

# multitek



## MultiPower

Multifunction power meter  
M850-LCD

## **MultiPower**

*The M850-LCD (MultiPower LCD) is a complete 3 phase digital universal metering system in a standard 96 x 96 mm DIN case. It can be used on any voltage system with a wide range of inputs. It incorporates a universal AC or DC auxiliary power supply.*

*The one unit covers the majority of applications without any modification required, making the M850-LCD ideal for stocking.*

*The M850-LCD has a unique LCD display with user selectable options of Blue, Green or White back-lighting.*

## **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
- \* Neutral Current
- \* THD Voltage Option
- \* THD Current Option

## **Accuracy**

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

## **System Types**

*The M850-LCD can be used on the following measuring systems without any changes apart from wiring configuration.*

*Single Phase,*

*Single Phase 3 wire*

*3 Phase 3 Wire Balanced Load*

*3 Phase 4 Wire Balanced Load*

*3 Phase 3 Wire Unbalanced Load*

*3 Phase 4 Wire Unbalanced Load*

## **Controls & Programming**

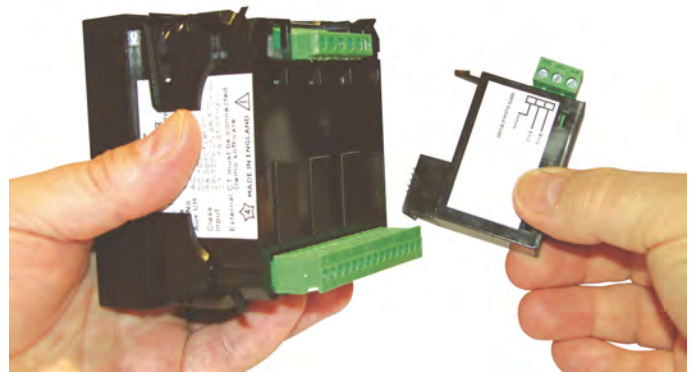
*The four front control buttons are used for scrolling up or down through the parameters being measured and displayed. These buttons also allow programming of different Current and Voltage transformer ratios, Demand times, Baud rates etc.*

## **Display**

*The unique 3 colour option LCD FSTN display is designed to be read in a variety of conditions over wide viewing angles and distances. There are 3 colour options of the back lighting available Blue, Green or White which are user selectable through the front control buttons.*

## **Plug in options**

*Both the RS485 option and pulsed output options are versatile plug in units that can be purchased with the MultiPower meter or can be retrofitted when required*



## **Communications**

*The optional RS485 plug-in module enables the MultiPower to communicate with up to 31 other meters or controllers.*

*Two protocols are offered: the popular Modbus RTU and BACnet MS/TP.*

*The protocols allow the MultiPower to be used with PC, PLC, RTU, Data loggers and Scada programs*

## **Pulsed Output**

*An option of a plug in pulsed output via a relay is offered. The pulsed output can be assigned to W.h, and VAR.h*

## **Memory**

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

## General Specification

### INPUT

Rated Un 28V to 330V L.N. 48V to 570V L.L.  
(280V L.N. nominal)

Overload 800V continuous

Burden 0.5VA

Cut Off Point 2% Un nominal

Rated In 0.5A to 6A (5A nominal) via C.T.

Overload 10In for 1 sec

Burden 0.5VA per phase

Cut Off Point 2% In nominal

### Auxiliary Voltage

100 to 440V AC 100 to 420V DC

45 to 65Hz, burden < 10VA

### Insulation

Installation category III (480 VAC ph/ph)

Degree of pollution 2

Rated impulse withstand voltage IEC 60947-1-V imp: 4kV

Meters Front Class II

Electrical security IEC 61010-1

Inputs + Aux to case: 4 kV rms 50 Hz for 1 min

Inputs + Aux to RS485 port: 3kV rms 50 Hz for 1 min

Inputs + Aux to relay output: 1k5V rms 50 Hz for 1 min

Low voltage dc Aux to Inputs: 1k5V rms 50 Hz for 1 min

### Electromagnetic compatibility

Immunity to :

electrostatic discharges: IEC 61000-4-2-Level III

radiated radio-Hz fields: IEC 61000-4-3-Level III

electrical fast transient/brusts: IEC 61000-4-4-Level III

impulse waves: IEC 61000-4-5-Level III

conducted disturbances: IEC 61000-4-6-Level III

voltage dips & short interruptions: IEC 61000-4-11

Emissions to:

Conducted and radiated CISPR11-Class A

### Approvals

UL File No . 337752-1

### Display

Custom LCD

Backlight Blue, Green or White

Update time 1 second

### Response Time

RS 485 Modbus Less than 10mS

### Options

1. Plug in RS485 module (Modbus or BACnet)

Baud Rates:76800,57600,38400,19200,9600,4800

Parity :Odd, Even, No Parity

2. Plug in pulsed-output relay module

W.h or VAr.h

3. Low voltage dc auxiliary (19V-69V)

4. 1 Amp input

5. Plug in double pulsed-output relay module

W.h and VAr.h

6. THD option

## Environmental

Working Temperature -20 to +70 deg C

Storage Temperature -30 to +80 deg C

Relative Humidity 0-95% non condensing

Shock 30G in 2 planes

## Enclosure

Standard DIN case DIN 96x96x

Panel mount Via 4 retaining brackets

Panel cutout 92 + 0.8 mm x 92 + 0.8 mm

Material Black Polycarbonate

Terminals Current 6mm<sup>2</sup>

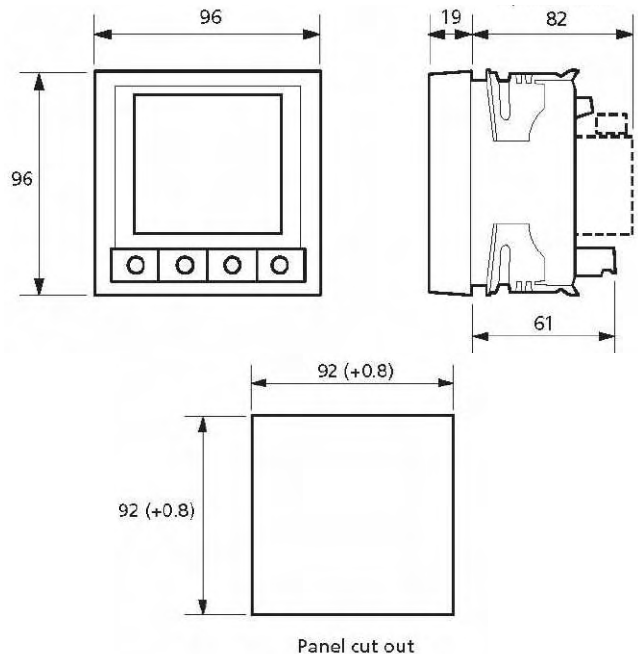
All others 2.5mm<sup>2</sup>

IP rating front IP52 / Nema

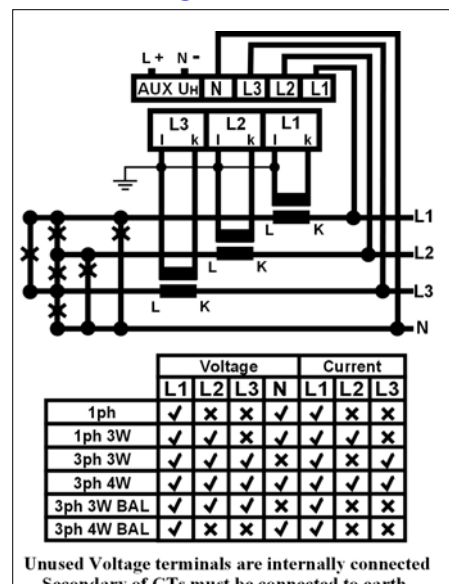
IP rating case IP30 / Nema

Weight 0.25kg / 0.66lb

## Case Dimensions



## Connection Diagram



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M850-LCD



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- \* THD Voltage Option
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## **Accuracy**

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<i>Frequency</i>	<i>0.1Hz ± 1 digit</i>
<i>Active Power</i>	<i>1% of reading ± 2 digits</i>
<i>Reactive Power</i>	<i>1% of reading ± 2 digits</i>
<i>Apparent Power</i>	<i>1 % of reading ± 2 digits</i>
<i>Power Factor</i>	<i>1% of range</i>
<i>Energy</i>	<i>IEC 1036 class 1</i>

## **System Types**

*The M850-LCD can be used on the following measuring systems without any changes apart from wiring configuration.*

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*Single Phase 3 wire*

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## **Controls & Programming**

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

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## **Communications**

*An integrated RS485 port enables the MultiPower to communicate with up to 31 other meters or controllers using the popular Modbus RTU protocol.*

*The protocol allows the MultiPower to be used with PC, PLC, RTU, Data loggers and Scada programs*

## **Pulsed Output**

*An integrated solid-state relay can be assigned to W.h, or VAr.h*

## **Memory**

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

## **Ordering Codes**

<i>M850-LCDN</i>	<i>Standard Meter</i>
<i>M850-LCDN-RS</i>	<i>+RS485</i>
<i>M850-LCDN-PO</i>	<i>+Pulsed Output</i>
<i>M850-LCDN-RS-PO</i>	<i>+RS485 and Pulsed Output</i>

## General Specification

### INPUT

Rated Un 28V to 330V L.N. 48V to 570V L.L.  
(280V L.N. nominal)

Overload 800V continuous

Burden 0.5VA

Cut Off Point 2% Un nominal

Rated In 0.5A to 6A (5A nominal) via C.T.

Overload 10In for 1 sec

Burden 0.5VA per phase

Cut Off Point 2% In nominal

### Auxiliary Voltage

100 to 440V AC 100 to 420V DC

45 to 65Hz, burden < 10VA

### Insulation

Installation category III (480 VAC ph/ph)

Degree of pollution 2

Rated impulse withstand voltage IEC 60947-1-V imp: 4kV

Meters Front Class II

Electrical security IEC 61010-1

Inputs + Aux to case: 4 kV rms 50 Hz for 1 min

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impulse waves: IEC 61000-4-5-Level III

conducted disturbances: IEC 61000-4-6-Level III

voltage dips & short interruptions: IEC 61000-4-11

Emissions to:

Conducted and radiated CISPR11-Class A

### Approvals

UL File No . 337752-1

### Display

Custom LCD

Backlight Blue, Green or White

Update time 1 second

### Response Time

RS 485 Modbus Less than 10mS

### Options

1. Integrated RS485 module (Modbus or BACnet)  
Baud Rates: 76800, 57600, 38400, 19200, 9600, 4800  
Parity : Odd, Even, No Parity
2. Integrated pulsed-output solid-state relay module  
W.h or VAr.h
3. 19V-69V dc auxiliary (see 'Insulation' above)
4. 1 Amp input
5. THD option

## Environmental

Working Temperature -20 to +70 deg C

Storage Temperature -30 to +80 deg C

Relative Humidity 0-95% non condensing

Shock 30G in 2 planes

## Enclosure

Standard DIN case

DIN 96x96x

Panel mount

Via 4 retaining brackets

Panel cutout

92 + 0.8 mm x 92 + 0.8 mm

Material

Black Polycarbonate

Terminals

Current 6mm<sup>2</sup>

All others 2.5mm<sup>2</sup>

IP rating front

IP52 / Nema

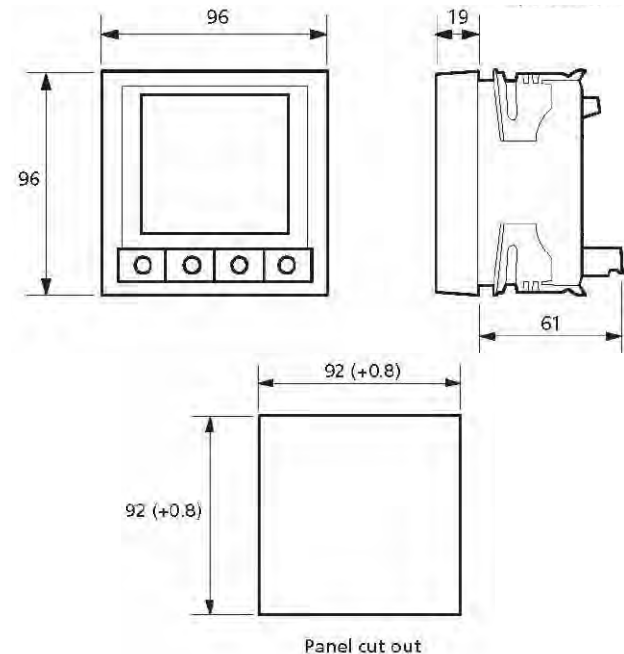
IP rating case

IP30 / Nema

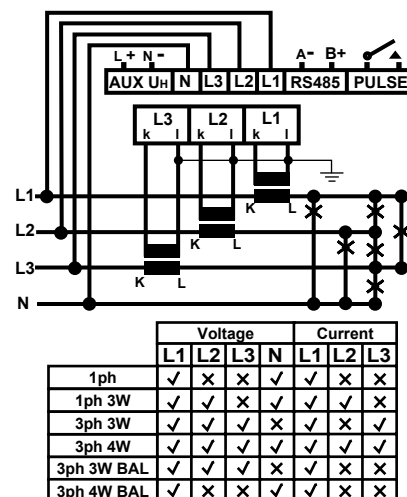
Weight

0.25kg / 0.66lb

## Case Dimensions



## Connection Diagram



Unused Voltage terminals are internally connected  
Secondary of CTs must be connected to earth

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