



PMC-S963-C

Intelligent

PMC-S963-E

Multifunction Meter

PMC-S963-C Intelligent Multifunction Meter

PMC-S963-E

PMC-S963-C and PMC-S963-E are CET's latest offer for the low-cost digital power/energy metering market. Housed in a standard DIN form factor measuring 96x96x92mm, they are perfectly suited for industrial, commercial and utility applications. Both of them feature 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, they are cost-effective replacements for analog instrumentation that are capable of displaying 3-phase measurements at once. In addition, the PMC-S963-C and PMC-S963-E offer 4xDI, 2xDO, 1xSS Pulse Output, 1xAO (PMC-S963-C option) as well as 1xUng Input (PMC-S963-E only) for different applications. With standard RS-485 port and 10/100BaseT Ethernet Port (PMC-S963-E only) supporting multiple protocols, the PMC-S963 can be easily integrated into Energy Management Systems as well as Building and Utility Automation Systems.

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 PMC Setup software
- Easy installation with mounting clips, no tools required

Basic Measurements

- VLN, VLL per Phase and Average
- Ung Measurement (PMC-S963-E only)
- 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 TDD, TDD Odd, TDD Even and Crest Factor
- U and I Sequence, Unbalance and Phase Angle
- Fundamental U and I per Phase
- kvarh Q1-Q4
- P Present and Predicted Demands as well as Max. Demands with Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)
- One TOU schedule providing
 - o 4 Seasons
 - o 4 Daily Profiles, each with 14 Periods in 15-minute interval
 - o 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 ± 1 ms 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 (PMC-S963-E only), Inc, 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)

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

- 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

- 2 Form A Mechanical Relays for alarming and general purpose control

Pulse Output

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

Analog Output (PMC-S963-C Option)

- One channel 0/4-20mA DC output with programmable zero and full scales

Communications

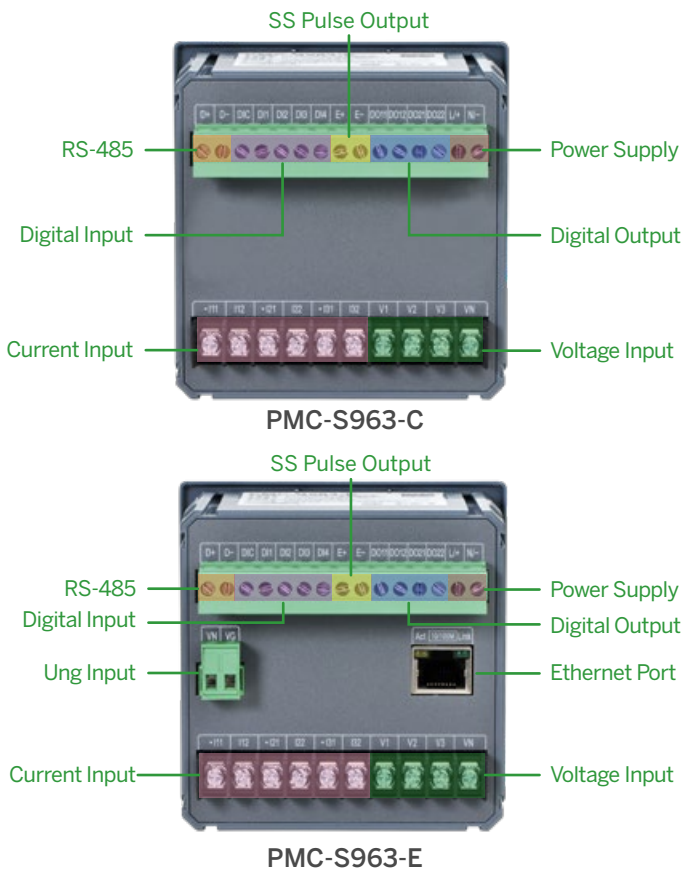
RS-485

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

Ethernet Port (PMC-S963-E Only)

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

Rear Panel



Accuracy

Parameters	Accuracy	Resolution
Voltage	$\pm 0.2\%$	0.001V
Current	$\pm 0.2\%$	0.001A
Inc	$\pm 1.0\%$	0.001A
P, Q, S	$\pm 0.5\%$	0.001kX
kWh	IEC 62053-22 Class 0.5S	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	$\pm 0.5\%$	0.001
Frequency	± 0.02 Hz	0.01Hz
THD	IEC 61000-4-7 Class II	0.001%
AO (PMC-S963-C)	$\pm 1.0\%$	-

Technical Specifications

Voltage Inputs (V1, V2, V3, VN, VG)		
	PMC-S963-C	PMC-S963-E
Standard Un	240VLN/415VLL	
Range	30V to 1.2Un	20V to 1.2Un
Overload	1.2xUn continuous, 2xUn for 1s	
Burden	<0.02VA per phase @ 240VLN	
Measurement Category	CAT III up to 300V	
Ung Measurement Range	-	0.1V to 40V
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, $\pm 10\%$, 47-440Hz
Optional	20-60VDC
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 Outputs (E+, E-)	
Type	Form A Solid-State Relay
Isolation	Optical
Pulse Width	80ms $\pm$ 20ms
Max. Load Voltage	50VDC
Max. Forward Current	50mA

Optional Analog Outputs (A+, A-)		
	PMC-S963-C	PMC-S963-E
Type	0/4-20 mA	-
Loading	500 Ω maximum	-
Overload	24mA maximum	-

Installation Torque	
Power Supply, V/I Inputs, RS-485 and I/O Terminals	5lb-in (0.5N.m)

Environmental and Mechanical Specifications

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
IP Rating	IP65

Standards of Compliance

Safety Requirements	
CE LVD 2014 / 35 / EU	EN 61010-1: 2010 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 62052-11: 2003 IEC 62053-22: 2003
AC Voltage: 2kV @ 1 minute Insulation Resistance: >100MΩ Impulse Voltage: 6kV, 1.2/50μs	

Ordering Information

Product Code	Description
PMC-S963 Intelligent Multifunction Meter	
Basic Function	C DIN96 Panel Mounting with 61x61mm Large 7-Segment LCD display, Multifunction Measurements, Demands, Multi-Tariff TOU, Harmonics up to 31 st order
Input Current	5 1 5A 1A
Input Voltage	3 240V LN/415V LL
Power Supply	2 95-250 VAC/DC, 47-440Hz
Frequency	5 45-65Hz
I/O	A B C 4xDI + 2xDO + 1xSS Pulse Output 4xDI 4xDI + 2xDO + 1xSS Pulse Output + 1xAO
Communication	A 1xRS-485
Display Language	E English
PMC-S963	- C 5 3 2 5 A A E PMC-S963-C5325AAE (Standard Model)

Product Code	Description
PMC-S963 Intelligent Multifunction Meter	
Basic Function	E DIN96 Large 7-Segment LCD display, Multifunction Measurements, Demands, Multi-Tariff TOU, Harmonics up to 31 st order Ethernet port and Ung Measurement
Input Current	5 1 5A 1A
Input Voltage	3 240V LN/415V LL
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
Display Language	E English
PMC-S963	- E 5 3 2 5 G E E PMC-S963-E5325GEE (Standard Model)

EMC Compatibility

CE EMC Directive 2014/30/EU (EN 61326: 2013)

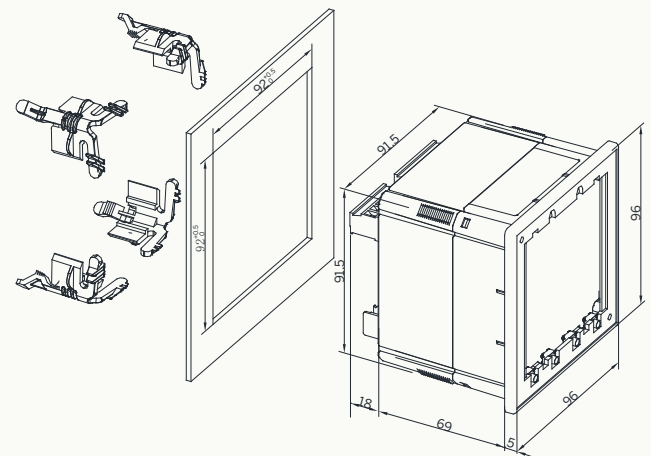
Immunity Tests	
Electrostatic Discharge	EN 61000-4-2: 2009
Radiated Fields	EN 61000-4-3: 2006 +A1: 2008 +A2: 2010
Fast Transients	EN 61000-4-4: 2012
Surges	EN 61000-4-5: 2014 +A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
Voltage Dips and Interruptions	EN 61000-4-11: 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
Shock Test	IEC 62052-11: 2003
Vibration Test	IEC 62052-11: 2003

Dimensions and Installation

Unit: mm



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