB
Power Quality			
V and I Unbalance	▪	▪	▪
THD, THOD, THED, K-Factor	▪	▪	▪
Individual Harmonics (2^{nd} to 31^{st})	▪	▪	▪
WF Capture			▪
WF Recording Log			▪
I residual ALARM and TRIP			
I residual^	1*	1*	1*
Inputs and Outputs			
DI	6	6	6
DO (Mechanical)	2 / 4*	2 / 4*	2 / 4*
DO (Solid State)	2*	2*	2*
AI^ (0-20 / 4-20mA)	1*	1*	1*
AO (0-20 / 4-20mA)	1*	1*	1*
Communications			
Modbus RTU	▪	▪	▪
RS485 Port	1 / 2*	1 / 2*	1 / 2*
Profibus Port	1#	N.A.	N.A.

▪ Standard *Optional

^ I residual and AI options are mutually exclusive

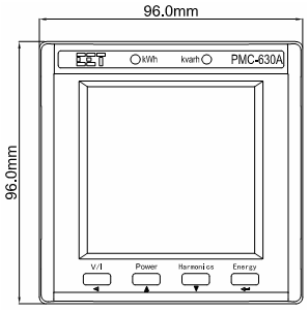
Profibus option excludes all other Comm. Options

Technical Specifications

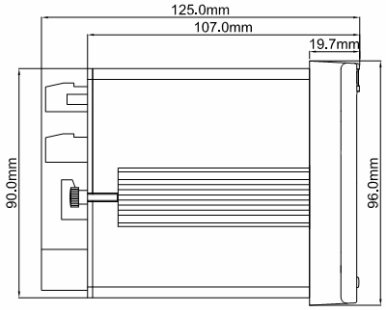
Voltage Inputs (V1, V2, V3, VN)	
Standard (Un)	240VLN/415VLL
Optional (Un)	69VLN/120VLL, 400VLN/690VLL
Range	10% to 120% Un
PT Ratio	1-2200
Overload	1.2xUn continuous, 2xUn for 10s
Burden	<0.5VA @ 240V
Frequency	45-65Hz
Current Inputs (I11, I12, I21, I22, I31, I32)	
Standard (In/Imax)	5A / 10A
Optional (In/Imax)	1A / 2A
Range	0.1% Imax to 120% Imax
CT Ratio	1-6,000 (5A), 1-30,000 (1A)
Overload	2xIn continuous, 20xIn for 1s
Burden	<0.25VA @ 5A
Power Supply (L+, N-)	
Standard	95-250VAC/DC ± 10%, 47-440Hz
Burden	< 4W
Digital Inputs (DI1, DI2, DI3, DI4, DI5, DI6, DIC)	
Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Debounce	1-1,000ms programmable
Digital Outputs (DO11, DO12, DO21, DO22, DO3, M34, DO4)	
Type	Form A Mechanical Relay
Loading	8A@250VAC / 8A@24VDC, 5A@30VDC for DO1 5A@250VAC / 5A@30VDC for DO2, DO3 and DO4
Pulse Outputs (kWh, kvarh)	
Type	Form A Solid State Relay
Isolation	Optical
Max. Load Voltage	80V
Max. Forward Current	50mA
Pulse Constant	1000/3200/5000 imp/kxh
I residual Input (I41, I42)	
Nominal Input	1V
Range	1% to 120% Nominal
Analog Input (I41, I42)	
Type	0-20 / 4-20mA DC
Overload	24mA
Analog Output (AO+, AO-)	
Type	0-20 / 4-20mA DC
Loading	500Ω maximum
Overload	24mA maximum
I residual CT (Zero-sequence CT)	
Nominal Current	1A
Output	1V
Overload	1.2A
Accuracy	1%
Frequency	50/60Hz
Line Length	4000mm
Dielectric Strength	2.5kV @ 1 minute
I residual CT Models	PMC-MIR-35, PMC-MIR-50, PMC-MIR-75, PMC-MIR-120
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
Pollution Degree	2
Measurement Category	CAT III
Mechanical Characteristics	
Enclosure	Aluminum Alloy
Panel Cutout	92x92mm (3.62''x3.62'')
Unit Dimensions	96x96x125mm (3.78''x3.78''x4.92'')
Shipping Dimensions	170x145x155mm (6.69''x5.71''x6.10'')
Shipping Weight	1.0kg
IP Rating	52

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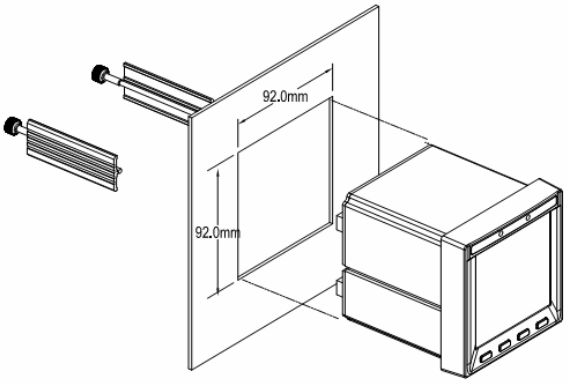
Device View and Dimensions



Front View

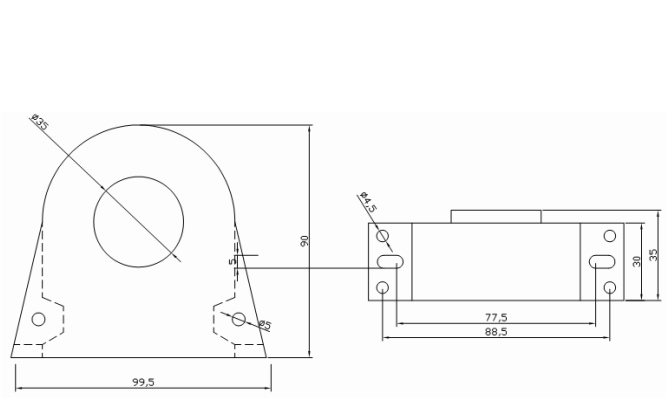


Side View

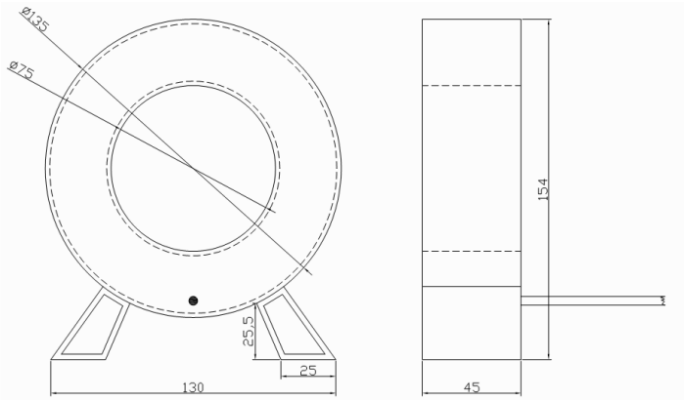


Panel Cutout

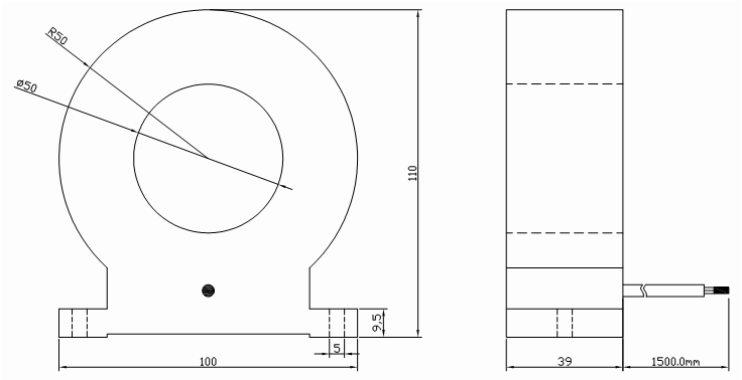
Accessories-I residual Sensor (Zero Sequence CT)



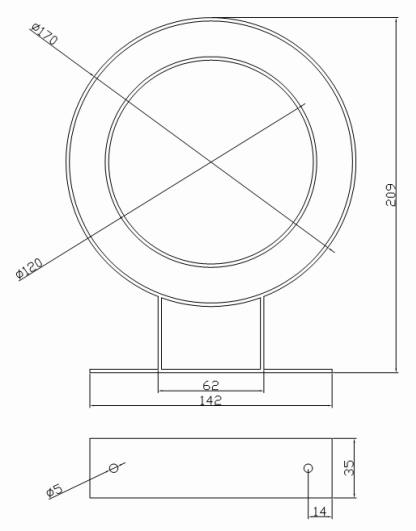
PMC-MIR-35, 35mm Inner Diameter



PMC-MIR-75, 75mm Inner Diameter



PMC-MIR-50, 50mm Inner Diameter



PMC-MIR-120, 120mm Inner Diameter

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Standards of Compliance

Safety Requirements	
LVD Directive 2006/95/EC	EN61010-1-1-2001
Insulation	IEC 60255-5-2000
Dielectric test	2kV @ 1 minute
Insulation resistance	>100MΩ
Impulse voltage	5kV, 1.2/50μs
Electromagnetic Compatibility EMC Directive 2004/108/EC (EN 61326: 2006)	
Immunity Tests	
Electrostatic discharge	IEC 61000-4-2: 2008 Level III
Radiated fields	IEC 61000-4-3: 2008 Level III
Fast transients	IEC 61000-4-4: 2004 Level IV
Surges	IEC 61000-4-5: 2005 Level IV
Conducted disturbances	IEC 61000-4-6: 2008 Level III
Magnetic Fields	IEC 61000-4-8: 2009 Level IV
Oscillatory waves	IEC 61000-4-12: 2006 Level III
Electromagnetic Emission	IEC 60255-25: 2000
Emission Tests	
Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment	EN 55011: 2009 (CISPR 11)
Limits and methods of measurement of radio disturbance characteristics of information technology equipment	EN 55022: 2006+A1: 2007 (CISPR 22)
Limits for harmonic current emissions for equipment with rated current ≤16 A	EN 61000-3-2: 2006+A1: 2009
Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current ≤16 A	EN 61000-3-3: 2006
Emission standard for residential, commercial and light-industrial environments	EN 61000-6-3: 2007
Electromagnetic Emission Tests for Measuring Relays and Protection Equipment	IEC 60255-25: 2000
Mechanical Tests	
Vibration Test – Response	IEC 60255-21-1:1998 Level I
Vibration Test – Endurance	IEC 60255-21-1:1998 Level I
Shock Test – Response	IEC 60255-21-2:1998 Level I
Shock Test – Endurance	IEC 60255-21-2:1998 Level I
Bump Test	IEC 60255-21-2:1998 Level I

Ordering Information

Product Code	Description
PMC-630 Series Advanced Multifunction Meter	
Basic Function	
A	Basic model with 3-Phase Metering, Demands, Peak Demands, Min/Max, SOE Log, Ind. Har to 31st
B	Model A + 16 Data Recorders (2MB Memory) + TOU
C	Model B + WF Recording + Transient Detection
Display Screen	
A	Integrated LCD Screen
Input Current	
5	5A
1	1A
Input Voltage	
1	69V/120V
3	240V/415V
9*	400V/690V
Power Supply	
2	95-250VAC/DC, 47-440Hz
System Frequency	
5	50Hz
6	60Hz
DI/DO/AO	
A	6DI + 2DO
B*	6DI + 2DO + 2 SS Pulse Outputs
C*	6DI + 4DO
D*	6DI + 2DO + 1AO (0-20mA or 4-20mA)
AI	
X	No
A*	1 Analog Input (0-20mA or 4-20mA)
B*	1 residual Input (0-1V)
Communications	
A	1 RS-485 port
B*	2 RS-485 ports
C*	1 Profibus-DP port (Model A only)‡

PMC-630 | A | - | A | 5 | 3 | 2 | 5 | A | X | A — PMC-630A-A5325AXA (Standard Model)

* Additional charges apply

‡ With Comm. options C, DI/DO/AO options B and C are not available

Accessories Ordering Information

I residual Sensor		
Sensor Model #	Inner Diameter (mm)	Phase Current Range
PMC-MIR-35	35	0A to 63A
PMC-MIR-50	50	63A to 125A
PMC-MIR-75	75	125A to 250A
PMC-MIR-120	120	250A to 1000A

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