*Cube350* – a DIN 96x96 panel mounting Electronic Multifunction Meter, with Phase Indicator Lights for compliance with IEC 60439. 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*

| Displayed | Phases | Additionally available via MODBUS | 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 & Σ | Neutral Current | Σ |
| kW | 1, 2, 3 & Σ | kVA & kvar | 1, 2, 3 & Σ |
| kWh & kvarh | Σ | kVAh | Σ |
| Frequency | | kW, kVA & kvar Demand | Σ |
| Hours Run (on Load) | Σ | Pk kW, kVA & kvar Demand | Σ |
| **True rms measurement of Volts & Amps – and true Power Measurement – to the 30th harmonic at 50Hz.** | | Amp Demand & Peak | 1, 2, 3 |
| | | %THD Volts & Amps | 1, 2, 3 |
| | | V & I Harmonics 2nd – 15th | 1, 2, 3 |

### Safe to Use

With fully isolated current inputs, installation safety is assured. This allows the *Cube350* 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 *Cube350* 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

*Cube350* 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 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. Links allow the display to be further simplified by disabling the per-phase kW and/or PF readings. All system parameters are however available via MODBUS. With a bold custom LCD display, the *Cube350* 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 - supplied with every *Cube350* - 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 *Cube350* 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.

## OUTLINE SPECIFICATION

| | | |
|---|---|---|
| **INPUTS** | | |
| System | 3 Phase 3 or 4 Wire Unbalanced Load | |
| Voltage $U_n$ | 400/230V. 3 Phase 3 or 4 Wire<br>110/63V & 208/120V optional. Others to order. | |
| Current $I_n$ | 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 30th harmonic at 50Hz<br>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<br>CT Primary programmable from 10A to 25kA<br>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** | 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 ($0.01I_n$ – $1.2I_n$ or $0.1U_n$ – $1.2U_n$) | |
| PF | ±0.2° ($0.05I_n$ – $1.2I_n$ and $0.2U_n$ – $1.2U_n$) | |
| Neutral Current | Class 0.5 IEC 60688 ($0.05I_n$ – $1.2I_n$) | |
| **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., 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** | | |
| 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 | Makrolon 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 | |