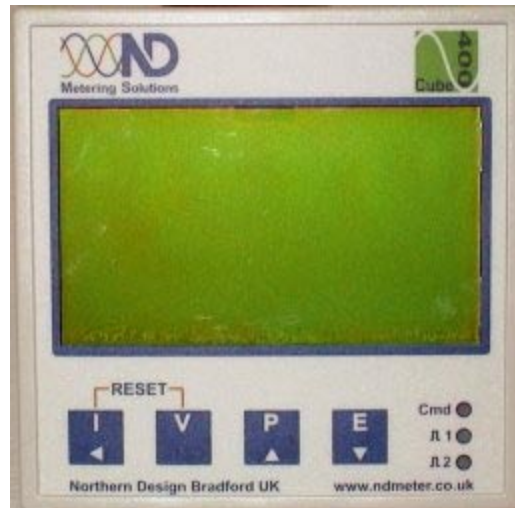


NewFound Energy multifunction meters



The **Cube400** is a DIN 96x96mm panel mounting Electronic Multifunction Meter, with a back-lit 3 line display. It is easy to install and convenient to use. Equally suitable for both 3 wire and 4 wire 3f unbalanced loads, 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.

MultiParameter information for

	Phases		Phases
Volts, LN & LL	1, 2, 3	Pk Volts LN	1, 2, 3
Amps	1, 2, 3	Pk Amps	1, 2, 3
Amp Demand & Peak	1, 2, 3	Neutral Current total	
PF	1, 2, 3 & total	kW, kVA & kVAr	1, 2, 3 & total
kW, kVA & kvar Demand total		Pk kW, kVA & kvar Demand total	
kWh & kVAh total		kvarh, Ind & Cap total	
Frequency		Export kWh, kVAh & kVAh total	
Hours Run (on Load) total		V & I Harmonics 2nd to 15th	1, 2, 3
%THD Volts & Amps	1, 2, 3		

Cube400 provides true rms measurement of Volts & Amps – and true Power Measurement – to the 30th harmonic at 50Hz

Safe to Use

With fully isolated current inputs, installation safety is assured. This allows the **Cube400** 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.

Easy to Install

The **Cube400** is fitted with large Rising Cage terminals – allowing connection to a wide range of cables from 0.25mm² to 4.0mm²

Easy to Configure

Cube400 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

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

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

Easy to Use

With a bold back-lit 3 line custom LCD display, the **Cube400** can be read from any angle, with the necessary legends simplifying reading.

Fully Supported

Comprehensive operating instructions - supplied with every **Cube400** - 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 **Cube400** 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.

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 at extra cost

A high speed internal RS485 MODBUS[®] communications option allows readings to be read remotely. User assignable registers simplify communications.

OUTLINE SPECIFICATION

INPUTS

System	3 Phase 3 or 4 Wire Unbalanced Load
Voltage U_n	400/230V. 3 Phase 3 or 4 Wire 110/63V & 208/120V optional. Others to order.
Current I_n	5A from external CT's. 1A optional. Fully isolated
Measurement Range	Voltage 50% to 120% Current 0.2% to 120%
Frequency Range	Fundamental 45 to 65Hz Harmonics Up to 30th harmonic at 50Hz Individual to the 15th
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 up to 440kV
Legends	Wh, kWh, MWh etc. depending on user settings

AUXILIARY SUPPLY

Standard	230V 50/60 Hz $\pm 15\%$
Options	110V 50/60 Hz $\pm 15\%$
Load	2VA max.
Overload	x1.2 continuous

ACCURACY All errors ± 1 digit

kWh	Better than Class 1 per EN 62053-21 & BS 8431
kVarh	Better than Class 2 per EN 62053-23 & BS 8431
kW & kVA	Better than Class 0.25 IEC 60688
kvar	Better than Class 0.5 IEC 60688
Amps & Volts	Class 0.1 IEC 60688 (0.01 I_n – 1.2 I_n or 0.1 U_n – 1.2 U_n)
PF	$\pm 0.2^\circ$ (0.05 I_n – 1.2 I_n and 0.2 U_n – 1.2 U_n)
Neutral Current	Class 0.5 IEC 60688 (0.05 I_n – 1.2 I_n)

PULSE OUTPUTS

Function	kWh plus kVarh / kVAh
Scaling	1 Pulse per unit of energy
Pulse Period	Programmable between 1 & 1000 counts of energy register
Rise & Fall Time	0.1 second default; programmable between 0.1 and 20 sec < 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 MODBUS [®] RTU with 16 bit CRC
Baud Rate	4800, 9600 or 19,200 User settable
Address	1 – 247 User settable
Register	Fixed & User Assignable
Latency	Reply within 250ms max.
Command Rate	New command within 5ms of previous one

GENERAL

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 grams

SAFETY

Conforms to	EN 61010-1 Installation Category III
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