

3 Phase Power Meter
Energy Meter
Single Phase Power Meter
Power Transmitter
Power Protection Devices, Filters, Compensators
Power Monitoring System
Engineering case
Industrial Control Product



AX9L/AX7L Multi-function Power Meter

Product Introduction

AX9L/AX7L series network power meters are suitable for continuous monitoring and control of power distribution systems. They can measure various common power parameters. There are 2 switch outputs for alarm or remote control, and 2 channels of DI digital inputs for monitoring switch status. In the intelligent power distribution system or enterprise process automation control, it can be used as the acquisition unit, all data is connected to the power monitoring system through the RS485 communication port to realize intelligent control.

Features

Basic Function

AX9L/AX7L has a complete power parameter measurement function, providing real-time measurement of the following data:

- Voltage V: Three-phase phase voltage, line voltage
- Current I: Three-phase current
- Active power P: active power and total active power
- Reactive power Q: Reactive power and total reactive power
- Apparent power S: Apparent power of each phase and total
- Power factor PF: various power factors and total power factor
- Frequency F: When the voltage signal exists, the frequency of the voltage can be measured
- Four quadrant energy

Application field

AX9L/AX7L can be applied to data acquisition unit of intelligent power distribution system or power automation system. Main areas :

- Medium and low voltage power distribution system
- Factory Automation System
- Industrial test equipment
- Intelligent Building
- Schools, hospitals, airports
- Intelligent switch panel
- Rail transit
- Energy Management System

Communication Function

Support RS485 communication, ModBus-RTU protocol

DI & DO Functions

AX9L/AX7L have 2 channels of DI and 2 channels of DO. DI is a switch input, and DO is a switch output. The DI port information is read through RS485 communication to monitor the switch status of electrical appliances. The switch output of DO is controlled by communication commands to control the ON/OFF of equipment.

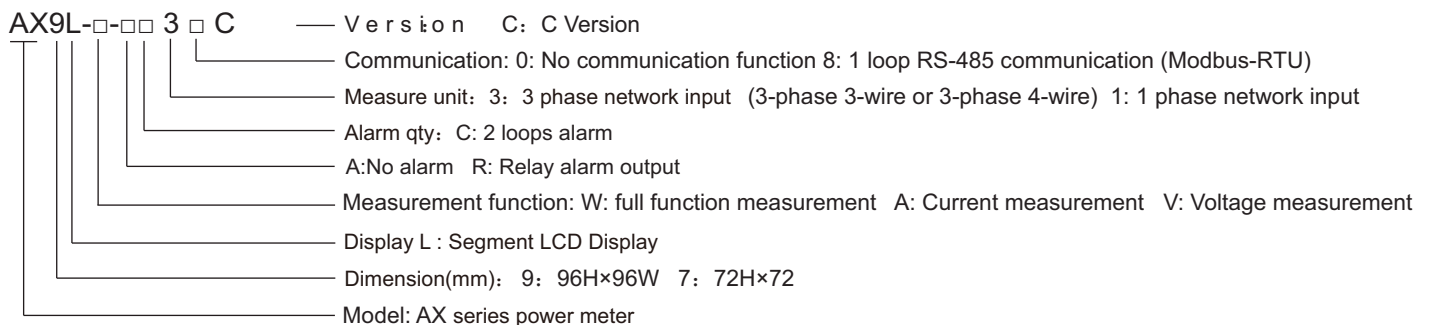
Over-limit Alarm

Users can select a parameter as the monitoring object, and set the high and low limits and time delay for it. When the parameter exceeds the set limit and the duration exceeds the set delay, the event alarm will be activated.

Energy Measurement Function

AX9L/AX7L can measure energy: total active power , total reactive power, positive active power, negative active power, positive reactive power and negative reactive power.

Model Illustration



Function List

● Inherent function ○ Optional function Blank: means no such function

Function	Parameters	□-W	□-A	□-V
Phase voltage	Ua, Ub, Uc	●		●
Line voltage	Uab, Ubc, Ucb	●		●
Current	Ia, Ib, Ic	●	●	
Active power	Pa, Pb, Pc, Ptotal	●		
Reactive power	Qa, Qb, Qc, Qtotal	●		
Apparent power	Sa, Sb, Sc, Stotal	●		
Power factor	PFa, PFb, PFc, PFtotal	●		
Frequency	F Hz	●		
Active energy	Total active energy	●		
Reactive energy	Total reactive energy	●		
Over-limit alarm	Phase loss, frequency, voltage of each phase, voltage of each line, current of each phase, active power, reactive power, apparent power, power factor, kWh, etc.	○	○	○
Telemetry & remote control functions	2DI, 2DO	○	○	○
RS485 port	Modbus®-RTU protocol	●	○	○

Ordering Information (AX9L)

Model	Alarm(DO)	DI	Communication	Function	Input	Code
AX9L-W-RC38 C	2 DO	2 DI	RS485	Full parameter measurement	10~480V (L-L) 0.02~6A	A0860AX9L03
AX9L-W-A38 C	NO	2 DI	RS485			A0800AX9L03
AX9L-W-A30 C	NO	NO	NO			A0720AX9L03
AX9L-A-RC38 C	2 DO	2 DI	RS485	Current measurement	0.02~6A	A0690AX9L03
AX9L-A-A38 C	NO	2 DI	RS485			A0630AX9L03
AX9L-A-A30 C	NO	NO	NO			A0570AX9L03
AX9L-V-RC38 C	2 DO	2 DI	RS485	Voltage measurement	10~480V (L-L)	A0690AX9L03
AX9L-V-A38 C	NO	2 DI	RS485			A0630AX9L03
AX9L-V-A30 C	NO	NO	NO			A0570AX9L03

Ordering Information (AX7L)

Model	Alarm(DO)	DI	Communication	Function	Input	Code
AX7L-W-RC38 C	2 DO	2 DI	RS485	Full parameter measurement	10~480V (L-L) 0.02~6A	A0860AX7L03
AX7L-W-A38 C	NO	2 DI	RS485			A0800AX7L03
AX7L-W-A30 C	NO	NO	NO			A0720AX7L03
AX7L-A-RC38 C	2 DO	2 DI	RS485	Current measurement	0.02~6A	A0690AX7L03
AX7L-A-A38 C	NO	2 DI	RS485			A0630AX7L03
AX7L-A-A30 C	NO	NO	NO			A0570AX7L03
AX7L-V-RC38 C	2 DO	2 DI	RS485	Voltage measurement	10~480V (L-L)	A0690AX7L03
AX7L-V-A38 C	NO	2 DI	RS485			A0630AX7L03
AX7L-V-A30 C	NO	NO	NO			A0570AX7L03

Due to limited number of terminals in AX7L, -RC38 defaults to models with 2DO, no DI function. If DI function needed, pls order models of -A38 (-RC38 models have no DO function)

Technical Specifications

Input	
Current input	
Rated current	5 A ac/1 A ac (custmized)
Measurement range	0.01In~1.2In
Overload capacity	10 times In RMS for 1s, discontinuous
Loading	0.05VA (Typical value)
Start value	0.1% of the rated value
Accuracy	0.5%
Voltage input	
Rated voltage	400VacL-N, 480VacL-L
Overload capacity	1500Vac continuous 2500Vac, 50/60Hz 1 minute
Conduction Resistance	2MΩ/phase
Measured frequency range	45Hz~65Hz
Start value	10Vac
Accuracy	0.5%

Energy Accuracy	
Active energy (in accordance with IEC 62053-22) level 1	
(Comply with GB/T17215.322-2008 IEC 62053-23) 2	
Reactive energy (in accordance with IEC 62053-23) level 2	

I/O Module	
DI input	
Input range	Passive dry contact
Relay output	
Load voltage	250Vac, 30Vdc
Load current	5A (resistive load), 2A (inductive load)
Mechanical life	1.5x10 ⁷

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Communication

RS485 (Standard)
 Modbus®-RTU protocol
 2-core shielded twisted pair wire
 Speed: 4800~19200bps

Power Supply

AC and DC power supply
 Power Supply 100~240Vac, 50/60Hz
 Power consumption 5W
 Withstand voltage 2000Vac, 50/60Hz 1 minute

Environment

Operating temperature -25℃~55℃
 Storage temperature -40℃~70℃
 Relative humidity 5%~95% (No condensation)

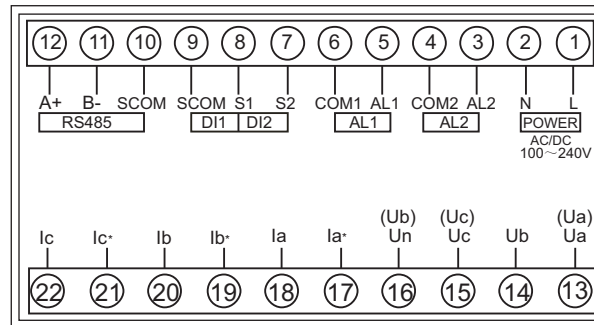
Standard compliance

Measurement standard IEC 62053-22, GB/T 17215.322-2008
 Environmental standards IEC 60068-2
 Safety standard IEC 61010-1, UL 61010-1
 Electromagnetic compatibility standards IEC 61000-4/-2-3-4-5-6-8-11, CISPR 22
 Dimension standard DIN 43700, ANSI C39.1

Energy Meter

Wiring Diagram

AX9L Wiring Diagram



The wiring diagram should be based on the actual chassis

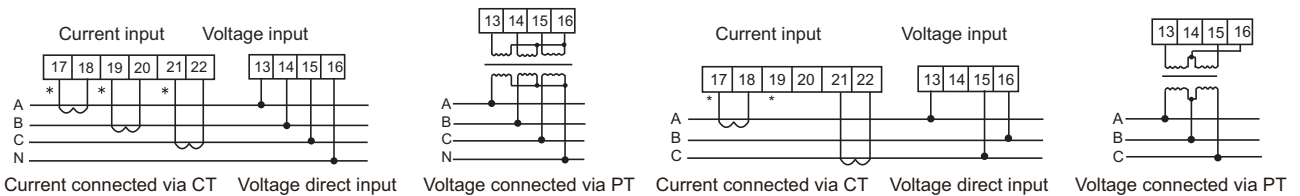
Remark: Voltage input terminal, the number in brackets means 3-phase 3-wire connection; if the wiring is changed, pls refer to the meter wiring.

Single Phase Power Meter

Power Transmitter

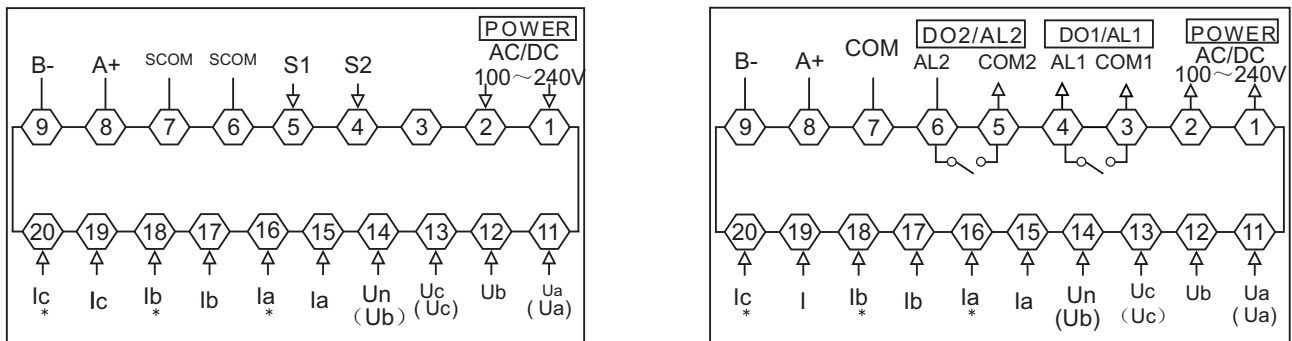
Method 1 (3 CTs): 3-phase 4-wire connection

Method 2 (2 CTs): 3-phase 3-wire connection (Only for energy measurement occasions)



Power Protection Devices, Compensators, Filters, System

AX7L Wiring Diagram



The wiring diagram should be based on the actual chassis

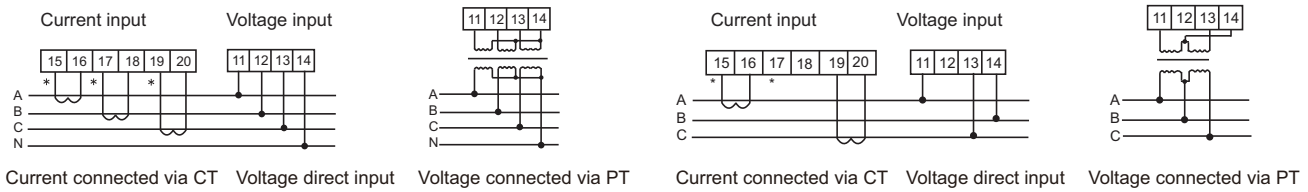
Remark: Voltage input terminal, the number in brackets means 3-phase 3-wire connection; if the wiring is changed, pls refer to the meter wiring.

Engineering case

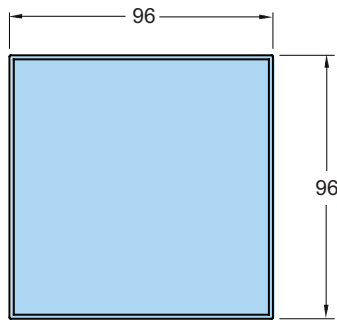
Industrial Control

Method 1 (3 CTs): 3-phase 4-wire connection

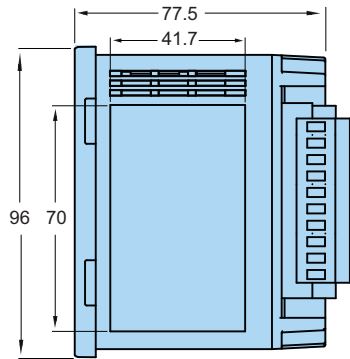
Method 2 (2 CTs): 3-phase 3-wire connection (Only for energy measurement occasions)



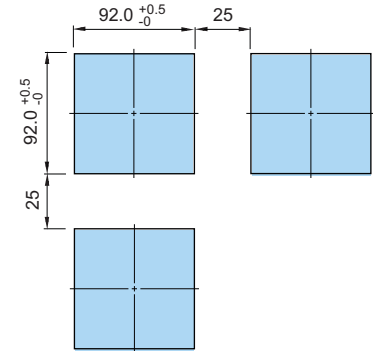
Installation And Hole Size (AX9L)



Panel size

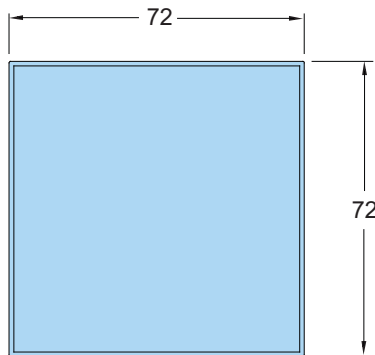


Side size

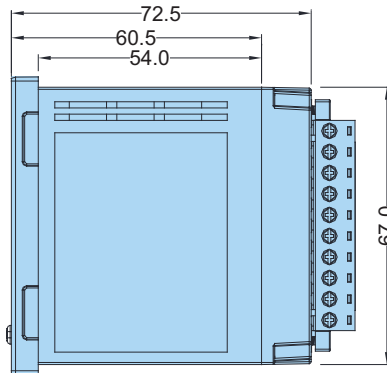


Hole size

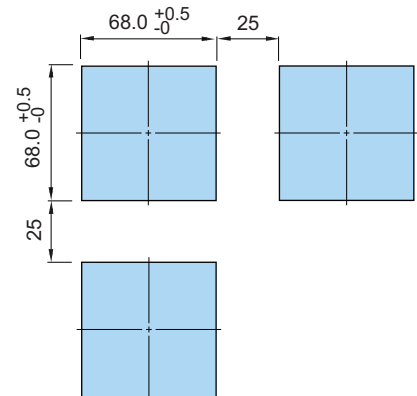
Installation And Hole Size (AX7L)



Panel size



Side size



Hole size

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