



## MULTILED

The MultiLED is a complete 3 phase digital metering system in a standard 96 x 96 mm DIN case. All functions are performed via the two front control buttons making the MultiLED simple to use.

### Parameters Measured

- \* Phase Voltage (V)
- \* Phase to Neutral (V)
- \* Phase Current (I)
- \* Frequency (Hz)
- \* Active Power (W)
- \* Reactive Power (Var)
- \* Apparent Power (VA)
- \* Active Energy (W.h)
- \* Reactive Energy (Var.h)
- \* Power Factor ( P.F.)
- \* Instantaneous Demand Amp
- \* Instantaneous Demand Active Power
- \* Instantaneous Demand Apparent Power
- \* Maximum Demand Amps
- \* Maximum Demand Active Power
- \* Maximum Demand Apparent Power
- \* Total Harmonic Distortion Phase Volts & Amps

### Accuracy

Volts & Amps	0.5% of reading ± 2 digits
Frequency	0.1Hz ± 1 digit
Active Power	1% of reading ± 2 digits
Reactive Power	1% of reading ± 2 digits
Apparent Power	1 % of reading ± 2 digits
Power Factor	2% of range
Energy	IEC 1036 class 1
THD	± 1% of range

### Display

The display has three lines consisting of four digit LED displays per line. There are 24 LED annunciators to indicate which parameter is being read. The bright red LED's can be clearly read from a distance and over a wide viewing angle.

### Controls & Programming

The two front control buttons are for scrolling up or down through parameters being displayed. These buttons also allow programming of different Current and Voltage transformer ratios, Demand times, Baud rates etc.

### Memory

Current ratios, demand time periods and calibration data is stored in non volatile eeprom memory. In power down (power loss) conditions this data is retained.

### Communications

The MultiLED has the option of providing either RS232 or RS485 communications. The RS485 enables remote reading of up to 32 MultiLEDs on a 2 wire bus using the Modbus protocol.

The Modbus protocol allows the MultiLED to be used with PC, PLC, RTU, Data loggers and Scada programs.

The RS232 output is 2 wire one way communication and does not have a protocol. The data is ASCII data string i.e. Continuous data. With either RS232 or RS485 the following are programmable. Baud rates: 19200, 9600, 4800, 2400. Parity: Odd, Even or No parity. Stops : 1 or 2 (RS232 only) Address 1 to 247. (RS485 only).

### Pulsed Output

An option of pulsed output via a relay is offered. The pulsed output can be assigned to W.h, Var.h

### Applications

Applications include management systems, distribution feeders, switchgear, control panels, generating sets, UPS systems, process control co-generation systems, power management and control.

### System Types

- Single Phase
- Single Phase 3 wire
- 3 Phase 3 wire
- 3 Phase 4 wire

### Order Codes

- M812-LD1
- M812-LD1-3
- M812-LD4
- M812-LD9

## General Specifications

### INPUT

Rated Un	57.8 to 600V specify nominal voltage
Range	20-120% Un
Burden	0.5VA per phase
Overload	1.5 x Un continuous 4 x Un for 1 second
Rated In	1 or 5 amp
Range	5-120% In
Burden	0.5VA per phase
Overload	4 x In continuous. 50 x In for 1 sec
Frequency	45/65Hz

### Auxiliary

AC voltage	115 or 230 volts AC ( $\pm 15\%$ ) 45 to 65Hz burden < 7VA
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### Insulation

Test Voltage	3 kV RMS 50 Hz for 1 min Between case, input, output and auxiliary.
Impulse Test	EMC 5kV transient Complying with IEC 801 / EN 55020 HF
Surge withstand	IEC 801 / EN55020 ANSI C37.90A
Interference	EHF 2.5 kV 1Mhz complying with IEC 255-4
Protection	class II complying with IEC348 / DIN 57411 / VDE

### Applied Standards

General	IEC 688 BSEN60688, BS4889, IEC 359
EMC	Emissions BSEN50081/1 Immunity BSEN50082/2
Safety	IEC 1010, BSEN601010

### Display

Digits	3 lines 9999
Size	14.2 mm 7 segment

### Options

Pulsed Output	W.h or Var.h
RS485	Modbus protocol
DC Auxiliary	12V, 24V, 30V, 48V, 110V, 125V ( $\pm 15\%$ )

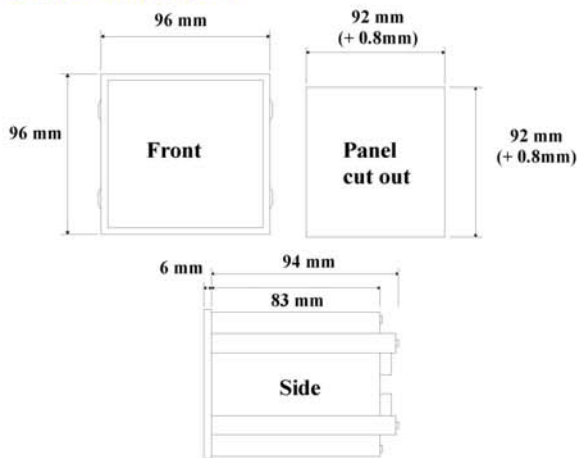
## Environmental

Working Temperature	0 to + 60 deg C
Functional Temperature	-5 to + 60 deg C
Storage Temperature	-10 to + 65 deg C
Temperature Coefficient	0.01% per deg C
Relative Humidity	0.95% non condensing
Warm up time	1 minute
Shock	20G in 2 planes

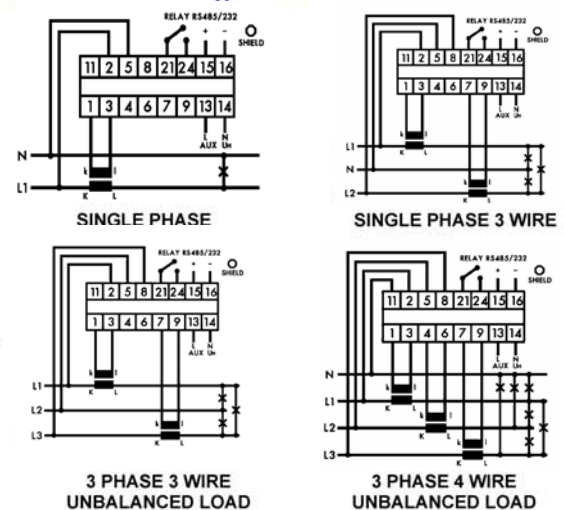
## Enclosure

Standard DIN case	DIN 96 x 96 x 98 mm
Panel mount	Via 4 retaining brackets.
Panel cutout	92 + 0.8 mm x 92 + 0.8 mm
Material	Black Polycarbonate complying with UL 94 VO
Terminals	Screws for 2 x 0.5-5mm
Weight	0.7kg / 1.6lb

## Case Dimensions



## Connection Diagrams



Panel Components & Systems