sifam tinsley
PRECISION INSTRUMENTATION

MULTIFUNCTION METERS
www.sifamtinsley.co.uk

DATASHEET

Issue 1



Multifunction Meters
Transducers & Isolators
Temperature Controllers
Converters & Recorders
Digital Panel Meters
Current Transformers
kWh Energy Meters
Analogue Panel Meters
Shunts
Digital Bargraphs
Digital Multimeters
Protection Relays
Synchroscope Series
Rotary Switches
Power Supplies
Test & Measurement

ALPHA 10X

RoHS CE

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This datasheet superseded all previous versions – please keep for future reference

ALPHA 10X

Product Features:

- True RMS measurement
- Front panel keys
- Storage of parameters
- Display
- On site programmable
- MODBUS (RS485) Output
- Limit (Alarm) Output
- Compliance to International Safety standards
- Auxiliary supply
- EMC Compatibility

Alpha 10X Multimeter



Overview

Sifam Tinsley Alpha 10X measures important electrical parameters in 3 phase 4 wire, 3 phase 3 wire, 1 phase 2 wire and 1 phase 3 wire (split-phase) network. It displays many parameters at a glance. It measures electrical parameters like Voltage, Current, Frequency & power factor. The instrument has one optional built in relay output which can be configured as limit output. MODBUS RTU over RS-485 is built in for remote monitoring and configuration

Product Features

True RMS measurement
The instrument measures distorted waveform up to 15th harmonic

Front panel keys
Two keys are useful for easy setup navigation and changing setup parameters

Storage of parameters
The instrument stores minimum and maximum values of System Voltage, System Current. Also Run Hour, ON Hours, number of AUX interrupts are stored.

Display
3 Line, 4 Digit bright Red LED display and indication LEDs
Display can be configured for automatic scrolling of parameters or manual scrolling through keys as per requirement and application of user

On site programmable
It is possible to program primary, secondary of external potential transformer (PT) & primary, secondary of external current transformer (CT) Autoscroll via front panel keys and MODBUS

MODBUS (RS485) Output:
RS485 output enables the instrument to transmit all the measured parameters over standard MODBUS protocol
The instrument can be configured baud rate, Device address via Keys & MODBUS communication

Limit (Alarm) Output
Potential free 1NO contact
Fully configurable trip point, hysteresis, on and off delays for Limit Output operation

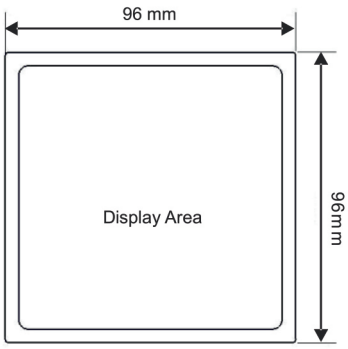
Compliance to International Safety standards

Compliance to International Safety standard IEC 61010-1:2017

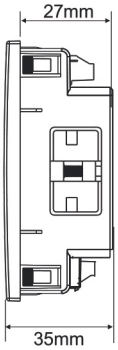
Auxiliary supply
Higher Auxiliary power supply with voltage range 60V-300V AC/DC
Lower Auxiliary power supply with voltage range 20V-60V AC/DC

EMC Compatibility
Compliance to International standard IEC 61326

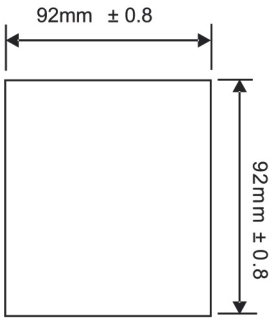
Dimensions Details



Front View



Side View



Panel Cutout

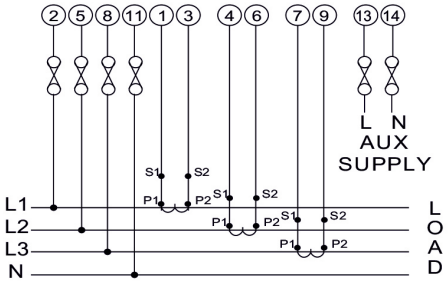
Technical Specifications:

Input Voltage:	
Nominal input voltage (AC RMS)	288.68VLN (500VLL)
System PT secondary values	100VLL to 500VLL programmable on site.
System PT primary values	100VLL to 1200kVLL programmable on site. (1000MVA maximum power per phase) (1200kVLL when CT primary ≤ 1002A)
Max continuous input voltage	120% of nominal value
Overload Indication	"-ol-" >121% of Nominal value
Nominal input voltage burden	< 0.1VA approx. per phase
Overload Withstand	2 x rated value for 1 second, repeated 10 times at 10 second intervals
Input Current:	
Nominal input current	1A / 5A onsite programmable
System CT primary values	From 1A to 9999A (1000 MVA maximum power per phase) (9999A when PT primary ≤ 120kVLL)
Max continuous input current	120% of nominal value
Overload Indication	"-OL-" >121% of Nominal value
Nominal input current burden	< 0.3VA approx. per phase
Overload Withstand	20 x rated value for 1 second, repeated 5 times at 5 minute intervals
Auxiliary Supply:	
Higher Auxiliary supply range	60-300V AC/DC (230V nominal)
Lower Auxiliary supply range	20-60V AC/DC
Aux Supply frequency	45 to 65 Hz range
Auxiliary Supply burden	< 4VA approx (230V nominal).
Operating Measuring Ranges:	
Current	5 … 120% of nominal value
Voltage	10 … 120% of nominal value
Power Factor	0.5 Lag ... 1 0.5 Lead
Frequency	40Hz to 70Hz
Reference Conditions for Accuracy:	
Reference temperature	23°C +/- 2°C
Influence of temperature	0.025%/°C for Voltage & 0.025%/°C for Current
Input Waveform	Sinusoidal (distortion factor 0.005)
Input frequency	50/60 Hz ± 2%
Voltage Range	10...120% of nominal Value
Current Range	5...120% of nominal Value
Power Factor	40...120 % of nominal Value of Voltage 40...120% of nominal Value of Current
Display update rate	
Response time to step input	1 sec approx.

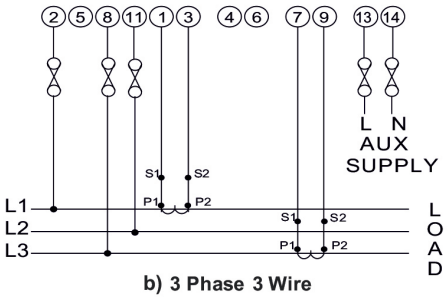
Datasheet subject to change without notice.

Electrical Connections

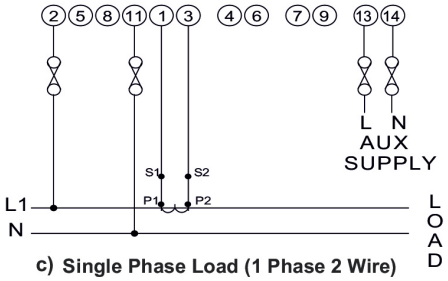
Network Types :



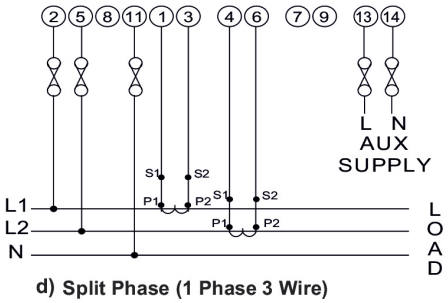
a) 3 Phase 4 Wire



b) 3 Phase 3 Wire



c) Single Phase Load (1 Phase 2 Wire)



d) Split Phase (1 Phase 3 Wire)

It is recommended that the wires used for connections to the instrument should have lugs crimped at the end. That is, the connections should be made with Lugged wires for secure connections.

Technical Specifications:

Accuracy:	
Voltage	± 0.5% of Nominal value
Current	± 0.5% of Nominal value
Frequency	± 0.1% of mid frequency
Power Factor	±2°
Applicable Standards:	
EMC	IEC 61326 - 1, Table 2
Immunity	IEC 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11
Emission	CISPR 11
Safety	IEC 61010-1:2017
IP for water & dust	IEC 60529
Isolation:	
Pollution degree	2
Installation category	III
High voltage test : • All Circuit Vs Surface • Input / AUX Vs Others • Input Voltage Vs Input Current • Input Vs AUX •RS485 Vs Relay	 3.5 kV RMS, 50Hz, 1min 3.3 kV RMS, 50Hz, 1min 2.2 kV RMS, 50Hz, 1min 3.3 kV RMS, 50Hz, 1min 2.2 kV RMS, 50Hz, 1min
Environmental:	
Operating temperature	-10 to +60°C
Storage temperature	-25 to +70°C
Relative humidity	0... 95% RH (non condensing)
Warm up time	Minimum 3 minute
Shock (As per IEC60068-2-27)	Half sine wave, Peak acceleration 30gn (300 m/s^2),duration 18ms.
Vibration	10 ... 150 ...10 Hz, 0.15mm amplitude
Number of Sweep cycles	10 per axis,
Enclosure	IP 20 (Terminal side) and IP 54 (Front side)
Interfaces:	
Relay	250 VAC, 5A AC 30VDC, 5A DC
MODBUS	RS485, Baud rate : 4.8k,9.6k,19.2k, 38.4k 57.6k bps (Response time > 200ms)
Installation:	
Mechanical Housing	Lexan 940 (polycarbonate), Flammability Class V-0 acc. to UL 94, self extinguishing, non dripping, free of halogen
Mounting Position	Panel Mounted (96X96)
Connection Element	Conventional screw type terminal with indirect wire terminals (Screw Torque: 0.5N.m)
Connection Terminal	4mm2 solid or 2.5mm2 stranded cable
Weight	250 Gram Approx.

Datasheet subject to change without notice.

Measured Parameter :

Sr No	Parameters	3 Phase 4 Wire	3 Phase 3 Wire	1 Phase 2 Wire	1 Phase 3 Wire
1	System Volts	✓	✓	✓	✓
2	System Current	✓	✓	✓	✓
3	Voltage L1	✓	x	✓	✓
4	Voltage L2	✓	x	x	✓
5	Voltage L3	✓	x	x	x
6	Voltage L12	✓	✓	x	✓
7	Voltage L23	✓	✓	x	x
8	Voltage L31	✓	✓	x	x
9	Current L1	✓	✓	✓	✓
10	Current L2	✓	✓	x	✓
11	Current L3	✓	✓	x	x
12	Frequency	✓	✓	✓	✓
13	System Power Factor	✓	✓	✓	✓
14	Power Factor L1	✓	x	✓	✓
15	Power Factor L2	✓	x	x	✓
16	Power Factor L3	✓	x	x	x
17	RPM	✓	✓	✓	✓
18	Min and Max System Voltage	✓	✓	✓	✓
19	Min and Max System Current	✓	✓	✓	✓
20	Run Hour	✓	✓	✓	✓
21	ON Hour	✓	✓	✓	✓
22	Number of Interruptions	✓	✓	✓	✓
23	Neutral Current	✓	x	x	x

✓ : Available x : Not Available

Ordering Information:

Ordering Information	AP10-	3	3	01	02	X	X	5	0000
Product Type	Alpha 10X VAF								
System Type	3 Phase (On site configurable as 1 / 3 Phase)								
Input voltage	100-500VLL 50/60Hz								
Input Current	CT-1/5A								
Output Option	NONE					Z			
	RS485					M			
	1 Relay Output					S			
	RS485 + 1 Relay Output					R			
Auxiliary Supply	20-60VAC/DC						L		
	60-300 AC/DC						H		
Accuracy	Class 0.5								

Ordering Information: AP10- 3 3 01 02 X X 5 0000
Product Type Alpha 10X VAF

Contact



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