



ENGLISH

Datasheet

1 or 3 Phase Energy Meter Measuring Instrument Directive MID Approved

Multi-function kWh, 1/3 Phase, 96x96mm 1/5A CT Operated, Modbus & Pulsed Output

Stock No: 2369299



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UK

The 2369299 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.

- MID B+D Certified
- Certificate Number 0120/SGS0321
- Accuracy Class 0.5% EC Directive 2014/32/EU
- Certified for Single & Three Phase
- Certified for Import / Export kWh
- Self-supplying auxiliary
- CT Operated for 1 or 5 Amp AC RMS

As the demand for Measuring Instrument Directive (MID) certified meters has increased, we have obtained annex B and D of the EC Directive 2014/32/EU. This Energy meter has been tested and certified for single or three phase networks and import and export active energy (kWh).

The 2369299 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.

Parameters

- Phase to Neutral Voltage (V)
- Phase Current (A)
- Voltage Total Harmonic Distortion (U%THD)
- Current Total Harmonic Distortion (I%THD)
- 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)

Specifications

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.

Voltage and Current

- Phase to neutral voltages 100 to 289V AC. (not for 3p3w supplies).
- Voltages between phases 173 to 500V AC (3p3w supplies only).
- Percentage total voltage harmonic distortion (THD%) for each phase to N (not for 3p3w supplies).
- Percentage voltage THD% between phases (3p3w supplies only).
- Current THD% for each phase

Power factor and Frequency and Max. Demand

- Frequency in Hz
- Instantaneous power:
- Power 0 to 3600 MW
- Reactive power 0 to 3600 MVA
- Volt-amps 0 to 3600 MVA
- Maximum demanded power since last Demand reset
- Power factor
- Maximum neutral demand current, since the last Demand reset (for three phase supplies only)

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, import/export etc.) are configured through the set-up screens.

Pulse Output

Opto-coupler with potential free SPST-NO Contact (Contact range 5-27VDC / 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.

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 nnn – 3-digit number, 1 to 247
Modbus™ Word order Hi/Lo byte order is set automatically to normal or reverse. It cannot be configured from the set-up menu.

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

Auxiliary Supply

This unit does not require a separate auxiliary supply; the unit draws the necessary power from the voltage input connections. If a three-phase supply is connected, and the phase that is powering the unit fails, it will change the phase supply to avoid shutting down.

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 (programmable).

Nominal Voltage Input	(Ph+N) 100 to 289V AC (Ph+Ph) 173 to-500V AC
Max Continuous Voltage	120% of nominal
Nominal Input Current	0.25-5A (6)AAC rms
Max Continuous Current	120% of nominal
Nominal Input Current Burden	0.5VA
Frequency	45-65Hz

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 C (0.5% Accuracy)
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.

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

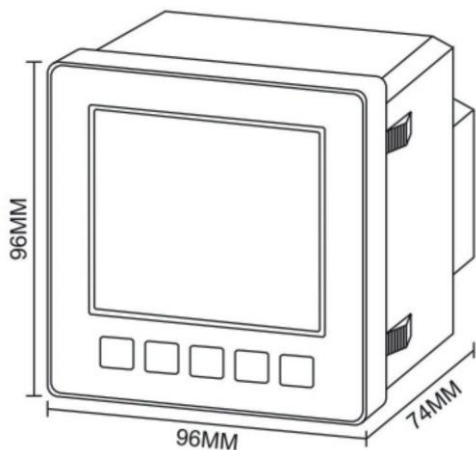
Operating temperature	-25°C to +55°C*
Storage temperature	-40°C to +70°C*
Relative humidity	0 to 95%, non-condensing
Altitude	Up to 3000m
Warm up time	1 minute
Vibration	10Hz to 50Hz, IEC 60068-2-6, 2g
Shock	30g in 3 planes

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

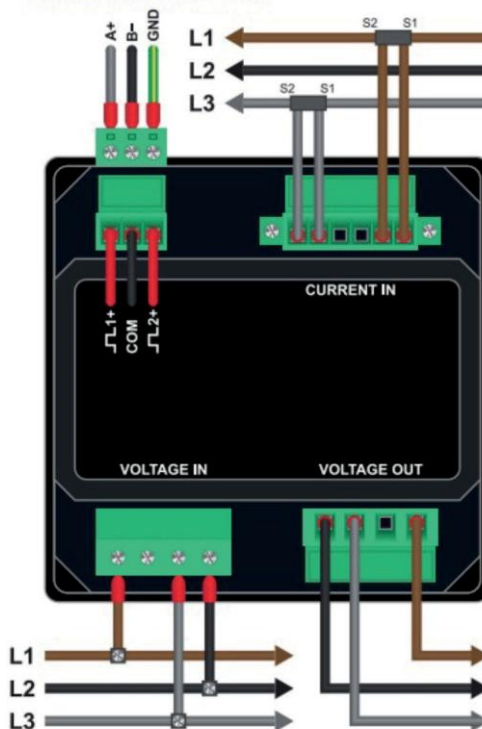


Mechanics

Dimensions	96 x 96 x 74mm (WxHxD)
Mounting	DIN 96 (92mm ² Cutout)
Sealing	IP51 indoor
Material	Self-extinguishing UL 94 V-0



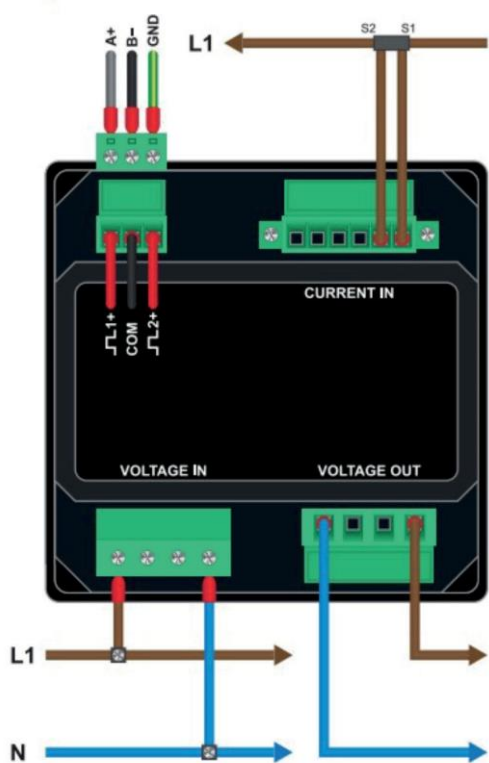
Three Phase three wires



Installation

Specifications are subject to change without notice.

Single Phase two wires



Three Phase four wires

