

AVM230

Multi-Function Power and Energy Meter



HIGH PERFORMANCE

- Cost-Effective
- Large LCD, White Backlight, Easy Reading
- 4th CT Input Measure Neutral Current
- Historical Data Logs with Large Capacity Storage

REVENUE METERING

- IEC 62053-22 0.5S and ANSI C12.20 0.5
- TOU, Four Tariffs, 12 Seasons, 14 Schedules
- Four Quadrant Power and Energy

STATISTICS/ ALARM

- Max/Min Values with Time Stamp
- Peak Demand with Time Stamp
- Power Quality Event Record
- Over/ Under Limit Alarm

COMMUNICATION

- Modbus RTU Protocol via RS485 Port
- Dual RS485 Ports
- PROFIBUS DP

APPLICATIONS

■ Power Distribution



■ Medium and Low Voltage Systems



■ Commercial Metering



■ Industrial Facility Metering



FEATURES

Metering

- Phase-to-Neutral Voltage, Line-to-Line Voltage, Current
- Active Power, Reactive Power, Apparent Power, Power Factor
- Frequency
- Current Demand and Power Demand
- Load Nature
- Four Quadrant Power and Energy

Max/Min Record

- Max/Min Parameter Value and Time Stamp
- Parameter Sources: Voltage, Current, Power, Frequency, etc
- Max/Min Value can be Reset

Power Quality

- Voltage Unbalance, Current Unbalance
- THD, TOHD, TEHD and Individual Harmonics to 63rd
- Crest Factor, THFF, K Factor
- Voltage and Current Phase Angles

Time of Use (TOU)

- Four Tariffs, 12 Seasons, 14 Schedules
- Weekends and 10-Year Holiday Settings
- DST Function

Data Logging

- Two Groups Historical Data Logs Available in 2 MB
- Record Metering Parameters with Time Stamp
- Metering Parameter with Programmable

Alarms

- Over or Under Setting Limit
- Up to 50 Power Measurement Parameters can be Set
- Alarm can Trigger the Relay Output, Screen Flashing and Alarm Record

Multiple I/O Functions

- Digital Input; Monitor Switch Status; SOE Record
- Relay Output: Relay Command Control Output ON/OFF; Limit Alarm Control Output

Communications

- Modbus RTU Protocol via RS485
- Dual RS485 Ports (Optional)
- PROFIBUS DP

Display

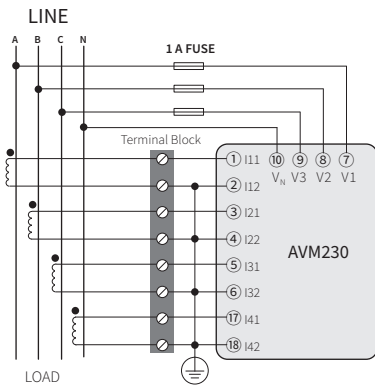
- Large LCD, White Backlight
- View Metering Parameters, Load Nature, Energy, Power Quality, etc

Energy and Energy Record

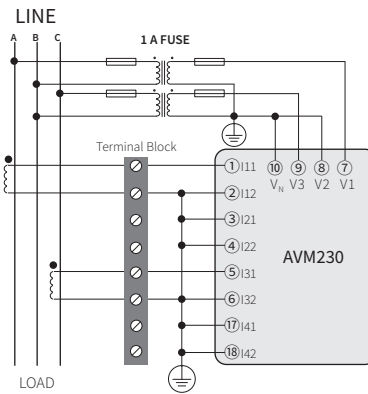
- Bi-Directional and Four Quadrant Energy
- Single-Phase Energy
- Daily Energy Record

TYPICAL WIRING

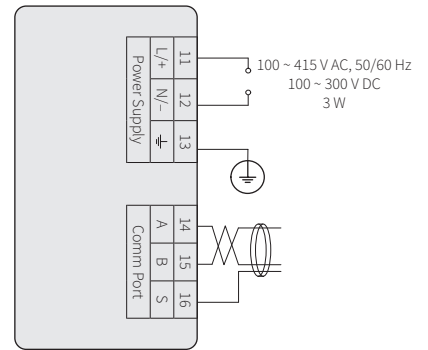
3LN, 3CT



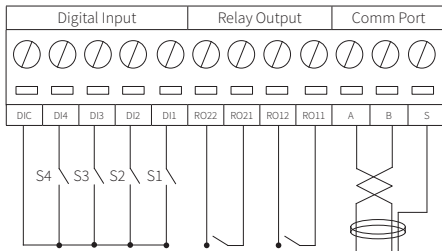
2LL, 2CT



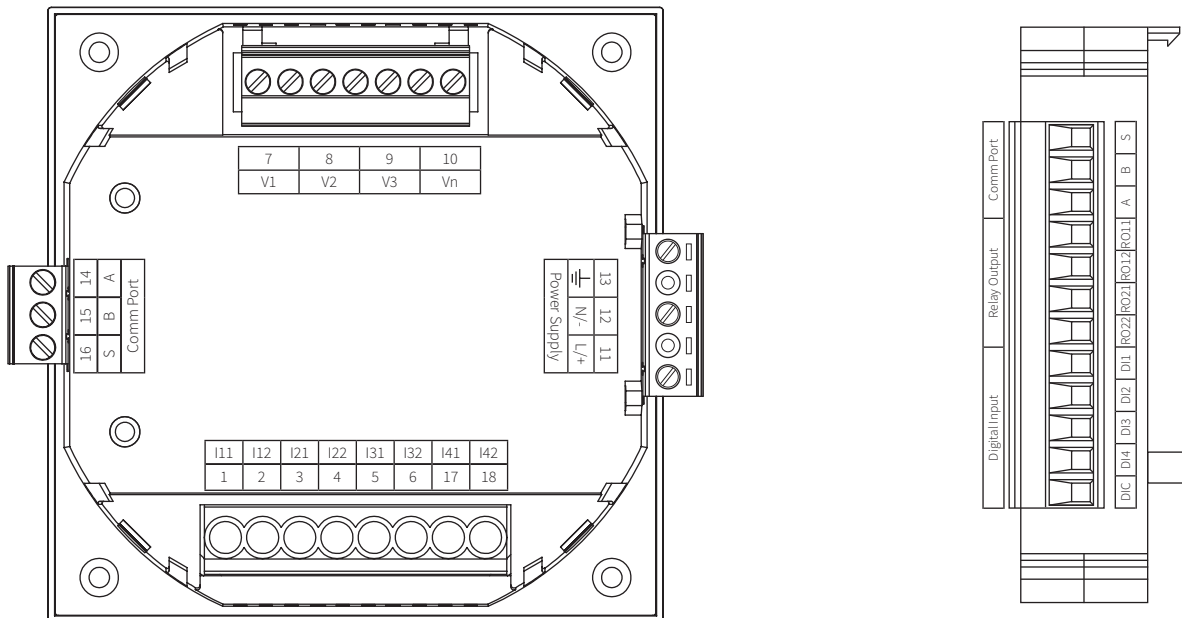
Power Supply + RS485



Digital Input, Relay Output



TERMINAL DIAGRAM



SPECIFICATION

Parameters	Accuracy	Resolution	Range
Voltage	0.2%	0.1 V	10 V ~ 1000 kV
Current	0.2%	0.001 A	0 ~ 50000 A
Current Demand	0.5%	0.001 A	0 ~ 50000 A
Active Power	0.5%	1 W	-9999 MW ~ 9999 MW
Reactive Power	0.5%	1 var	-9999 Mvar ~ 9999 Mvar
Apparent Power	0.5%	1 VA	0 ~ 9999 MVA
Power Demand	0.5%	1 W	-9999 MW ~ 9999 MW
Reactive Power Demand	0.5%	1 var	-9999 Mvar ~ 9999 Mvar
Apparent Power Demand	0.5%	1 VA	0 ~ 9999 MVA
Power Factor	0.5%	0.001	-1.0 ~ 1.0
Frequency	0.2%	0.01 Hz	45.00 ~ 65.00 Hz
Active Energy	0.5%	0.1 kWh	0 ~ 99999999.9 kWh
Reactive Energy	0.5%	0.1 kvarh	0 ~ 99999999.9 kvarh
Apparent Energy	0.5%	0.1 kVAh	0 ~ 99999999.9 kVAh
Harmonics	1.0%	0.01%	
Running Time		0.01 h	0 ~ 9999999.99 h

Input	
Current Input	
Nominal Current	① 5 A, ② 1 A, ③ 1 A (80 mA/100 mA/200 mA)
Range	① 0 ~ 10 A, ② 0 ~ 2 A, ③ 0 ~ 1.2 A
Starting Current	① 5 mA, ② 1 mA, ③ 5 mA
Burden	0.05 VA (Typical) @ 5 A rms
Withstand	100 A rms for 1 second , Non-Recurring
Accuracy	0.5%
Voltage Input	
Nominal Voltage	400 V AC L-N, 690 V AC L-L (+20%)
Withstand	1500 V AC Continuous 2500 V AC, 50/60 Hz for 1 minute
Input Impedance	2 MΩ/Phase
Metering Frequency	45 Hz ~ 65 Hz
Accuracy	0.5%
Energy Accuracy	
Active Energy	IEC 62053-22 Class 0.5S ANSI C12.20 0.5
Reactive Energy	IEC 62053-24 Class 1.0S
Harmonics	
Metered Value	2nd ~ 63rd Harmonics

Communication	
RS485 (Standard)	
Modbus RTU Communication Protocol	
Baud Rate: 1200 ~ 57600 bps	
Second RS485 Port (Optional)	
Modbus RTU Communication Protocol	
Baud Rate: 1200 ~ 57600 bps	
PROFIBUS (Optional)	
PROFIBUS-DP/V0 Protocol	
Work as PROFIBUS Slave, Baud Rate Adaptive, Up to 12 M	
Model : Input Bytes: 32, Output Bytes: 32	
PROFIBUS Standard According to EN 50170 Vol. 2	

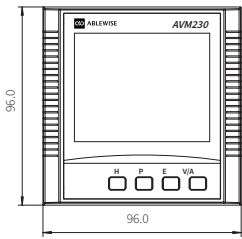
Digital Input (DI)	
Input Type	Dry
Input Resistance	4 kΩ
Pulse Frequency(Max)	100 Hz, 50% Duty Ratio
SOE Resolution	2 ms

Relay Output (RO)	
Switching Voltage	250 V AC, 30 V DC
Switching Current	5 A (R), 2 A (L)
Set Time	10 ms (Max)
Contact Resistance	30 mΩ (Max)
Isolation Voltage	2500 V AC
Mechanical Life	1.5×10^7

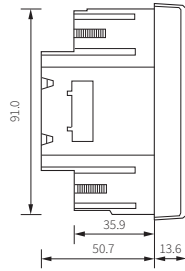
Power Supply	
AC/DC Power Supply	
Operating Range	100 ~ 415 V AC, 50/60 Hz; 100 ~ 300 V DC
Power Consumption	3 W
Withstand	3250 V AC, 50/60 Hz for 1 minute
Low Voltage DC Power Supply (Optional)	
Operating Range	20 ~ 60 V DC
Power Consumption	3 W

Operating Environment	
Operating Temperature	-25 ~ 70 °C
Storage Temperature	-40 ~ 85 °C
Relative Humidity	5% ~ 95% (Non-Condensing)

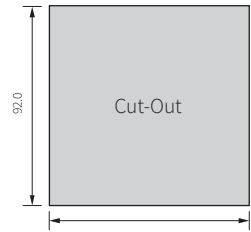
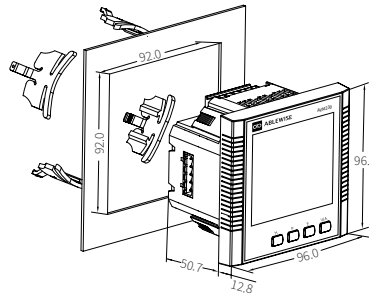
Standards Compliance	
Product Standard	
Product Standard	IEC 61557-12
Safety Standard	
Safety Standard	IEC 61010-1 ed.3; IEC 61010-2-30 ed.2
Electromagnetic Compatibility	
Electrostatic Discharge Immunity	IEC 61000-4-2
Radiated Field Immunity	IEC 61000-4-3
Fast Transients Immunity	IEC 61000-4-4
Surge Immunity	IEC 61000-4-5
Conducted Disturbances Immunity	IEC 61000-4-6
Power Frequency Magnetic Field Immunity	IEC 61000-4-8
Radio-Frequency and Radio Disturbance	CISPR 11/CISPR 22; EN 55011/EN 55022



Front View



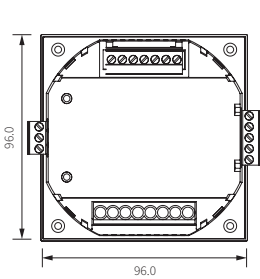
Side View



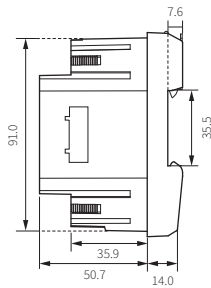
Cut Out

DIN-Rail Mount Meter Dimensions

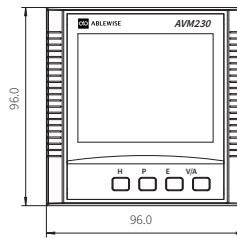
External Display Module Dimension



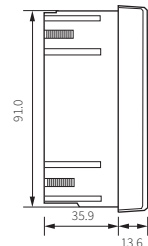
Rear View



Side View

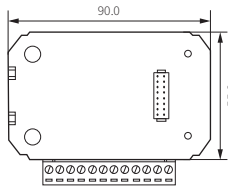


Front View



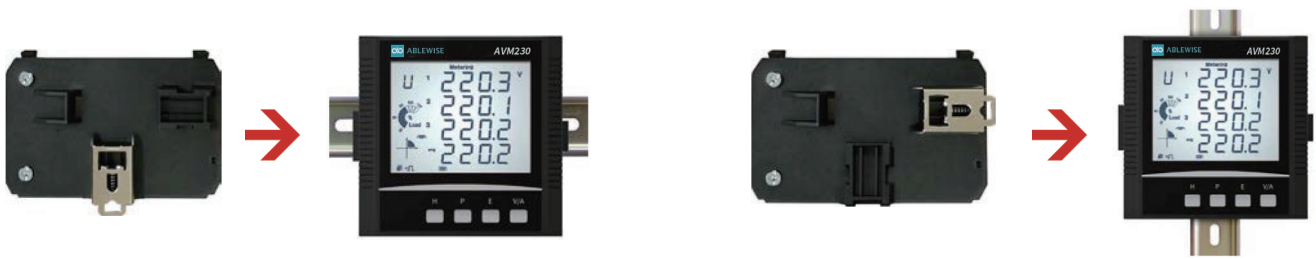
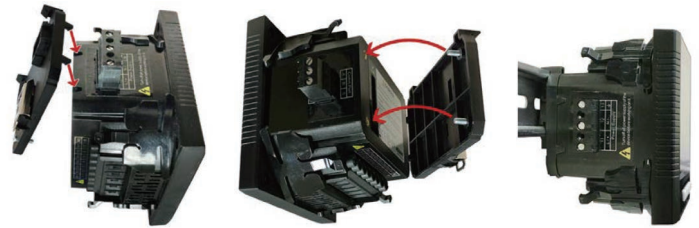
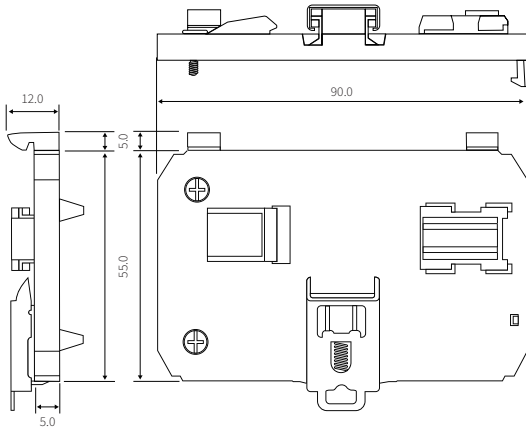
Side View

I/O Module Dimensions



AVM2-DIN DIMENSIONS

Unit: mm



ORDERING INFORMATION

Model	Mounting Options	Current Input	Power Supply	Expansion Module
AVM230	- D: LCD display	- 5A: 5 A	- P1: 100 ~ 415 V AC , 50/60 Hz; 100 ~ 300 V DC	- X3: PROFIBUS
	- M: DIN-Rail Mounting without Display	- 1A: 1 A	- P2: 20 ~ 60 V DC	- X6: 4DI+2RO+RS485
		- 200mA: 1 A		

Ordering Example: AVM230 - D - 5A - P1 - X6

Accessories (Optional)	
AVM2-DIN	- DIN-Rail Adapter
AVM2-IP66/NEMA4X	- Environmental Protection Cover
AVM2-DS1	- Remote Display (Only for DIN-Rail Mounting "M")

Ordering Example: AVM2-DS1

Revision Date: Apr., 2024 V1.02

