



SICAM P2 Three-phase Multi-function Power Meter

72x72mm for panel flush mounting

Answers for energy

SIEMENS

SICAM P2 Three Phase Multi-function Power Meter



Overview

SICAM P2 is a small size three phase electronic multi-function power meter with a LCD screen. It is integrated real time measurement, energy metering, status information, remote control and communication function. The SICAM P2 meter can be widely used for MV and LV power distribution systems, industrial automation control system, energy management and building power SCADA.

Main Features

The SICAM P2 meter is intended to measure grid parameters, e.g. voltage, current, power, power factor and frequency, analyze 2-50th harmonics, calculate several power quality data, and measure active and reactive energy. The RS-485 communication port supports MODBUS-RTU communication protocol and has binary input and relay output. For the SICAM P2 meter, 24-bit high-accuracy sampling measurement unit and high-speed MCU data processing unit are used to realize high-precision, wide-range, accurate measurement and rapid data analysis. Segment-code multi-row wide-angle LCD is used to display plenty of contents and is equipped with white back light. Nonvolatile memory is used to store different types of data and ensure data for a long time, and no data in the memory will be lost in the case of power failure.

Reference Standards

- IEC 62053-61
- IEC 62053-22
- IEC 62053-23
- IEC 62052-11
- Modbus-RTU

EMC and Insulation Standards

- Electrostatic discharge test
IEC61000-4-2 level 4
- Fast transient burst test
IEC61000-4-4 level 4
- Surge test
IEC61000-4-5 level 4
- Power frequency magnetic field
IEC61000-4-8 level 4
- Damped oscillatory magnetic field immunity test
IEC61000-4-10 level 4
- Radio frequency, electromagnetic field immunity test
IEC61000-4-3, level 4
- Dielectric test 2kV
- Impulse voltage test 4kV
- Oscillatory waves immunity test
IEC61000-4-12 level 3

Main Functions

- Voltage and average voltage of each phase
 - Voltage and average phase to phase voltage
 - Each phase current, average current and zero sequence current
 - Total and each phase active power, reactive power and apparent power
 - Phase angle of voltage and current of each phase
 - Total and each phase power factor
 - Measurement range of grid frequency: 45-65Hz
 - Combination active energy, supplied and demand active energy
 - Combination reactive and four-quadrant reactive energy
 - Total fundamental active energy and total harmonic active energy
 - Supply and demand active energy of each phase, combination reactive energy of each phase, fundamental active energy and harmonic active energy of each phase
 - Effective value and content rate of voltage and current of 2-50th harmonics of each phase
 - Total distortion rate of harmonic voltage and current of each phase
 - MAX & MIN value of voltage, current and power
 - 2 binary inputs, 1 relay output
 - 1 active energy pulse output
 - Range of voltage current transformation ratio: 0.0000-9999.9999
 - 160 sampled points per cycle
 - 6 programmable limit violation alarms
 - RS485 supports Modbus RTU protocol
 - Real-time display of voltage phase failure, inverse phase sequence and communication status on LCD, configurable cyclically displayed items
 - Totally enclosed design with prevention against dust
- Note: Actual functions of the meter depend on product order number.

Technical data

- Connection
Three-phase three-wire, three-phase four-wire, single-phase
- Voltage
Nominal voltage Un: AC380V, AC220V, AC100V, AC57.7V
Measurement range: 10V-264V phase voltage
Power consumption: <0.1VA (single phase @220VAC)
Accuracy: RMS 0.2% Resolution: 0.01V
Maximum measurement range: 400V phase voltage

- Current
Nominal current In: 1A, 5A
Measurement range: 0.015-6A
Power consumption: <0.3VA (single phase @5A)
Accuracy: RMS 0.2% Resolution: 0.001A
Maximum measurement range: 9A
- Power
Accuracy: 0.5%
Resolution: 0.001kW/kVar/kVA
- Frequency
Measurement range: 45-65Hz
Accuracy: 0.2%
Resolution: 0.01Hz
- Harmonics
Number: 2-50th
Accuracy: 5%
- Active energy
Accuracy class: 0.5S
Resolution: 0.01 kWh
- Reactive energy
Accuracy class: 2
Resolution: 0.01 kvarh
- Energy pulse output
1 active energy pulse output
Optical coupling isolation 4000VRMS, pulse width 80±20ms
Operating voltage range 5-80VDC
maximum current 10mA
Pulse constant:
5000imp/kwh
- Binary output
1 electromagnetic relay output, NO type
Contact capacity: AC 250V/3A, DC 30V/3A
- Binary input
2 dry contact input
Optical coupling isolation 4000VRMS
impedance 1.2kΩ
- RS-485 communication port
Type: two-wire half-duplex
Communication rate: 600bps-38400bps
Protocol: Modbus-RTU
- Operating temperature
-25 C ~ +60 C
- Operating temperature limits
-35 C ~ +70 C
- Relative humidity
≤95% (no condensate)
- Operating power supply
AC or DC power supply
Maximum input range: 40V-420V
- Power consumption: ≤1.5W, 2.5VA
- Dimensions
Appearance dimensions (mm): 72×72×85
Panel cutout (mm): 67×67
Weight: approx. 300g

Feature list



Name	P27	P26	P25	P22	P21	P20
Technical data (RMS Value)						
Voltage 57.7/100/220/380 VAC	■	■	■	—	—	—
Current 1/5 A	■	■	■	■	■	■
Frequency	■	■	■	—	—	—
Active Power	■	■	■	—	—	—
Reactive Power	■	■	■	—	—	—
Apparent Power	■	■	■	—	—	—
Power Factor	■	■	■	—	—	—
Phase Angle	■	■	■	—	—	—
Active Energy	■	■	■	—	—	—
Reactive Energy	■	■	■	—	—	—
harmonic	■	—	—	—	—	—
Measurement Accuracy						
Voltage Accuracy	0.2%	0.2%	0.2%	—	—	—
Voltage Resolution (V)	0.01	0.01	0.01	—	—	—
Current Accuracy	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Current Resolution (A)	0.001	0.001	0.001	0.001	0.001	0.001
Power Accuracy	0.5%	0.5%	0.5%	—	—	—
Power Resolution (kW /kVar/kVA)	0.001	0.001	0.001	—	—	—
Frequency Range	45 ~ 65Hz	45 ~ 65Hz	45 ~ 65Hz	—	—	—
Frequency Accuracy	0.2%	0.2%	0.2%	—	—	—
Frequency Resolution (Hz)	0.01	0.01	0.01	—	—	—
Active Energy (Accuracy Class)	0.5S	0.5S	0.5S	—	—	—
Reactive Energy (Accuracy Class)	2S	2S	2S	—	—	—
Energy Resolution (kWh/kVarh)	0.01	0.01	0.01	—	—	—
Number of harmonics	2-50	—	—	—	—	—
Harmonic Accuracy	5%	—	—	—	—	—
Input / Output						
Active Energy Pulse Output	1	1	1	—	—	—
Binary inputs	2	2	—	2	—	—
Relay output	1	1	—	1	—	—
RS 485 Communication Port	1	1	1	1	1	—
Protocol	Modbus-RTU					
Others						
Operating Temperature	-25 °C ~ +60 °C					
Storage Temperature	-35 °C ~ +70 °C					
Relative Humidity	<=95%					
Operating Power Supply	40V ~ 420V AC/DC					
Display	LCD					
Dimensions	Appearance Dimensions: 72X72X85 mm; Panel cutout: 67X67 mm					



Name

SICAM P

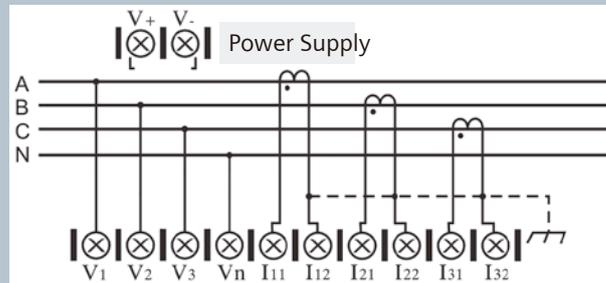
Functions

3-phase current, no communication port	2	0
3-phase current, 1 RS485 interface	2	1
3-phase current, 4 BIs, 2 BO, 1 RS485 interface	2	2
3-phase current, 3-phase voltage, power, power factor, frequency, energy, 1 pulse output, 1 RS485 interface	2	5
3-phase current, 3-phase voltage, power, power factor, frequency, energy, 1 pulse output, 2 BIs, 1 BO, 1 RS485 interface	2	6
3-phase current, 3-phase voltage, power, power factor, frequency, energy, 1 pulse output, harmonic, 2 BIs, 1 BO, 1 RS485 interface	2	7

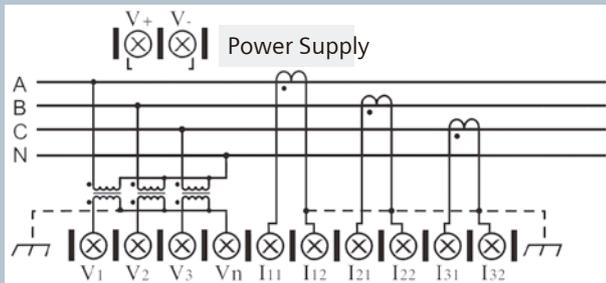
Product Order No.

Name	Order No.
SICAM P20	7KG7321-0AA00
SICAM P21	7KG7321-0AA01
SICAM P22	7KG7321-0AA21
SICAM P25	7KG7321-0BA01
SICAM P26	7KG7321-0BA21
SICAM P27	7KG7321-0HA21

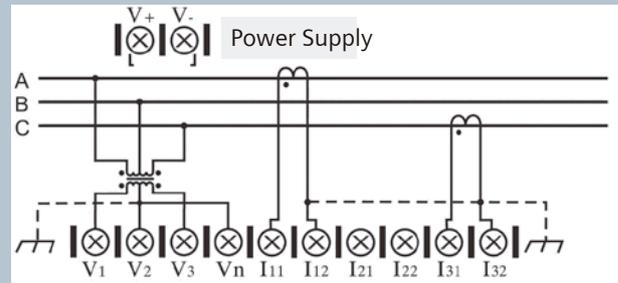
Connection Diagrams



3-phase 4-wire (without PT) Connection Diagram



3-phase 4-wire (with PT) Connection Diagram



3-phase 3-wire Connection Diagram
(V_n shall be externally short-circuited with V_2)

Back Terminal Diagram

Top Block of Terminals	V+	V-	V ₁	V ₂	V ₃	V _n
	Power Supply		Phase A Voltage	Phase B Voltage	Phase C Voltage	Neutral Terminal

Middle Block of Terminals	P+	P-	DI1	DI2	COM	A	B	R11	R12
	Active Pulse Output		1 st Binary input	2 nd Binary input	Common Terminal of binary input	RS485+	RS485-	Relay Output Terminal	

Bottom Block of Terminals	I11	I12	I21	I22	I31	I32
	Phase A Current Input	Phase A Current Output	Phase B Current Input	Phase B Current Output	Phase C Current Input	Phase C Current Output

Connection: 3-phase 3-wire and 3-phase 4-wire self-adaption
(automatic decision by phase angle)
Input Current Range: 1.5(6)A
Input Voltage Range: 3X220 / 380V

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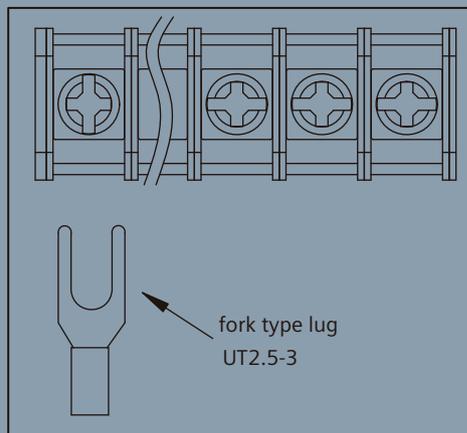
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Subject to change without prior notice.

The information in this document contains general descriptions of the technical options available, which may not apply in all cases. The required technical options should therefore be specified in the contract.

NOTE

The device main terminals are barrier terminals which can be connected using fork or ring type lug (no more than 6.5mm wide). For cables to be connected to upper and lower main terminals, cold-pressed UT2.5-3 terminal is recommended before connection. The diagram of connection is below.



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