CET
Electric
Technology

PMC-S963-E
Intelligent Multifunction Meter

- IEC 62053-22 Class 0.5S
- True RMS @ 64 Samples/Cycle
- THD with 31st Ind. Harmonics
- Crest Factor
- Unbalance & Phase Angle
- Simple TOU & Demands
- Max./Min. Log with Timestamps
- Modbus RTU, Modbus TCP, SNTP
- 9 User Programmable Setpoints
- Large, Backlit, 7-Segment LCD
- 12 Monthly Energy Log & SOE Log
- RS-485 & Ethernet Port
- 4xDI, 2xDO, 1xSS Pulse Output
- 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-S963-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 96x96x92mm, it is perfectly suited for industrial, commercial and utility applications. The PMC-S963-E features quality construction, multifunction measurements and a large, backlit, 7-Segment LCD that is easy to navigate and user friendly. 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 provides 4xDI, 2xDO, 1xSS Pulse Output and 1xUng Input for status monitoring, control and alarm applications. The standard RS-485 port and 10/100BaseT Ethernet port make the PMC-S963-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

Ease of use

- Large, backlit, 7-segment 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 setup software
- Easy installation with mounting clips, no tools required

Basic Measurements

- True RMS @ 64 Samples/Cycle
- ULN, ULL per Phase and Average, and Ung
- Current per Phase and Average with calculated Neutral
- P, Q, S, PF per Phase and Total
- Total RMS kWh, kvarh Import/Export/Net/Total and kVAh Total
- Per-phase kWh, kvarh Import/Export
- Frequency

Advanced Measurements

- U and I THD, TOHD, TEHD, TH (RMS) and Individual Harmonics up to 31st
- Current Crest Factor
- U and I Sequence, Unbalance and Phase Angle
- Fundamental U and I per Phase
- kvarh Q1-Q4
- Present Demands for P and 3-Phase Current, Predicted Demands for P
- Max. Demands with Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset) for P and 3-Phase Current
- One Simple TOU schedule providing
  - 4 Seasons
  - 4 Daily Profiles, each with 14 Periods in 15-minute interval
  - 4 Tariffs, each providing kWh Import
- 12 monthly recording of kWh/kvarh Import/Export/Total/Net, kVAh Total, kvarh Q1-Q4 as well as kWh Import per Tariff

Setpoints

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

SOE Log

- 32 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, Ung, In (Calculated), Freq., P, Q, S, PF, Unbalance and THD
- Configurable for This Month & Last Month (or Since Last Reset & Before Last Reset)

Diagnostics

- Loss of Voltage/Current
- P Direction per Phase and Total
- Incorrect U & I Phase Sequence

Real-Time Clock

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

Inputs and Outputs

Digital Inputs

- 4 channels, volt free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring with programmable debounce
- Tariff switching based on DI status

Digital Outputs

- 2xForm A Mechanical Relay for alarming and general purpose control

Pulse Output

- 1xForm A Solid-State Relay for kWh and kvarh pulsing

Communications

RS-485

- Optically isolated RS-485 port at max. 38,400 bps
- Standard Modbus RTU

Ethernet Port

- 10/100BaseT Ethernet Port with RJ45 connector
- Protocols supported: Modbus TCP, SNTP
- Simultaneous client connections for 4xModbus TCP

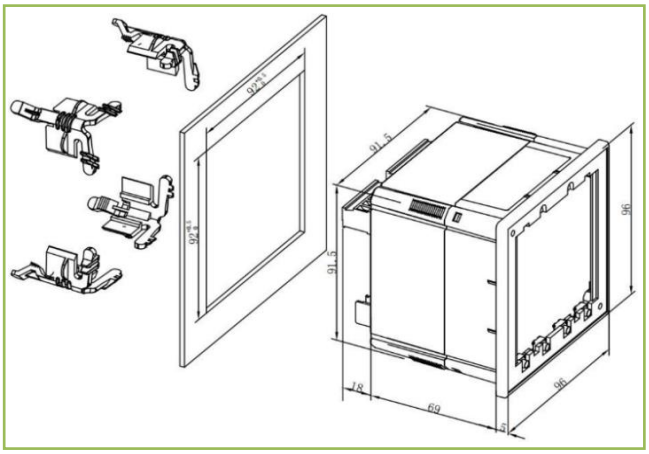
System Integration

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

Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2%	0.001V
Current	±0.2%	0.001A
In (Calculated)	±1.0%	0.001A
P, Q, S	±0.5%	0.001kX
kWh	IEC 62053-22 Class 0.5S	0.1kWh
kvarh	IEC 62053-23 Class 2	0.1kvarh
PF	±0.5%	0.001
Frequency	±0.02Hz	0.01Hz
THD	IEC 61000-4-7 Class II	0.001%

Dimensions and Installation



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Technical Specifications

Voltage Inputs (V1, V2, V3, VN, VG)	
Standard Un	240ULN/415ULL
Range	30V to 1.2Un
Overload	1.2xUn continuous 2xUn for 1s
Burden	<0.02VA per phase @ 240ULN
Ung Measurement Range	0.1V to 40V
Measurement Category	CAT III up to 300V
Frequency	45-65Hz
Current Inputs (·I11, I12, ·I21, I22, ·I31, I32)	
Standard In	5A (Optional 1A)
Range	0.1% to 120% In
Starting Current	0.1% In
Overload	1.2xIn continuous 10xIn for 1s
Burden	<0.25VA per phase @ 5A
Power Supply (L/+, N/-)	
Standard	95-250VAC/DC, ±10%, 47-440Hz
Burden	<2W
Overvoltage Category	OVC III up to 300V
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
Pulse Output (E+, E-)	
Type	Form A Solid-State Relay
Isolation	Optical
Pulse Width	80ms±20ms
Max. Load Voltage	50VDC
Max. Forward Current	50mA
Installation Torque	
Power Supply, U/I Inputs, RS-485 and I/O	5Ib-in (0.5N.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	< 3000m
Pollution Degree	2
Mechanical Characteristics	
Panel Cutout	92x92mm (3.62"x3.62")
Unit Dimensions	96x96x92mm
LCD Display Dimensions	61x61mm
IP Rating	IP65

Standards of Compliance

Safety Requirements	
CE LVD 2014 / 35 / EU	EN 61010-1: 2010 + A1: 2019 EN 61010-2-030: 2010
Electrical Safety in Low Voltage Distribution Systems up to 1000Vac and 1500 Vdc	IEC 61557-12: 2018 (PMD)
Insulation	IEC 62052-31: 2015 EN 61010-1: 2010 + A1: 2019
AC Voltage	2kV @ 1 minute
Insulation Resistance	>100MΩ
Impulse Voltage	6kV, 1.2/50µs
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 + A1: 2017
Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements	EN 55032: 2015 + AC: 2016 + A11: 2020
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤16 A	EN IEC 61000-3-2: 2019
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤16 A	EN 61000-3-3: 2013 + A1: 2019
Emission Standard for Industrial Environments	EN 61000-6-4: 2007 + A1: 2011
Mechanical Tests	
Spring Hammer Test	IEC 62052-31: 2015
Vibration Test	IEC 62052-11: 2020
Shock Test	IEC 62052-11: 2020

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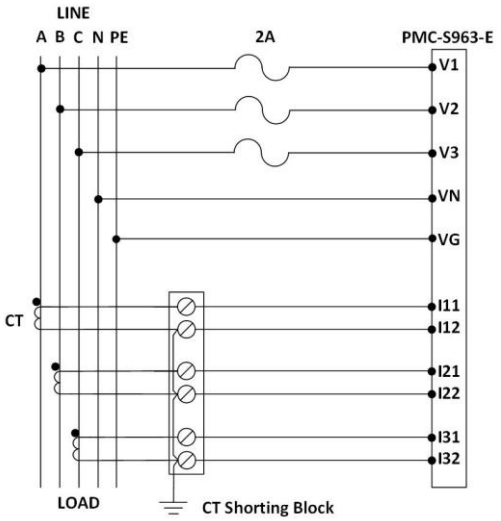
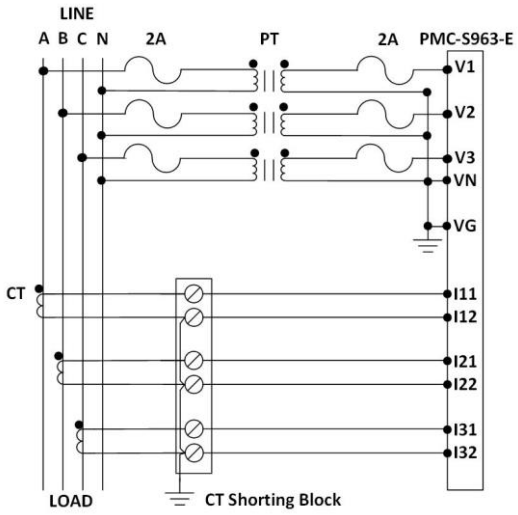
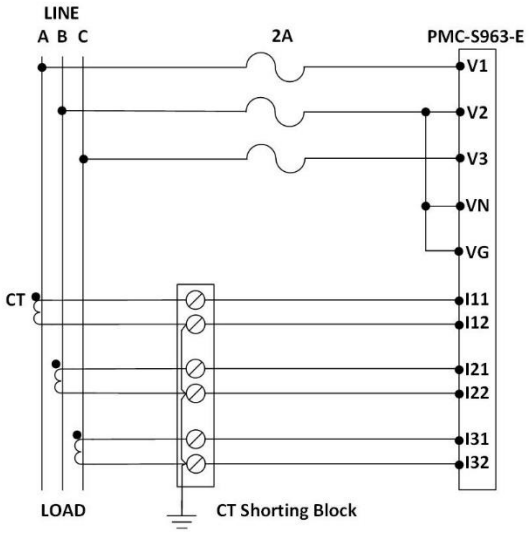
Typical Wiring Diagrams



3P4W with 3CTs and no PTs



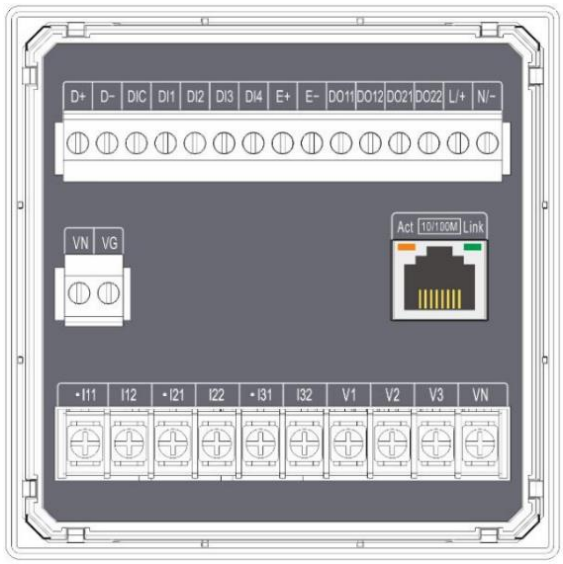
3P4W with 3CTs and 3PTs



3P3W with 3CTs

Notes: *PMC-S963-E does not support 3P3W connection with open Vn.*

Rear Panel



Ordering Information

CET Electric Technology

Version 20240312

Product Code	Description
PMC-S963 Intelligent Multifunction Meter	
Basic Function	
E	DIN96 Panel Mounting with Large 7-Segment LCD display. Multifunction Measurements, Demands, Simple Multi-Tariff TOU, Harmonics up to 31st order
Input Current	
5	5A/1A Auto Scaling (Class 0.5S for 5A and Class 1 for 1A)
1	1A
Input Voltage	
3	240ULN/415ULL
Power Supply	
2	95-250 VAC/DC, 47-440Hz
Frequency	
5	45-65Hz
I/O	
G	1xUng + 4xDI + 2xDO + 1xSS Pulse Output
Communication	
E	1x10/100BaseT Ethernet Port + 1xRS-485
Language	
E	English
PMC-S963 - E 5 3 2 5 G E E	**PMC-S963-E5325GEE (Standard Model)**

Your Local Representative

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