



## Flexible Modular Metering System

- **Space Saving**  
*20 Meters in the space of 4 standard 96x96 or DIN Rail devices*
- **From 2 x 3 $\phi$  to 20 x 3 $\phi$  Metering Channels**  
*Any 3 $\phi$  Channel can be used as 3 x 1 $\phi$  Channels*
- **Single Voltage Input**    **Lower Installation Costs**
- **Single Comms Port**    **Lower Installation Costs**  
*MODBUS RTU or MODBUS TCP or Internet*
- **Data Logging Option**    *Maximum 1000 days Profiles*
- **Multi-tariff Option**    *Maximum 8 Tariffs*  
*With 8 Week Types & 8 Seasons*
- **Digital Outputs**    *12 way Module, Pulse or Alarm*
- **Dual Source Energy**    *Two independent kWhs registers*
- **Auxiliary Communications**  
*Centralise readings from other meters*

**Designed & Built in the UK with a 5 year Warranty**

**multicube Modular** – a metering system designed for applications where multiple meters need to be installed. C-Tick, UL, CUL Listed.

### Flexible

Each Meter System can expand from 1 Module to 10 Modules

Each Meter Module can be individually configured as 2 x 3 $\phi$  channels, 1 x 3 $\phi$  plus 3 x 1 $\phi$  channels or 6 x 1 $\phi$  channels with a CT rating for each group of 3

Digital Output, Digital Input, Auxiliary Communications, etc Modules can replace Measurement Modules

### Easy to Install & Commission — Right First Time

- Wiring:** Just one Voltage connection for all Modules  
Integral clamp to retain Voltage cables  
Self-retaining plug-in Current & Comms connectors
- Installation:** Mounts on a 35mm symmetrical DIN Rail  
Easy to fit, with added measurements to ensure 'Right First Time' installation

### Easy to Use

One display and one communication port accesses and configures all Meter Modules  
Meter System & Meter Channels can store Real-World Names

### Multi-Parameter

#### Available via Display & MODBUS

	Phases		Phases
Volts, LN & LL	1, 2, 3	Pk Volts LN	1, 2, 3
Amps	1, 2, 3	Pk Amps	1, 2, 3
PF	1, 2, 3 & $\Sigma$	Neutral Current	$\Sigma$
Import kWh	1, 2, 3 & $\Sigma$	kW, kVA & kvar	1, 2, 3 & $\Sigma$
Import kvarh	1, 2, 3 & $\Sigma$	kW, kVA & kvar Demand	$\Sigma$
Export kWh	$\Sigma$	Pk kW, kVA & kvar Demand	$\Sigma$
kVAh	$\Sigma$	Average Volt & Peak	1, 2, 3
Inductive kvarh	$\Sigma$	Amp Demand & Peak	1, 2, 3
kVAh	$\Sigma$	%THD Volts & Amps	1, 2, 3
Frequency			

**True rms measurement of Volts & Amps – and true Power Measurement – to the 30<sup>th</sup> harmonic at 50Hz.**

### Current Ranges Split Sensors, 333mV output

FS Amps	Current Range	CT Type	Max Cable $\phi$
5 Amp	50mA — 6 Amp	SCL8	8mm
50 Amp	250mA — 60 Amp	SCL16	15mm
100 Amp	500mA — 120 Amp	SCL16	15mm
150Amp	1 Amp — 175 Amp	SCT19	19 x 19mm
400 Amp	4 Amp — 450 Amp	SCT32	32 x 32mm
800 Amp	10 Amp — 880 Amp	SCT51	51 x 51mm

Other current ranges may be available to order.

### Current Ranges Ring Sensors, 333mV output

20, 40 or 60 Amp with 9mm id.

### Fully Supported

Comprehensive operating instructions - supplied with every Meter – provide full information on installation. These include connection schematics and configuration details. Full technical support is readily available from your local Distributor or from Technical Sales at ND Metering Solutions

### Accurate Real World Measurement

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

### Communications

In addition to the standard MODBUS registers, user assignable registers simplify communications. MODBUS RTU<sup>®</sup> is standard, with MODBUS TCP<sup>®</sup> is available as an option  
Other protocols, including M-Bus and full Ethernet web access under development

## OUTLINE SPECIFICATION

### INPUTS

<b>System</b>	3 Phase 3 or 4 Wire Unbalanced Load	
<b>Voltage <math>U_n</math></b>	400/230V. 3 Phase 3 or 4 Wire	
<b>Current <math>I_n</math></b>	Nominal 0.333V from ND Externally Isolated Custom Current Sensors	
<b>Measurement Range</b>	<b>Voltage</b>	40% to 120% of Nominal
	<b>Current</b>	0.2% to 120% Nominal CT Rating
<b>Frequency Range</b>	<b>Fundamental</b>	45 to 65Hz
	<b>Harmonics</b>	Up to 30 <sup>th</sup> harmonic at 50Hz
<b>Burden</b>	<b>Voltage</b>	<0.1 VA per phase
	<b>Current</b>	To suit CT used
<b>Overload</b>	<b>Voltage</b>	x4 for 1 hour
	<b>Current</b>	0.333 V sensors: In x2 Continuous

### AUXILIARY SUPPLY

90-264Vac 50/60Hz at 15 VA max

### DISPLAY

<b>Type</b>	LCD 128x64 Dot Graphic
<b>Data Retention</b>	10 years min. Stores kWh & Meter set-up
<b>Format</b>	Dependant on Data displayed

### ACCURACY

<b>kWh</b>	Equivalent to Class 1 per EN 62053-21 & BS 8431
<b>kvarh</b>	Equivalent to Class 2 per EN 62053-23 & BS 8431
<b>kW &amp; kVA</b>	Equivalent to Class 0.25 IEC 60688
<b>kvar</b>	Equivalent to Class 0.5 IEC 60688
<b>Amps &amp; Volts</b>	Equivalent to Class 0.1 IEC 60688 (0.01 $I_n$ – 1.2 $I_n$ or 0.1 $U_n$ – 1.2 $U_n$ )
<b>PF</b>	Equivalent to $\pm 0.2^\circ$ (0.05 $I_n$ – 1.2 $I_n$ and 0.2 $U_n$ – 1.2 $U_n$ )
<b>Neutral Current</b>	Equivalent to Class 0.5 IEC 60688 (0.05 $I_n$ – 1.2 $I_n$ )

### MODBUS<sup>®</sup> Communications — RS485 or TCP/IP

<b>Bus Type</b>	RS485 2 wire + 0v. 1/2 Duplex, 1/4 unit load
<b>MODBUS RTU</b>	TCP/IP (Option)
<b>MODBUS TCP</b>	
<b>Voltage</b>	Insulation 2.11kV. Maximum input/output voltage 12Vdc
<b>Protocol (RTU)</b>	MODBUS <sup>®</sup> RTU with 16 bit CRC
<b>Baud Rate</b>	4800, 9600 or 19,200 User settable
<b>Address</b>	1 – 200 User settable
<b>Latency</b>	Reply within 250ms max.
<b>Command Rate</b>	New command within 10ms of previous one
<b>Buffer Size</b>	Max 128 Registers; Read or Write

### GENERAL

<b>Temperature</b>	Operating	-10°C to +55°C
	Storage	-25°C to +70°C
<b>Humidity</b>	< 75% non-condensing	
<b>Environment</b>	IP54 standard	

### MECHANICAL

<b>Material</b>	Black ABS with fire protection to UL94-V-O. Self extinguishing	
<b>Dimensions</b>	Height :	164mm
	Depth: (Off Wall)	96mm
	Length:	
	Master Display Unit:	100mm
	Communication Module:	29mm
	Dual Metering Slave:	29mm
<b>Weight</b>	Master:	~ 500 gms
	MODBUS RTU	~ 175 gms
	Metering:	~ 150 gms
<b>Terminals</b>		
<b>Voltage &amp; Aux Current</b>	Rising Cage.	4.0 mm <sup>2</sup> (12 AWG) cable max.
<b>MODBUS</b>	Rising Cage.	1.5 mm <sup>2</sup> (14 AWG) cable max..
	Rising Cage.	1.5 mm <sup>2</sup> (14 AWG) cable max.

### SAFETY

<b>Conforms to</b>	EN 61010-1:2001 Installation Category III, Pollution Degree 2
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