

4.7.1 Pulse Rate

You can configure the number of pulses to relate to a defined amount of Total Energy.

Please note there are limitations that need to be factored in when setting the pulsed output. This is based upon the relay output only being able to pulse 2 times per second.

For example, If the CT is set to 500/5A on a Single Phase network this would generate (500Ax230V=115,000 / 1000) 115kWh which is 31W per second. A setting of 10IMP/kWh (10 pulses per kWh) would generate 3 pulses per second. This will exceed the 2 pulse per second limitation.

Pulse settings: 1 Pulse per: 10W (0.01) / 100W (0.1) / 1000W/1kWh (1) / 10kWh (10) / 100kWh (100) /1000kWh (1000)

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to enter the menu option, the current selection will flash

Use the **MO** and **P** buttons to choose the desired pulse rate. To save the new setting, hold the **ENT** button for 3 seconds until the selection stops flashing

4.7.2 Pulse Duration

The energy monitored can be active or reactive and the pulse width can be selected as 200, 100 or 60mS.

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to enter the menu option, the current selection will flash

Use the **MO** and **P** buttons to choose the desired pulse rate. To save the new setting, hold the **ENT** button for 3 seconds until the selection stops flashing

4.8 Communication

The RS485 port can be used for communication using Modbus RTU Protocol. To configure the Modbus settings, such as Address and Baud Rate, this is also done within the Password-protected set up menu.

4.8.1 RS485 Address

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to set the meter Address. Range: 001(default) to 247.

Hold the **ENT** button to confirm the selection

Use the **MO** and **P** buttons to choose the necessary number, then press the **ENT** button to move along to the next number. To save the new setting, hold the **ENT** button for 3 seconds until the selection stops flashing

4.8.2 Baud Rate

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to enter the menu option, the current selection will flash

Use the **MO** and **P** buttons to select the required option.

On completion of the entry procedure, hold the **ENT** button to confirm the setting

4.8.3 Parity

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to enter the menu option, the current selection will flash

Use the **MO** and **P** buttons to select the required option. Range: None (default), Odd or Even.

On completion of the entry procedure, hold the **ENT** button for 3 seconds until the selection stops flashing

4.8.4 Stop bits

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to enter the menu option, the current selection will flash

Use the **MO** and **P** buttons to select the required option. Range: 1 (default) or 2.

On completion of the entry procedure, hold the **ENT** button for 3 seconds until the selection stops flashing

4.9 CLR

The meter provides a function to reset the maximum demand value of current and power.

Use the **MO** and **P** buttons to select the menu option. The screen will show the current setting.

Hold the **ENT** button to enter the menu option, the current selection will flash

Hold the **ENT** button to confirm the setting and press **VA** to return to the main set up menu.

5 Specifications

5.1 Measured Parameters

The unit can monitor and display the following parameters of a Single Phase Two Wire (1P2W), Three Phase Three Wire (3P3W) or Three Phase Four Wire (3P4W) system.

5.1.1 Voltage and Current

- Phase to Neutral Voltages 100-289V AC (not for 3P3W supplies).
- Phase to Phase Voltages 173-500V AC (3 Phase supplies only).
- Percentage Total Voltage Harmonic Distortion (V %THD) for each Phase to Neutral (not for 3P3W supplies).
- Percentage Total Voltage Harmonic Distortion (V% THD) between Phases (3 Phase supplies only).
- Current %THD for each Phase.

5.1.2 Power factor and Frequency and Max. Demand

- Frequency in Hz
- Instantaneous power:
- Power 0-3600 MW
- Reactive power 0-3600 MVar
- Volt-amps 0-3600 MVA
- Maximum Demand Power since last reset
- Power factor
- Maximum Neutral Demand Current, since the last reset (for Three Phase supplies only)

5.1.3 Energy Measurements

- Imported/Exported active energy 0 to 9999999.9 kWh
- Imported/Exported reactive energy 0 to 9999999.9 kVarh
- Total active energy 0 to 9999999.9 kWh
- Total reactive energy 0 to 9999999.9 kVarh

5.2 Measured Inputs

Voltage inputs through 4-way fixed connector with 2.5mm² stranded wire capacity. Single Phase Two Wire (1P2W), Three Phase Three Wire (3P3W) 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.

5.3 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
- Total harmonic distortion 1% up to 31st harmonic
- Response time to step input 1s, typical, to >99% of final reading, at 50 Hz.

5.4 Auxiliary Supply

Two-way fixed connector with 2.5mm² stranded wire capacity. 85-275V AC 50/60Hz ±10% or 120-380V DC ±20%. Consumption <2W 10VA.

5.5 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/kVarh) are configured through the set-up screens.

5.5.1 Pulse Output

Opto-coupler with potential free SPST-NO Contact (Contact rating 5-27V DC / Max current input: Imin 2mA and Imax 27mA DC). The pulse output can be set to generate pulses to represent kWh or kVarh.

Rate can be set to generate 1 pulse per:
0.01 = 10 Wh/VArh
0.1 = 100 Wh/VArh
1 = 1 kWh/kVarh
10 = 10 kWh/kVarh
100 = 100 kWh/kVarh

Pulse width 200/100/60 mS.

5.5.2 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) / odd / even

Stop bits: 1 or 2

RS485 Network Address: 3 digit number - 001-247

Modbus Word order Hi/Lo byte order is set automatically to normal or reverse. It cannot be configured from the set-up menu.

5.6 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 flu

5.7 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.

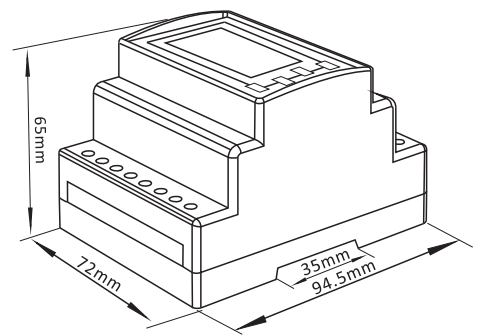
5.8 Mechanics

- DIN rail dimensions 72 x 94.5 mm (WxH) per DIN 43880
- Mounting DIN rail (DIN 43880)
- Sealing IP51 indoor
- Material Self-extinguishing UL 94 V-0

5.9 Declaration of Conformity

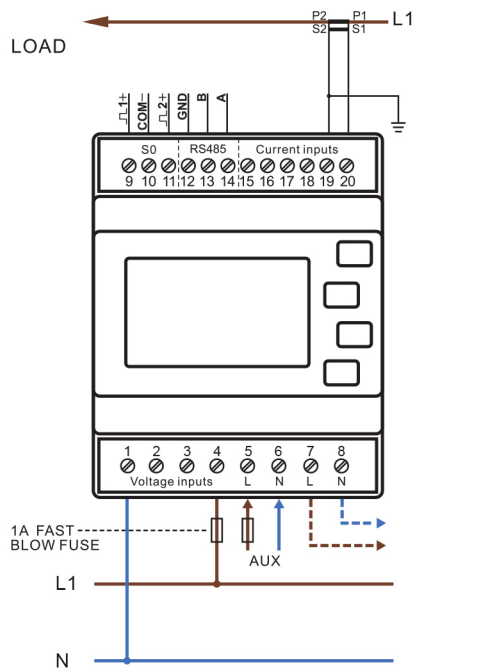
We, Sifam Tinsley Instrumentation LTD, declare under our sole responsibility as the manufacturer that the poly phase multifunction electrical energy meter "AP25-3CO" correspond to the production model described in the EC-type examination certificate and to the requirements of the Directive 2004/22/EC EC type examination certificate number 0120/SGS0209. Identification number of the NB 0120.

6 Dimensions

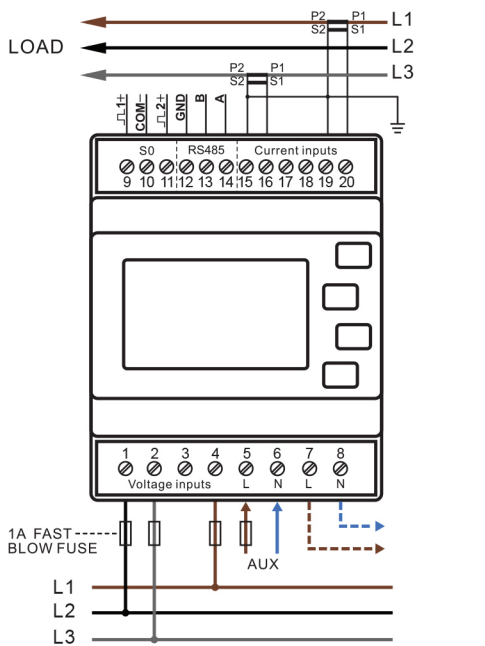


7 Installation

7.1 Single phase two wires



7.2 Three phase three wires



7.3 Three phase four wires

