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PRECISION INSTRUMENTATION

NEW PRODUCT

Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

AP15-1DO

DIN RAIL MULTIFUNCTION POWER METER

User Manual - Issue 2.0

SUBJECT TO CHANGE WITHOUT NOTICE
This manual superseded all previous versions – please keep for future reference

AP15-1DO

Features

- Multifunction 100A Direct Connected
- Built In Pulsed & RS485 Modbus Outputs

NEW PRODUCT

Sifam Tinsleys AP15-1DO is a new generation modern design power monitor that will measure and display electrical power quality parameters. It has been engineered to cover most applications (Single Phase networks / Built in Pulse and RS485 Modbus / Import and Export kWh), replacing the need for several different models of this power meter.

The AP15-1DO is produced to the highest quality and utilizes the latest microprocessor and technology. It has a blue backlit display and 16 different measuring parameters. With built in pulsed outputs and RS485 Modbus RTU it is fully compatible for integration with BMS and remote monitoring systems.

1. Parameters

- Phase to Neutral voltage
- Frequency
- Current Max Demand
- kW,kVA & • kVAr
- Power Max Demand
- Power Factor
- Import kWh
- Export kWh
- Import kVarh
- Export kVArh
- Total kWh (Active Energy)
- Total kVarh (Reactive Energy)
- Hours Run

2. Specifications

Measured Parameters
The unit can monitor and display the following parameters of a single phase two wire (1p2w) system.

Voltage and Current
- Phase to neutral voltages 176 to 276V a.c.
- Imin-Iref (Max) 0.5-10(100A)

This meter is certified and tested at class 1 (Accurate to within ±1%). If the meter has a load smaller than the Imin (minimum current) we cannot guarantee class 1 accuracy.

Power factor and Frequency and Max. Demand
- Frequency in Hz
- Instantaneous power:
- Power 0 to 3600 MW
- Reactive power 0 to 3600 MVAr
- Volt-amps 0 to 3600 MVA
- Maximum demanded power since last Demand reset Power factor

Energy Measurements

Imported/Exported active energy	0 to 99999.99 kWh
Imported/Exported reactive energy	0 to 99999.99 kVArh
Total active energy	0 to 99999.99 kWh
Total reactive energy	0 to 99999.99 kVArh

Measured Inputs

Voltage inputs through 2 way fixed connectors with 35mm² maximum stranded wire capacity.

Nominal Voltage Input	(Ph+N) 176 to 276V
Max Continuous Voltage	120% of nominal
Nominal Input Current	0.5-10(100)A
Max Continuous Current	120% of nominal
Nominal Input Current Burden	0.5VA
Frequency	50Hz(±10%)

Accuracy

Voltage	0·5% of range maximum
Current	0·5% of nominal
Frequency	0·2% of mid-frequency
Power factor	1% of unity (0.01)
Active power (W)	±1% of range maximum
Reactive power (VAr)	±1% of range maximum
Apparent power (VA)	±1% of range maximum
Active energy (Wh)	Class 1 IEC 62053-21
Reactive energy (VARh)	±1% of range maximum

Interfaces for External Monitoring

Two interfaces are provided:

- RS485 communication channel that can be programmed for Modbus RTU protocol
- Relay output indicating real-time measured energy.(configurable)

The Modbus configuration (baud rate etc.) and the pulse relay output assignments (kW/kVArh, import/export etc.) are configured through the set-up screens

Pulse Output

The meter provides two pulsed outputs, both pulsed outputs are passive type. The first pulsed output is configurable. The pulsed output can be set to read total / import / export/ kWh /kVarh. The pulse constant can be set to generate 1 pulse per: 0.001(default) /0.01/0.1/1kWh/kVarh. The second pulsed output is non-configurable. It is fixed to read total kWh.

Rate can be set to generate 1 pulse per:
0.001 = 1 Wh/VArh (default)
0.01 = 10 Wh/VArh
0.1 = 100 Wh/VArh
1 = 1 kWh/kVArh

Pulse width 200/100/60 ms.

RS485 Output for Modbus RTU

For Modbus RTU, the following RS485 communication parameters can be configured from the set-up menu:

Baud rate 1200, 2400, 4800, 9600.
Parity none (default) / odd / even
Stop bits 1 or 2
RS485 network address 3-digit number, 1 to 247

Reference Conditions of Influence Quantities

Influence Quantities are variables that affect measurement errors to a minor degree. Accuracy is verified under nominal value (within the specified tolerance) of these conditions.

Ambient temperature	23°C ±1°C
Input waveform	50Hz ±2%
Input waveform	Sinusoidal (distortion factor < 0·005)
Auxiliary supply voltage	Nominal ±1%
Auxiliary supply frequency	Nominal ±1%
Auxiliary supply waveform (if AC)	Sinusoidal (distortion factor < 0·05)
Magnetic field of external origin	Terrestrial flux

Environment

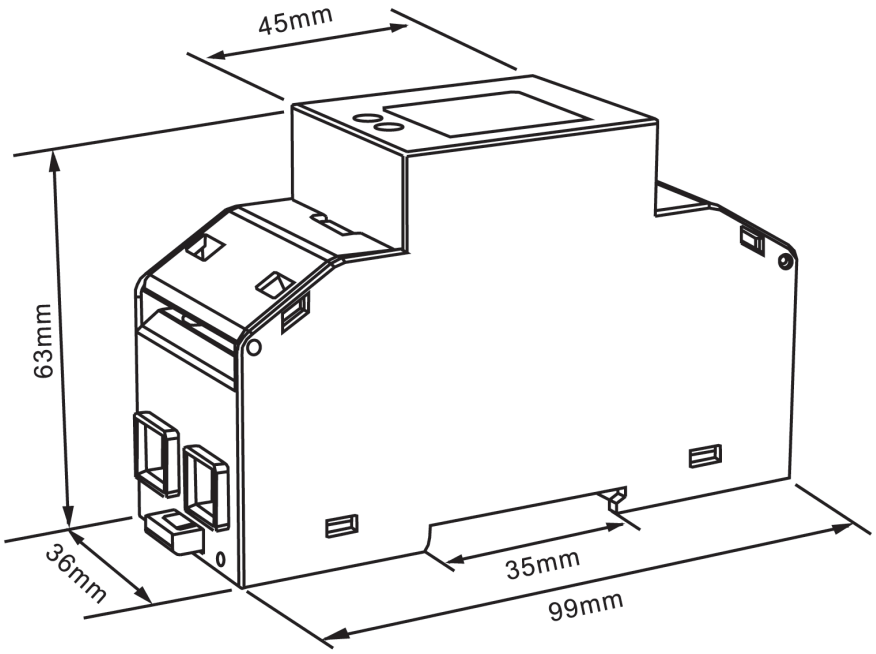
Operating temperature Storage temperature	-25°C to +55°C* -40°C to +70°C*
Relative humidity	0 to 95%, non-condensing
Altitude	Up to 3000m
Warm up time	1 minute
Vibration	10Hz to 50Hz, IEC 60068-2-6, 2g
Shock	30g in 3 planes

*Maximum operating and storage temperatures are in the context of typical daily and seasonal variation.

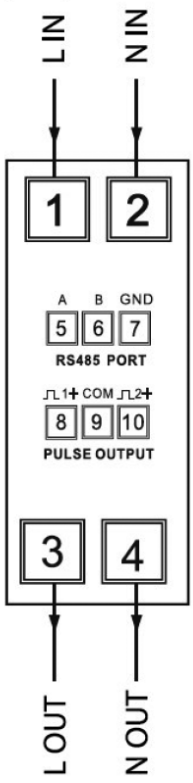
Mechanics

DIN rail dimensions	mm x mm (WxH) per DIN 43880
Mounting	DIN rail (DIN 43880)
Sealing	IP51 indoor
Material	Self-extinguishing UL 94 V-0Energy Measurements

3. Dimensions



4. Installation



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