



Multifunction Meter with 4 to 20mA DC (Dual) Output

Instrument
Division

AE 9000

Data sheet No. : AE-9000

1. Product Perspective

AE 9000 is used in variety of industrial and commercial applications. AE 9000 computes -Display, Monitor, stores, and communicate up to 67 major electrical parameters, including true RMS Voltage, Current, PF, Frequency, Active power, Reactive power, Apparent power, Active energy, Reactive energy, Apparent energy, Total harmonic distortion (THD) and Maximum demand. The meter offers simple user-friendly Programming of Voltage, current, and power Measurement parameters using a menu driven interface. Status of all parameters can be viewed through 38 main Screens on the 3 line, 4 digits LED display. The AE 9000 has digital RS485 Communication outputs for MODBUS and is ideal for Energy Management System.

2. Operation

AE 9000 offers high functionality and uncomplicated operation. AE 9000 measures all the values needed to monitor power and Energy. A five-button interface on the front panel gives simple access to the measuring, display and configuration screens. With the help of “^” (navigation key) buttons, can access total 63 major electrical parameters. The parameters to be viewed through display screens.

3. Product Features

- Fully programmable CT and PT ratio (Primary / Secondary).
- Fully programmable selection of three phase 3 wire or 4 wire configuration.
- Programmable Single & Three phase system configuration.
- The true RMS measurement.
- Display and communication of up to 67 parameters through 38 screens / pages.
- KVA & KW Demand Measurements. Demand interval can be set from 5 to 30 minutes.
- Password protection.
- Simultaneously three parameters can be view
- Total Voltage or Current % THD measurement.
- Phase angle & Phasor angle measurement.
- Separate registers for Import and Export energy measurement.
- Energy summation (Import + Export) for Active, Reactive & Apparent Energy.
- Display Previous Energies (before the energies were reset).
- Neutral Current Measurement.
- RS 485 interface for configuration, communication and downloading purpose.
- Confirm to IP54 (front face)
- Run Hr. & ON Hr display.
- LED and Memory test facility.
- High quality LED display.
- Simple menu driven.
- EMS Software available (optional).
- Real Time clock
- Universal Auxiliary Power Supply.
- Recording & Display of Minimum Voltage & Current values.
- 4 to 20mA DC (Dual) Output

4. Monitors

- Voltage- Line – Line , Line - Neutral & System voltage.
- Current- Individual Phase, Average & Neutral
- Frequency
- Power (Active, Reactive and Apparent)
- Energy (Active, Reactive and Apparent)
- Power Factor(per phase & average along with phase & Phasor angle)
- Maximum demand – (Active & Apparent)
- Minimum / Maximum Voltage & Current Values.

5. System Input

Designed for all low, medium and high voltage switchgear and distribution systems, the AE-9000 Has customer programmable PT and CT ratio capability. Both primary & secondary are configurable. The standard nominal inputs Voltage are 415 or 110 V AC (L-L) & Current – 1A or 5 A AC.

6. Typical Applications

- Energy Generation & Distribution Systems
- Industrial & Commercial Generator sets.
- Building management System.
- Energy Management System.
- Control & Monitoring Systems.
- Process Control.
- Switch Gear.





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7 Display Parameters of AE 9000

Premium Class– AE 9000 (with THD % Measurement)

- Volts R-N
- Volts Y-N
- Volts B-N
- Volts RY
- Volts YB
- Volts BR
- Avg. Voltage
- Current R
- Current Y
- Current B
- Avg. Current
- IN
- Frequency
- pf R
- pf Y
- pf B
- System PF
- Phase Angle R
- Phase Angle Y
- Phase Angle B
- Phasor Angle R-Y
- Phasor Angle Y-B
- Phasor Angle B-R
- kWh Total
- kWh Import
- kWh Export
- kVarh Total
- kVarh Import
- kVarh Export
- kVAh Total
- kVAh Import
- kVAh Export
- Prev. energies kWh Total
- Prev. energies kVarh Total
- Prev. energies kVAh Total
- Prev. energies kWh Import
- Prev. energies kVarh Import
- Prev. energies kVAh Import
- Prev. energies kWh Export
- Prev. Energies kVarh Export
- Prev. Energies kVAh Export
- kW R
- kW Y
- kW B
- System kW
- kVA R
- kVA Y
- kVA B
- System kVA
- kVar R
- kVar Y
- kVar B
- System kVar
- MD KW
- MD KVA
- Run Hrs. Total
- Run Hrs. Import
- Run Hrs. Export
- Total ON Hrs.
- RTC – Date & Time
- 3P4W3E
- 3P3W3E
- 3P3W2E
- 1P1E
- Min Value Voltage
- Min Value Current
- Max. Value Voltage
- Max. Value Current
- CTR / PTR Programming
- DISPLAY LED
- RS 485
- THD % of total Voltage Signal
- THD % of total Current Signal
- LED Test
- Memory Test
- EMS / BMS Software comply
- Accuracy class : 1 (0.5*)
- Bezel size : 96 x96

Note : Parameter marked by '*' will be optional, # : Accuracy class is not same for all measured parameters.



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8. Specifications

Type	1 / 3-Phase-3-wire/ 4wire, (Programmable through front panel Switches).
Input voltage V AC	110V or 440 V (L-L)
Voltage Overload	1.5 times for 10 sec
Input Current A AC	1A or 5A
Current Overload	50A max for 3 sec
Auxiliary supply	AC / DC: 85 V - 300 V.
Burden	For Voltage / Current - 0.2 VA max per Volt/Amp input, Auxiliary - 3VA max.
Frequency	45 Hz - 55Hz
Resolution	RMS 4 digit, Integral 8 digit
Accuracy Class	0.5 for True Rms, Volt, Current, Var, Watt, Frequency, Power Factor 0.5 Lag to 1 to 0.5 Lead
RS485 communication	Two wire half duplex Baud rates - 4800, 9600, 19200, 38400.
Isolation	2k VAC isolation for 1min. between communication and other circuit.
Demand Interval	Programmable from 5 to 30 Minutes. (In steps of 1 Minute)
Environmental	Operating Temp. -10 to +60 °C. Storage temp.-20 to +85°C, Humidity [95% RH non condensing.
Mechanical Size	Bezel : 96 x 96 mm, 144 x 144 Depth : 83mm behind Bezel
Protection	IP54 for front Display.
Conform to	IS 1248 - Part1, IS13875, IEC- 61000-4-2, IEC61000-4-5, IEC61000-4-6, EMI/EMC- IS14697;CL 12.8.5. For Energy Accuracy - Class 1 - IS13779 / IEC62052-11 & 62053-21 & Class 0.5S - IS14697.
Casing	ABS
Keypad	5 Functional keys
LED Indication	31 individual LED's for parameter information
Output	4 to 20 mADC (Dual Isolated)
Output Burden	500Ω

9. Digital Communication

An RS485 communication Port is available for direct connection to SCADA systems (EMS / BMS) using the Modbus RTU protocol. Remote monitoring enables the user to record the systems parameters in real time basis.

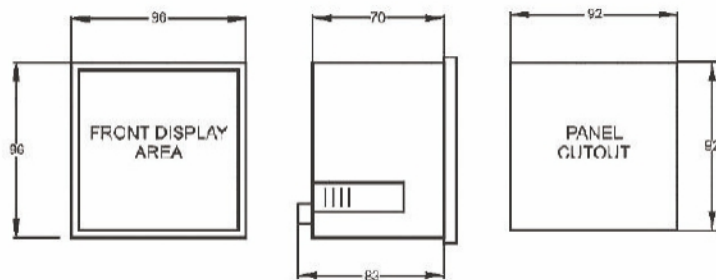


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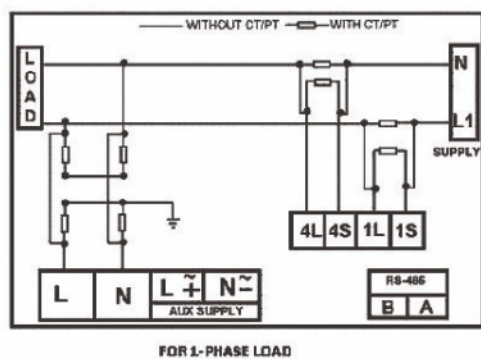
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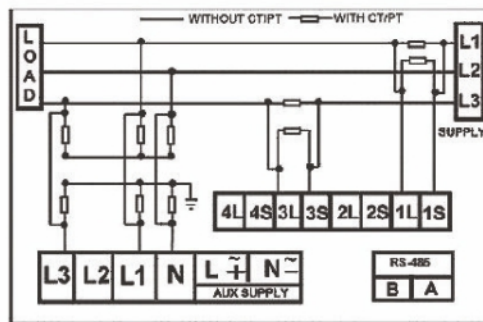
10. Dimensions:



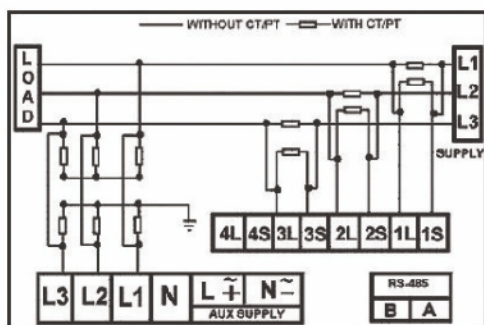
11. Wiring Diagram:



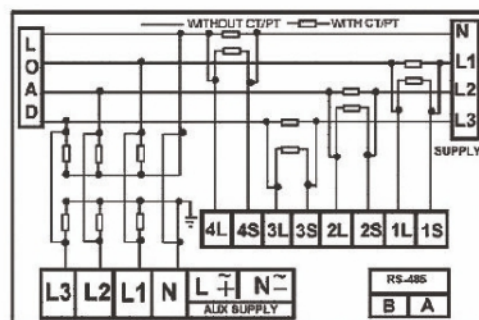
FOR 1-PHASE LOAD



3-PHASE 3-WIRE 2-ELEMENT



3-PHASE 3-WIRE 3-ELEMENT



3-PHASE 4-WIRE 3-ELEMENT