

Rail 310
Triple 1Ø Meter



- 3 X 1Ø meters in a single enclosure
- Standard 6-way DIN-rail mount format
- Available as a Retro-Fit Kit with Split-Core 0.333mV Current Transformers
- Right First Time Auto CT Rotation Installation Aid
- Accuracy better than Class 1
- Isolated Pulse Output
- MODBUS RS485 option
- Custom wall mount enclosure
- 5 year warranty

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ISO 9001
Registered Firm



ISO 14001
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OHSAS 18001
Registered Firm



Designed
& Made
In the UK

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Rail 310 – 3 kWh Meters in a single DIN Rail mounting. Easy to install and convenient to use. These Meters have been designed to measure accurately irrespective of the type of load – ideal for modern electronically controlled loads.

Multi-Parameter

Displayed	Additionally available via MODBUS	
Meters		Meters
Volts, LN	1, 2, 3	PF 1, 2, 3 & Σ
Amps	1, 2, 3	kvar 1, 2, 3 & Σ
kW	1, 2, 3 & Σ	Average Current Σ
kWh	1, 2, 3	Average Volts Σ
True rms measurement of Volts & Amps – and true Power Measurement – to the 30th harmonic at 50Hz.	kW	1, 2, 3 & Σ
	kWh	1, 2, 3 & Σ

Safe to Use

With fully isolated current inputs, installation safety is assured. This allows the **Rail 310** to be directly connected under certain conditions and provides versatility of connection. Installation in conjunction with other instrumentation can be carried out safely without affecting accuracy and CTs can be earthed if required. (Does NOT apply to retro-fit Meters).

Easy to Install

The **Rail 310** is fitted with large Rising Cage terminals – allowing connection to a wide range of cables from 0.25mm² to 4.0mm²

Easy to Configure

Rail 310 Meters are configured from the front panel to suit installations using Current Transformers, with decimal point and legend being automatically set to provide optimum resolution.

Easy to Commission – Right First Time

Wiring: With Volts, Amps & kW displayed at the touch of a button, installations can be quickly and simply tested – connections confirmed & the load measured.

Pulse Output: With a **Pulse Test** facility, pulses can be generated – without any load present – to test all downstream equipment.

Easy to Use

Complex menus structures are eliminated by limiting the displayed parameters to key values. All are however available via MODBUS. With a bold custom LCD display, the **Rail 310** can be read from any angle, with the necessary legends simplifying reading. The programmable isolated pulse outputs provide an interface to a data collection system or BEMs.

Fully Supported

Comprehensive operating instructions provide full information on installation. These include connection schematics and configuration details for virtually all CT ratios. Full technical support is readily available from your local Distributor or from Technical Sales at ND Metering Solutions.

Universality of Connections

For maximum convenience all these Meters can be powered from the measurement voltage. Where supplies may be subject to unusually wide variations, the Meters may be powered from a separate auxiliary supply.

Accurate Real World Measurement

A precision measurement system maintains full accuracy up to the 30th harmonic (at 50Hz) in the presence of harmonics and randomly and/or periodically interrupted waveforms - as commonly found on modern electronically controlled loads.

RS485 MODBUS[®] Communications

A high speed internal RS485 MODBUS[®] communications option allows readings to be read remotely and provides the extra information required for system management.

Retro-fit Option

The **Rail 310** is optionally available with the special current inputs that can be used with the ND range of openable current sensors — from 5 Amp to 3500 Amp.

OUTLINE SPECIFICATION	
INPUTS	
System	3 x Single Phase Load with common Neutral
Voltage U_n	3 x 277V.
Current I_n	5A from external CTs. 1A optional. Fully isolated Option of 0.333mV (from External Sensors)
Measurement Range	Voltage 20% to 120% Current 0.2% to 120%
Frequency Range	Fundamental 45 to 65Hz Harmonics Up to 30 th harmonic at 50Hz
Burden	Voltage <0.1VA per phase Current <0.1VA per phase
Overload	Voltage x4 for 1 hour Current x20 for 0.5 second max
DISPLAY	
Type	Custom, Supertwist, LCD
Data Retention	10 years min. Stores kWh & Meter set-up
Format	8 x 6.66mm high digits with DPs & 3.2mm legends
Scaling	Direct reading. User programmable CT CT Primary programmable from 5A to 25kA
Legends	Wh, kWh, MWh etc. depending on user settings
AUXILIARY SUPPLY	
Standard	230V 50/60 Hz ±15%
Options	110V 50/60 Hz ±15%
Load	2VA max.
Overload	x1.2 continuous
ACCURACY All errors ± 1 digit	
kWh	Better than Class 1 per EN 62053-21 & BS 8431
kW	Better than Class 0.25 IEC 60688
Amps & Volts	Class 0.1 IEC 60688 (0.01I _n – 1.2I _n or 0.1U _n – 1.2U _n)
kvar (via MODBUS)	Better than Class 0.5 IEC 60688
PF (via MODBUS)	±0.2° (0.05I _n – 1.2I _n and 0.2U _n – 1.2U _n)
3 PULSE OUTPUTS	
Function	1 Pulse per unit of energy
Scaling	Settable between 1 & 1000 counts of kWh register
Pulse Period	0.1 sec. default; Settable between 0.1 and 20 sec
Rise & Fall Time	< 2.0ms
Type	N/O Volt free contact. Optically isolated BiFET
Contacts	100mA ac/dc max., 70V dc/33Vac max.
Isolation	3.5kV 50Hz 1 minute
MODBUS[®] Serial Comms Optional	
Bus Type	RS485 2 wire + 0v. ½ Duplex, ¼ unit load
Protocol	MODBUS [®] RTU with 16 bit CRC
Baud Rate	4800, 9600 or 19,200 User settable
Address	1 – 247 User settable
Latency	Reply within 250ms max.
Command Rate	New command within 5ms of previous one
GENERAL	
Temperature	Operating -10°C to +55°C Storage -25°C to +70°C
Humidity	< 75% non-condensing
Environment	IP20 standard
MECHANICAL	
Enclosure	DIN 42880 6 Modules
Material	Noryl with fire protection to UL94-V-O. Self extinguishing
Dimensions	106mm x 90mm x 58mm (6 modules wide)
Weight	~ 325 gms
Terminals	Rising Cage. 4mm ² (12 AWG) cable max.
SAFETY	
Conforms to	EN 61010-1 Installation Category III