Technical Data Sheet

ALPHA CM 30 / 60
Compact VAF Meter

Alpha CM30/60 Compact VAF Meter measures electrical parameters in 1 Phase Network for AC direct current measurement application.

Special Features

- True RMS measurement.
- 2 Line 4 digits ultra bright LED display.
- Direct current measurement upto 30/60 A depending on model.
- Fast & Easy Installation on housing with self clicking
- Optional RS485 (MODBUS) for remote settings and monitoring.

Application

- Motor Pump Panels
- Battery Charging Panels
- LV panels
- Test Bench Kits & Many More to Explore

Product Features

Display parameters
- Voltage VLN, VLL, Line current, Frequency, RPM, System Min-Max Voltage and Current THD

True RMS measurement
- The instrument measures distorted waveform up to 15th Harmonic.

2 line 4 digits LED display
- 2 Line 4 digits seven segment LED display for simultaneous reading of voltage and current.

Storage of system parameters
- The instrument stores minimum and maximum values for system voltage, system current available on both display and MODBUS.

Front panel keys
- Using three key, it is possible to go to desired parameter on screen instantly. Three keys are also useful for easy setup navigation and changing setup parameter.

Display Autoscroll
- Display auto scroll enables user to see all parameters without key operation.
- On site selection of auto/manual scrolling.

Direct Connected Current Measurement
- Instrument measures current upto 30/60A depending on variant, without any external CT.

Communication
- Optional Isolated multi baud rate RS485 (MODBUS)output for remote viewing, configuration and external logging.

On site programmable PT parameters
- Potential Transformer (PT) primary and secondary is programmable on site through front panel keys and MODBUS.
- PT Primary value ranging from 57VLN to 4618 kVLN.
- PT Secondary value ranging from 57VLN to 300VLN.

Auxiliary supply
- Higher Auxiliary power supply with voltage range 60V-280V AC / DC.
- Lower Auxiliary power supply with voltage range 20-60V AC/DC.

Enclosure Protection for dust and water
- Conforms to IP 54 (for front face) & IP 20 (for back) & as per IEC60529.

EMC Compatibilty
- Compliance to IEC61326

Technical Specifications

Operating Measuring Ranges	
Voltage Range	5.77VLN ..... 360VLN AC RMS
Current Range	Alpha CM30: 1A .....36A (AC RMS), Alpha CM60: 1A.....72A (AC RMS)
Frequency	45…65 Hz
Input Voltage	
Nominal input voltage (Vn)	57.7 - 300V L-N
Max continuous input voltage	120% of Nominal value
Nominal input voltage burden	0.3 VA approx. per phase at Nominal 240 VLN
System PT secondary values	57VLN to 300 VLN programmable on site
System PT primary values	57VLN to 4618 kVLN programmable on site
Input Current	
Nominal input current (In)	Alpha CM30 - 30A, Alpha CM60 - 60A
Max continuous input current	120% of nominal value
Nominal input current burden	0.1 VA approx.
Auxiliary Supply	
Higher AC-DC External Aux.	60-280V AC-DC (230V AC/DC Nominal)
Lower AC-DC External Aux.	20-60V AC/DC (24V AC/48V DC Nominal)
Frequency range	45 to 65 Hz
VA burden	< 5 VA Approx.
Overload Withstand	
Voltage	2x Nominal value for 1 second, repeated 10 times at 10 second intervals
Current	20 x Nominal value for 1 second, repeated 5 times at 5 second intervals
Reference Conditions for Accuracy	
Reference temperature	23°C ±2°C
Input waveform	Sinusoidal (distortion factor 0.005)
Input frequency	50 or 60 Hz ±2%
Auxiliary supply voltage	Nominal Value ±1%
Auxiliary supply frequency	Nominal Value ±1%
Total Harmonics distortion	THD-V < 30 % at Vn upto 15th harmonics (Individual 15th harmonics < 30 %) THD-I < 50 % at In upto 15th harmonics (Individual 15th harmonics < 30 %)
Display update rate	
Response time to step input	Less than 1 second
Accuracy	
Voltage	± 0.5 % of Nominal Voltage (20... 100% of Nominal value)
Current	± 0.5 % of Nominal Current (10... 100% of Nominal value)
Frequency	± 0.2 % of mid frequency
%THD Accuracy	± 4%

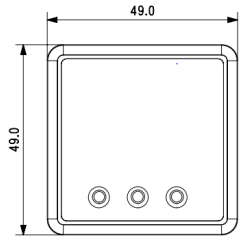
Technical Specifications

Influence of Variations	
Temperature coefficient (for nominal value range of use -20°C to 60°C)	0.025 % /°C for Voltage and Frequency 0.05 % /°C for Current
Applicable Standards	
EMC	IEC 61326 - 1 : 2012, (Table 2)
Safety	IEC 61010-1-2010 , Permanently connected use
IP for water & dust	IEC 60529
Interfaces: (optional)	
MODBUS	RS485 Baud rate : 4.8, 9.6,19.2, 38.4, 57.6 kbps
Environmental	
Operating temperature	-20°C to +60°C
Storage temperature	-30°C to +70°C
Relative humidity	0... 90%(non condensing)
Warm up time	Minimum 3 minute
Shock	Half sine wave, Peak acceleration 30gn (300 m/s^2), duration 18ms 3 axis- 6 Shocks in each axis
Vibration	10... 55Hz, 0.15mm amplitude
Altitude	2000 m max
Enclosure	
Front	IP 54
Back	IP 20
Mechanical	
Housing dimensions	49 x 49 x 90.4 mm^3
Panel cut-out	45 x 45 mm^2
Back depth	80.1 mm
Packed/Unpacked Weight	145 gm, 115 gm
Clamp Screw Size	M3
Cable size for Voltage and Aux	2.5 mm^2
Cable size for Modbus	2.5 mm^2
Cable size for Current	90.25 mm^2
Torque to be applied	0.3 N-m to 0.5 N-m
Safety	
Pollution degree	2
Installation category	III
High Voltage Test	3.3 kV AC, 50Hz for 1 minute between aux. and measuring inputs 2.2 kV AC, 50Hz for 1 minute between aux. and MODBUS

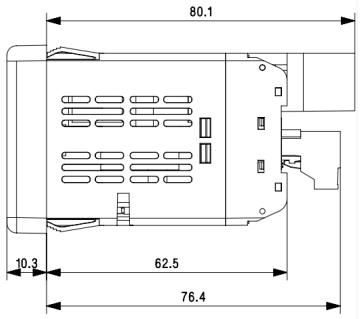
Parameter Measurement and Display

Sr No	Displayed Parameters	1Phase 2Wire
1	System Voltage	✓
2	Max (System Voltage / System Current)	✓
3	Min (System Voltage / System Current)	✓
4	System frequency	✓
5	RPM	✓
6	System Voltage and Current THD	✓

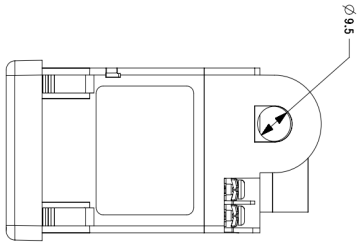
Dimensions



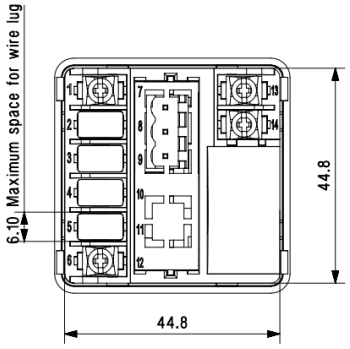
Front View



Top View



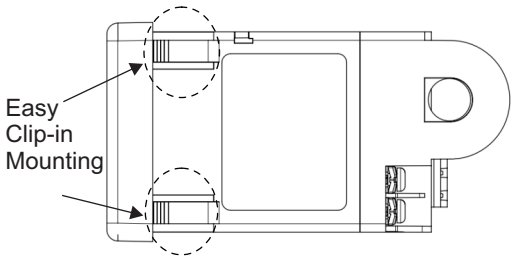
Side View



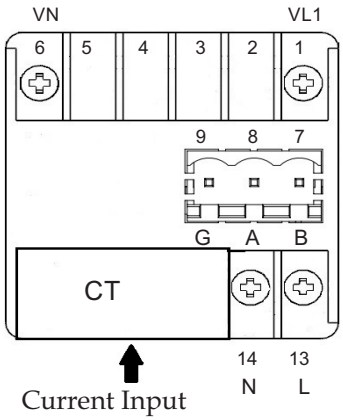
Back View

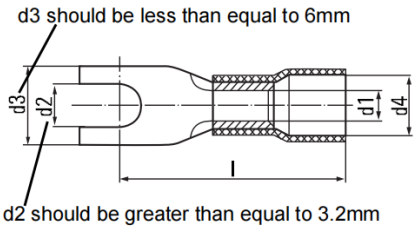
Installation

Installation



Terminal Connections



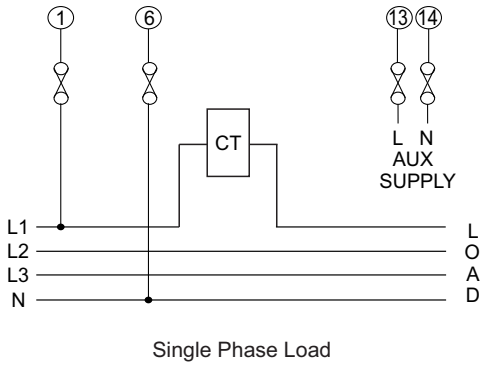


Lug for Voltage and Aux Connection

Note:

1. For MODBUS B refers to Positive, A refers to Negative and G refers to ground.
2. Use stranded wire for terminal connection.

Electrical Connections



Single Phase Load

Ordering information

Product Code	AV00-	S	5	1	1	X	X	X	1000ST
Size	48 X 48 mm								
Accuracy Class	Class 0.5								
System Type	1 Phase								
Input Voltage	57.7-300V L-N								
Input Current	30A (Alpha 30) 60A (Alpha 60)					0 2			
Output Option	RS485 Communication Not Required						R Z		
Aux Voltage	60-280V AC/DC 20-60V AC/DC							H L	

Order Code Example

AV00-S5110RH1000ST - 48 x 48mm, 1 Phase, 57.7 - 300VLN, 30A, RS485, AUX 60V – 280V AC/DC, Class 0.5

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PRECISION INSTRUMENTATION

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