



DATASHEET

Issue 1



Multifunction Meters

Transducers & Isolators

Temperature Controllers

Converters & Recorders

Digital Panel Meters

Current Transformers

Analogue Panel Meters

Shunts

Digital Multimeters

Clamp Meters

Insulation Testers

AP15-P5CO

96mm² Panel Mounted Digital 1/5A Multifunction Meter

Features

- Class 0.5 Accuracy
- Single & Three Phase
- Import / Export kWh
- Phase Summary Screen
- Self-supplying auxiliary from L1 & N
- Total harmonic distortion (THD) up to the 63rd harmonic
- Touch-sensitive buttons
- Backlit display

SUBJECT TO CHANGE WITHOUT NOTICE

This manual superseded all previous versions – please keep for future reference

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Sifam Tinsleys AP15-P5CO 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 and Three Phase networks / Built in Pulsed and RS485 Modbus / Import and Export kWh), replacing the need for several different models of this power meter.

The AP15-P5CO is produced to the highest quality and utilizes the latest microprocessor and technology. It has a backlit display and 16 different measuring parameters. This includes a negative power reading to indicate reversal of CT installation or connection. 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 (V) | • Phase to Phase Voltage (V) |
| • Phase Current (A) | • Frequency (Hz) |
| • Power Factor (PF) | • Current Max Demand (MD A) |
| • Power Max Demand (MD kW) | • Active Power (kW) |
| • Reactive Power (kVAR) | • Apparent Power (kVA) |
| • Import Active Energy (kWh) | • Export Active Energy (kWh) |
| • Total Active Energy (kWh) | • Import Reactive Energy (kVARh) |
| • Export Reactive Energy (kVARh) | • Total Reactive Energy (kVARh) |

2. Specifications

Measured Parameters

The unit can monitor and display the following parameters of a Single Phase Two Wire (1P2W) or Three Phase Four Wire (3P4W) system.

Voltage and Current

- Phase to Neutral Voltages 100 to 276V AC (not for 3P3W supplies).
- Phase to Phase Voltages 174 to 480V AC (3 Phase supplies only).
- Percentage total Voltage Harmonic Distortion (U THD%) for each Phase to N.
- Percentage Voltage THD% between Phases (3 Phase supplies only).

Power factor and Frequency and Max. Demand

- Frequency in Hz (45-66Hz)
- Instantaneous power:
- Power 0 to 999MW
- Reactive power 0 to 999MVA
- Volt-amps 0 to 999MVA
- Maximum demanded power since last Demand reset Power factor
- Maximum neutral demand current, since the last Demand reset (for 3 Phase supplies only)

Energy Measurements

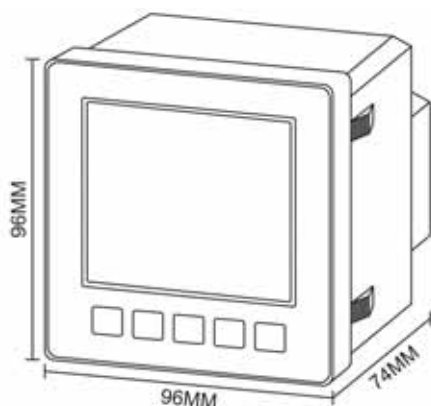
Imported/Exported active energy	0 to 9999999.9 kWh
Imported/Exported reactive energy	0 to 9999999.9 kVAh
Total active energy	0 to 9999999.9 kWh
Total reactive energy	0 to 9999999.9 kVAh

Measured Inputs

Voltage inputs through 4-way fixed connector with 2.5mm² stranded wire capacity. Single Phase Two Wire (1P2W), or Three Phase Four Wire (3P4W) unbalanced. Line frequency measured from L1 Voltage or L3 Voltage. Three Current inputs (six physical terminals) with 2.5mm² stranded wire capacity for connection of external CTs. Nominal rated input Current 5A or 1A AC RMS.

Nominal Voltage Input	100-276V AC (Ph+N) or 174-480V AC (Ph+Ph)
Max Continuous Voltage	120% of Nominal
Nominal Input Current	0.25-5A(6)A AC RMS
Max Continuous Current	120% of Nominal
Nominal Input Current Burden	0.5VA
Frequency	50Hz \pm 10%

3. Dimensions

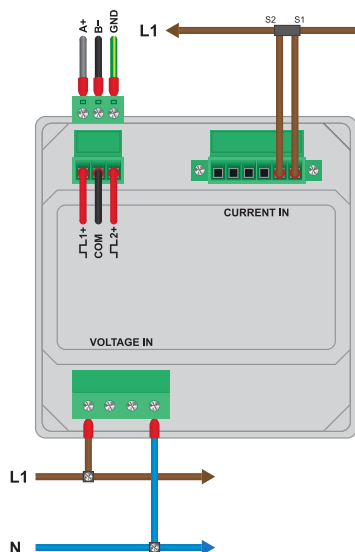


Accuracy

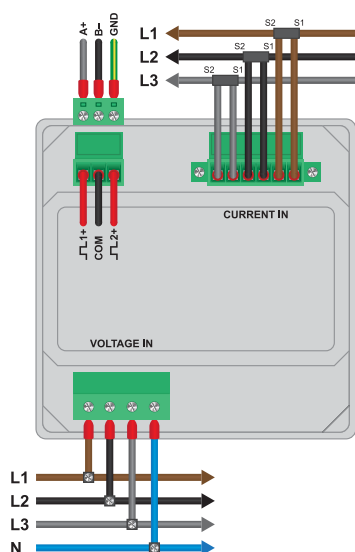
Voltage	0.5% of range maximum
Current	0.5% of nominal
Frequency	0.2% of mid-frequency
Power Factor	1% of unity (0.01)
Active Power (W)	\pm 1% of range maximum
Reactive Power (VA)	\pm 1% of range maximum
Apparent Power (VA)	\pm 1% of range maximum
Active Energy (Wh)	Class 1 IEC 62053-21 or Class 0.5 IEC 62053-22
ReactiveEnergy (VARh)	Class 2 IEC 62053-23
Total Harmonic Distortion	1% up to 63rd harmonic

4. Installation

Single Phase Two Wire



Three Phase Four Wire



Interfaces for External Monitoring

Three interfaces are provided:

- RS485 communication channel that can be programmed for Modbus RTU protocol
- Relay output indicating real-time measured energy. (configurable)
- Pulse output 3200imp/kWh (not configurable)

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

Pulse Output

The pulsed outputs are "passive type" and comply with Class A IEC 62053-31. The pulse output can be set to generate pulses to represent kWh or kVAh.

The Pulse Rate can be set as follows:

0.001	= 1 pulse per 1 Wh/VAh (1000 pulses per kWh/kVAh)
0.01	= 1 pulse per 10 Wh/VAh (100 pulses per kWh/kVAh)
0.1	= 1 pulse per 100 Wh/VAh (10 pulses per kWh/kVAh)
1	= 1 pulse per 1 kWh/kVAh
10	= 1 pulse per 10 kWh/kVAh
100	= 1 pulse per 100 kWh/kVAh
kWh/kVAh 1000	= 1 pulse per 1000 kWh/kVAh

The Pulse width can be set as 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 2400, 4800, 9600, 19200, 38400
 Parity none (default)
 / even / odd Stop
 bits 1 or 2
 RS485 network address three digit number, 001 to 247 Response Time <100mS

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	50 or 60Hz ±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	-25°C to +55°C*
Storage temperature	-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

Dimensions	96 x 96 x 74mm (WxHxD)
Mounting	DIN 96 (92mm² Cutout)
Sealing	IP51 indoor
Material	Self-extinguishing UL 94 V-0

Contact



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