Cube 300
kWh & kW Meter

- *DIN 96x96 Standard Format*
- *Installation Aids – 'Right First Time'*
  kW Display
  Configuration Display (CT, VT & Pulse setting)
- *Accuracy better than Class 1*
- *Isolated Pulse Output*
- *RS485 MODBUS® & Dual Tariff Options*
- *IP54 Protection Category*
- *Designed & Made in the UK with a 5 year Warranty*
- *Large Clear Display*

Cube 300 – a DIN 96x96 panel mounting Electronic kWh Meter. Easy to install and convenient to use. Equally suitable for both 3 wire and 4 wire 3f unbalanced loads (optionally for single phase or balanced 3f systems), these Meters have been designed to measure accurately irrespective of the type of load – ideal for a motor or heater, or for a modern electronically controlled load.

Safe to Use

With fully isolated current inputs, installation safety is assured. Current input isolation allows these meters 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.

Easy to Install

The ***Cube 300*** is fitted with large Rising Cage terminals – allowing connection to a wide range of cables from 0.25mm^2 to 4.0mm^2

Easy to Configure

Cube 300 Meters are configured from the front panel to suit installations using Current and/or Voltage Transformers, with decimal point and legend being automatically set to provide optimum resolution.

Easy to Commission — *Right First Time*

Configuration: CT, VT & Pulse configuration can be displayed at the touch of a button. Links at the rear of the meter can be removed to disable Configuration.

Wiring: With kW displayed at the push of a button, installations can be quickly and simply tested – connections confirmed & the load measured. To remove the possibility of reading errors, the display reverts to kWh after 60 seconds.

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

Easy to Use

The ***Cube 300*** can be read from any angle. The bold LCD display overcomes small character size, poor visibility and short life associated with electromechanical counters and provides the necessary legends (Wh, kWh, MWh) to simplify reading. The programmable isolated pulse output provides an interface to a remote data collection system or BEMs.

Fully Supported

Comprehensive operating instructions - supplied with every ***Cube 300*** - include 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 ***Cube 300*** 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. Standard Meters are suitable for both 3 wire and 4 wire 3f unbalanced loads, and can be used on single phase.

Accurate Real World Measurement

A precision measurement system maintains full accuracy in the presence of harmonics and randomly and/or periodically interrupted waveforms - as commonly found on modern electronically controlled loads.

Dual Tariff Option

The ***Cube 300*** is optionally available with 2 registers for Dual Tariff applications. Tariff changeover is effected by an external signal.

RS485 MODBUS® Communications

A high speed internal RS485 MODBUS® communications option allows all readings to be read remotely.

OUTLINE SPECIFICATION

INPUTS		
System	3 Phase 3 or 4 Wire Unbalanced Load 3 Phase Balanced & Single Phase to order	
Voltage	400/230V. 3 Phase 3 or 4 Wire 110/63V & 208/120V optional. Others to order.	
Current	5A from external CTs. 1A optional. Fully isolated	
Measurement Range	**Voltage**	50% to 120%
	Current	0.2% to 120%
Frequency Range	**Fundamental**	45 to 65Hz
	Harmonics	Up to 20th harmonic
Burden	**Voltage**	<0.1VA per phase
	Current	<0.1VA per phase
Overload	**Voltage**	x4 for 1 hour
	Current	x40 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 & VT CT Primary programmable from 10A to 25kA VT primary programmable from 11V to 55kV	
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		
kWh	Better than Class 1 per EN 61036 & EN 62053-21 Better than Class 1 per BS 8431	
kW	Better than ±1% reading; Class 1 BS 8431	
PULSE OUTPUT		
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., 100V ac/dc max.	
Isolation	2.5kV 50Hz 1 minute	
MODBUS® Serial Comms		
Bus Type	RS485 2 wire + 0v. ½ Duplex, ¼ unit load	
Protocol	MODBUS® RTU with 16 bit CRC	
Baud Rate	4800, 9600 or 19,2000 User settable	
Address	1 – 247 User settable	
Latency	Reply within 250ms max.	
Command Rate	New command within 5ms of previous one	
GENERAL		
Tariff Change Signal	**Normal**	V_{in} < 35V ac or dc
	Alternate	60V < V_{in} < 300V ac or dc
	Isolated at 2.5kV from all other inputs & outputs	
Temperature	Operating	-10°C to +65°C
	Storage	-25°C to +70°C
Humidity	< 75% non-condensing	
Environment	IP54 standard, IP65 optional	
MECHANICAL		
Terminals	Rising Cage. 4mm^2 (12 AWG) cable max.	
Enclosure	DIN 43700 96 x 96	
Material	Mablex® with fire protection to UL94-V-O. Self extinguishing	
Dimensions	96 x 96 mm x 83.5 mm (72 mm behind panel)	
Weight	~ 250 gms	
SAFETY		
Conforms to	EN 61010-1 Installation Category III	

Typical Connection Drawing