FEATURES

- Digital power meter
- Panel mounting
- 92 mm² cut-out on panel
- Backlit digital LCD display with 4 digits
- -/1A or -/5A CT operated
- Two digital inputs
- RS485 (Modbus RTU) output
- Plug-in terminals
- 1% meter accuracy
- Three phases
- Pulse output
- Minimum measurement of 0kWh
- Maximum measurement of 9999999.9 (Active) kWh, 9999999.9 (Reactive) kVArh
- Compliant with EN 61000-6-1: 2007 (LVD)
- • Compliant with EN 61000-6-3: 2007

RS PRO 3 Phase LCD Digital Power Meter with Pulse Output, 96mm Cutout Height, Type Electronic

RS Stock No.: 871-8314



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Energy Meters

Product Description

Use this RS PRO digital power meter to measure the consumption of machinery, lighting or appliances. It covers a wide range of parameters, from total active energy (kWh) to instantaneous reactive power (kVArh), so there's no need for multiple parts.
With dual-pulsed outputs and built-in Modbus communication protocol, this meter will accommodate most requirements. It can be retrofitted and functions as a CT-operated meter. You can configure it to work with both single-phase and 3-phase applications.

The meter offers user-friendly menu navigation and set-up, with a back-lit digital display for easy reading. It complies with EN 61000-6-1: 2007 (LVD) on electromagnetic compatibility, EN 61000-6-3: 2007 on emissions for light industrial environments and EN 61010-1: 2010 (EMC) on safe measuring instruments.

General Specifications

Meter Type	Electronic
Display Type	LCD
Number of Digits	4
Meter Accuracy	1%
Communication Port Type	RS485 Output for Modbus RTU
Mounting Type	Door (Panel) Mounted
Colour	Black
Applications	Demand-side management, sub-metering and energy monitoring applications

Energy Meters

Electrical Specifications

Number of Phases	3
Pulse Output	Yes
Maximum Measurement	9999999.9 (Active) kWh, 9999999.9 (Reactive) kVarh
Minimum Measurement	0kWh
Measurement Range	0kWh to 9999999.9 (Active) kWh, 0kVArh to 9999999.9 (Reactive) kVArh
Current Range	0.25A - 5A(6)A AC rms
Frequency	45Hz - 65Hz.
Active Power	0 to 9999999.9kWh
Reactive Power	0 to 9999999.9kVArh

Mechanical Specifications

Cut-out Height	96mm
Cut-out Width	96mm
Depth	55mm

Operation Environment Specifications

Minimum Temperature	-25°C
Maximum Temperature	+55°C
Storage Temperature	-40°C to +70°C
Relative Humidity	0 to 95%, non-condensing

Protection Category

IP Rating	IP54 Indoor

Approvals

Compliance/Certifications	CE, EN 61000-6-1: 2007 (LVD), EN 61000-6-3: 2007, EN 61010-1: 2010 (EMC), ANSI/ESD S20.20:2014 and BS EN 61340-5-1:2007, RoHS (Restriction of Hazardous Substances) Compliant, UL 94 V-0
Approvals	MID B+D Certified





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UK

The 871-8305 power monitor will measure and display electrical power quality parameters. It has been engineered to cover most applications (Single Phase and Three Phase networks / RS485 Modbus / Import and Export kWh), replacing the need for several different models of this power meter.

- Single & Three Phase
- Import / Export kWh
- Backlit Display
- High/Low Alarm Relays

The 871-8314 is produced to the highest quality and utilizes the latest microprocessor and technology. It has a blue 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 Phase Voltage
- Phase to Neutral Voltage
- Frequency
- Voltage Total Harmonic Distortion (THD)
- Current
- Neutral Current (Calculated)
- Current Max Demand
- Current Total Harmonic (THD)
- kW
- kVA
- kVAr
- Power Max Demand
- Power Factor
- Import kWh
- Export kWh
- Import kVarh
- Export 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 a.c. (not for 3p3w supplies).
- Voltages between phases 173 to 500V a.c. (3p supplies only).
- Percentage total voltage harmonic distortion (THD%) for each phase to N (not for 3p3w supplies).
- Percentage voltage THD% between phases (three phase 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 MVAr
- 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.
- Digital Input - Can be used to read an external pulse from gas/water meter.
- 2 Alarm Relay Outputs (Set as Min & Max alarms for Current, Voltage or Power).

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

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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, 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

Two-way fixed connector with 2·5mm2 stranded wire capacity. 85 to 275V a.c. 50/60Hz ±10% or 120V to 380V d.c. ±20%. Consumption <2W 10VA.

Operating range	87...275VAC ±10% / 120....380VDC ±20%

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 a.c. Rms.

Nominal Voltage Input	(Ph+N) 100 to 289V (Ph+Ph) 173 to-500V
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	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 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.

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

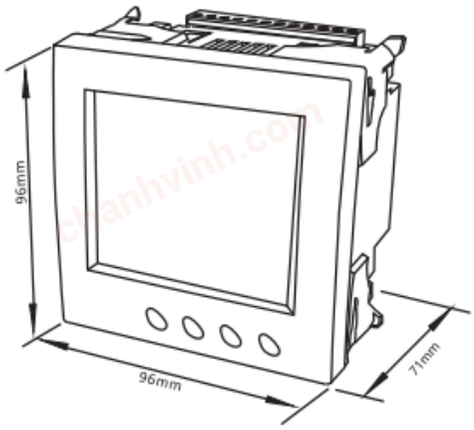
Environment

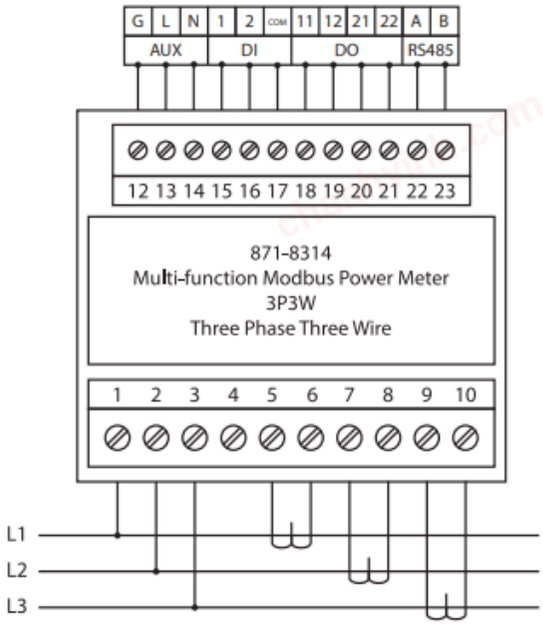
Operating temperature	-25°C to +55°C*
Storage temperature	-40°C to +70°C*
Relative humidity	0 to 95%, non-condensing
Altitude	Up to 3000m
Warm up time	1 minute
Vibration	10Hz to 50Hz, IEC 60068-2-6, 2g
Shock	30g in 3 planes

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

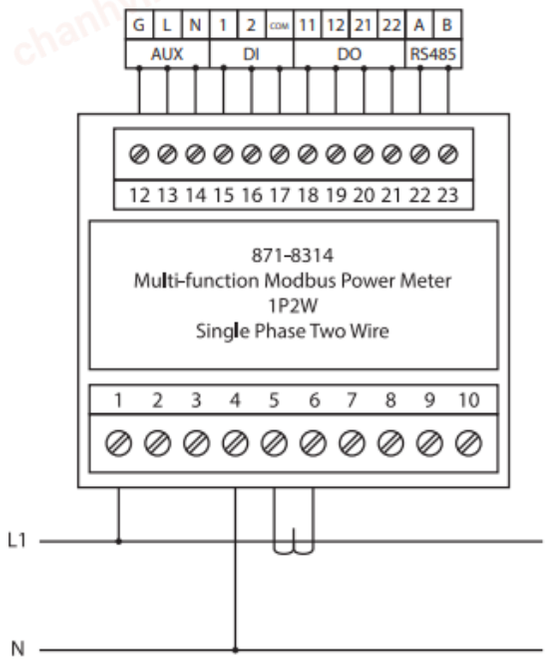
Mechanics

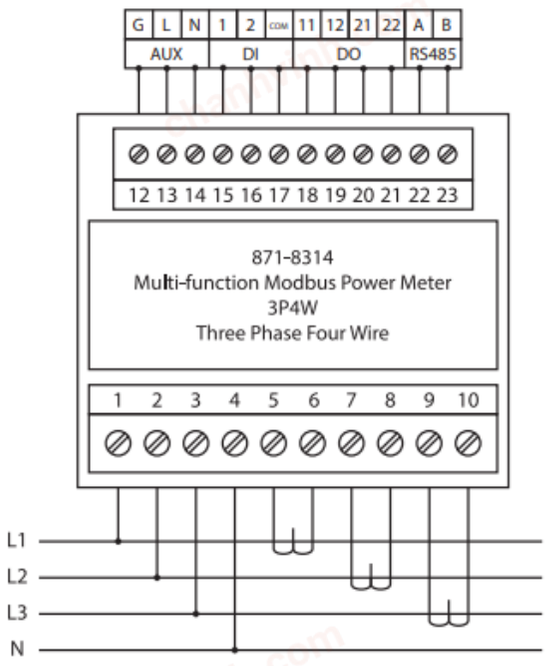
Cut Out Dimensions	92mm²
Mounting	Door (Panel) Mounted
Sealing	IP54 indoor
Material	Self-extinguishing UL 94 V-0





Installation





Specifications are subject to change without notice.