

# Connection Diagrams

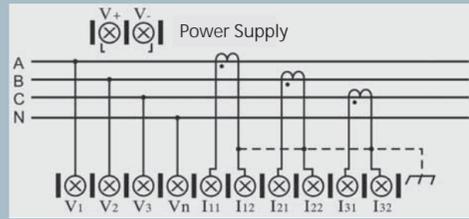


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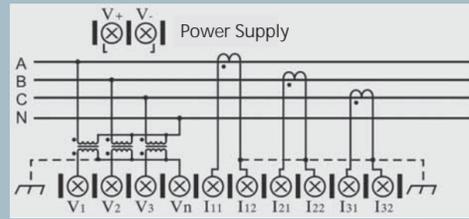
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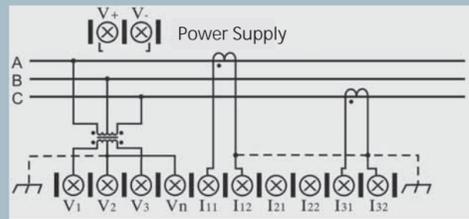
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The information in this document contains general descriptions of the technical options available, which may not apply in all cases. The required technical options should therefore be specified in the contract.



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



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



3-phase 3-wire Connection Diagram  
(V<sub>n</sub> shall be externally short-circuited with V<sub>2</sub>)

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

## Back Terminal Diagram

Top Block of Terminals

V+	V-	NC	NC	R11	R12	R21	R22
Power Supply		Reserved	Reserved	Relay 1 Output Terminal		Relay 2 Output Terminal	

Middle Block of Terminals

P+	Q+	COM1	DI1	DI2	DI3	DI4	COM2	A1	B1	A2	B2
Active Pulse Output	Reactive Pulse Output	Common Terminal of Pulse Output	1 <sup>st</sup> Binary input	2 <sup>nd</sup> Binary input	3 <sup>rd</sup> Binary input	4 <sup>th</sup> Binary input	Common Terminal of binary input	1 <sup>st</sup> RS485+	1 <sup>st</sup> RS485-	2 <sup>nd</sup> RS485+	2 <sup>nd</sup> RS485-

Bottom Block of Terminals

V1	V2	V3	Vn	I11	I12	I21	I22	I31	I32
Phase A Voltage	Phase B Voltage	Phase C Voltage	Neutral Terminal	Phase A Current Input	Phase A Current Output	Phase B Current Input	Phase B Current Output	Phase C Current Input	Phase C Current Output

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## SICAM P3 Three-phase Multi-function Power Meter

96x96mm for panel flush mounting

Answers for energy



# SICAM P3 Three Phase Multi-function Power Meter



## Feature list



### Overview

SICAM P3 is a 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 P3 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 P3 meter is intended to measure grid parameters, e.g. as 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 P3 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, level4
- 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 of each phase
- Phase angle of voltage and current of each phase
- Total and each phase power factor of each phase
- 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
- Time-of-use price, 6 rates, 14 time periods, 8 daily periods, 14 annual periods, 100 public holidays
- 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
- Power, current and energy demand
- 4 binary inputs, 2 relay output
- 2 energy (active and reactive) 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

### 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: <0.05VA (single-phase)
- Accuracy: RMS 0.2% Resolution: 0.01V
- Maximum measurement range: 400V phase voltage
- Current Nominal current In: 1A, 5A
- Measurement range: 15mA-6A
- Power consumption: <0.05VA (on nominal current)
- 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
- Harmonic 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 2 energy (active and reactive) pulse output
- Optical coupling isolation 4000VRMS pulse width 80±20ms
- Operating voltage range 5-80VDC maximum current 10mA
- Pulse constant: 5000imp/kWh, 5000imp/kvarh
- Binary output 2 electromagnetic relay output, NO type
- Contact capacity: AC 250V/3A, DC 30V/3A
- Binary input 4 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: ≤1W, 2VA
- Dimensions Appearance dimensions (mm): 96×96×95
- Panel cutout (mm): 92×92
- Weight: approx. 450g

Name	P38	P37	P36	P35	P32	P31	P30
<b>Technical data (RMS Value)</b>							
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	■	■	—	—	—	—	—
Current, Power, Energy Demand	■	—	—	—	—	—	—
TOU	■	—	—	—	—	—	—
SOE Event	■	—	—	—	—	—	—
<b>Measurement Accuracy</b>							
Voltage Accuracy	0.2%	0.2%	0.2%	0.2%	—	—	—
Voltage Resolution (V)	0.01	0.01	0.01	0.01	—	—	—
Current Accuracy	0.2%	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	0.001
Power Accuracy	0.5%	0.5%	0.5%	0.5%	—	—	—
Power Resolution (kW /kVar/kVA)	0.001	0.001	0.001	0.001	—	—	—
Frequency Range	45 ~ 65Hz	45 ~ 65Hz	45 ~ 65Hz	45 ~ 65Hz	—	—	—
Frequency Accuracy	0.2%	0.2%	0.2%	0.2%	—	—	—
Frequency Resolution (Hz)	0.01	0.01	0.01	0.01	—	—	—
Active Energy (Accuracy Class)	0.5S	0.5S	0.5S	0.5S	—	—	—
Reactive Energy (Accuracy Class)	2S	2S	2S	2S	—	—	—
Energy Resolution (kWh/kVarh)	0.01	0.01	0.01	0.01	—	—	—
Number of Harmonics	2-50	2-50	—	—	—	—	—
Harmonic Accuracy	5%	5%	—	—	—	—	—
<b>Input / Output</b>							
Energy Pulse Output	2	2	2	2	—	—	—
Binary input	4	4	4	—	4	—	—
Relay Output	2	2	2	—	2	—	—
485 Communication Port	2	1	1	1	1	1	—
<b>Others</b>							
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: 96X96X95 mm; Panel cutout: 92X92 mm						

## Name

Name	Order No.
SICAM P30	7KG7331 - 1AA00
SICAM P31	7KG7331 - 1AA01
SICAM P32	7KG7331 - 1AA11
SICAM P35	7KG7331 - 1BA01
SICAM P36	7KG7331 - 1BA11
SICAM P37	7KG7331 - 1HA11
SICAM P38	7KG7331 - 1TA12

## Product Order No.

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SICAM P35	7KG7331 - 1BA01
SICAM P36	7KG7331 - 1BA11
SICAM P37	7KG7331 - 1HA11
SICAM P38	7KG7331 - 1TA12