

# ENERGY METER (LED KWH)



## FEATURES

State of Art Microcontroller Based Design

1Line 8 Digit ultra bright LED display for Energy

1 Line 4 Digit ultra bright LED display for other parameters

Site programmable CT ratio( Primary & Secondary)

Site programmable PT ratio ( Primary & Secondary)

True RMS measurement

Password Protection

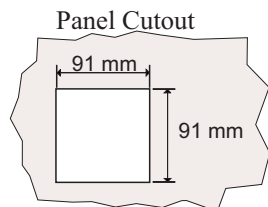
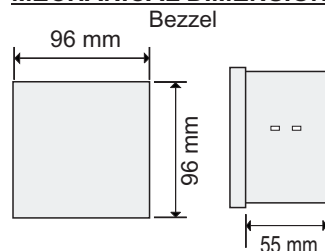
RS 485 Computer Interface (Optional)

Total Harmonic Distortion

Auto Ranging

Universal Aux. Supply

## MECHANICAL DIMENSION



## PARAMETERS

- ✓ Active Energy
- ✓ Volts : R Y (Phase - Phase)  
YB (Phase - Phase)  
BR (Phase - Phase)  
  
RN (Phase - Neutral)  
YN (Phase - Neutral)  
BN (Phase - Neutral)
- ✓ Amps : R Phase  
Y Phase  
B Phase
- ✓ Power Factor : R Phase  
Y Phase  
B Phase
- ✓ Active Power : R Phase  
(KW) Y Phase  
B Phase
- ✓ Apparent Power : R Phase  
(KVA) Y Phase  
B Phase
- ✓ Reactive Power : R Phase  
(KVAR) Y Phase  
B Phase
- ✓ Frequency : System
- ✓ Harmonics - Volts - Total ( THDV Phase wise )
- ✓ Harmonics - Amps - Total ( THDI Phase wise )
- ✓ Load Hour

## DISPLAY PAGES

### Display 1 : Active Energy

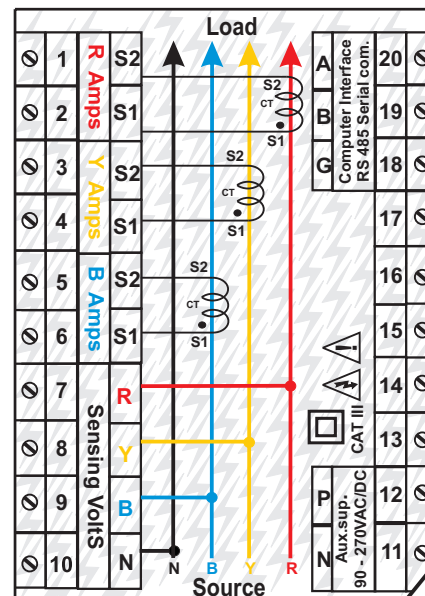
### Display 2 :

Page	Symbol	PARAMETERS
1	V L-L	Voltage (L-L) RY, YB, BR
2	V L-N	Voltage (L-N) RN, YN, BN
3	A	Amps R, Y, B
4	Hz	Frequency
5	W	Watts (Active Power) R, Y, B
6	Var	VAr ( Reactive Power) R, Y, B
7	VA	VA ( Apparent Power) R, Y, B
8	PF	Power Factor R, Y, B
9	uLhd	Harmonics - Voltage - THDV ( V led / flashes )
10	iLhd	Harmonics - Current - THDI ( I led / flashes )
11	t	Load Hour (timer)

## Notes :

When the V or A Led flashes the reading are of THDV or THDI when V or A led is steady ON it indicates voltage or current reading.

## Electrical Wiring / Connection Diagram



LED KWH


## SPECIFICATIONS




- Input : 3 phase 4 wire / 1 phase 2 wire
- Volts : Range 10-500v
- Amps : 0.015 to 6.00Amp
- Burden : 0.2 VA max. per input for Voltage & Current Signals  
3 VA max. on Aux. Supply
- Aux. Supply : 90 - 270 VAC / DC
- Display : 1 Line x 8 Digit , 1 Line x 4 Digit {0.39 Inches 7 Segment LED Display}
- Computation : True RMS
- Frequency : 45 Hz - 65 Hz.
- Ambient : -10 to 55°C
- Storage : -20 to 75°C
- Humidity : < 95 % Non-condensing
- Weight : 280gms
- Dimensions : 96 X 96 X 55 mm ( L x W x D)
- Panel Cutout : ( 90 <sup>+1</sup><sub>-0</sub> )mm X ( 90 <sup>+1</sup><sub>-0</sub> ) mm
- Mounting : Flush Mounting with side clamps.

## Measurement range :

- Volts : 10 - 500VAC L-L
- Amp : 0.015A - 6.00Amp AC
- Display update : 1Sec
- Hz : 45.0 to 65.0Hz
- Resolution : 0.1kWh for Energy , Auto ranging for all other parameters
- Accuracy :  $\pm 0.5\%$  of full scale for voltage, current, power, power factor
- Frquency :  $\pm 0.1\%$  for Hz
- Energy : class 1.0

## PROGRAMMING

- 1) Press  key to enter Program Mode.
- 2) The Meter Shows Password Entry Page {USR PASS 0000}.


Enter the Password using  Key to increment count &  Key to move to the next digit. After entering the password press  key, if the pass word is correct, the unit will enter the program mode.




Default factory set password is 2000

- 3) Following Programming menus are available


Menu	Symbol	Description
1	Addr	Unit Address for RS485 communication.
2	Pt-P	To set PT Primary Value
3	Pt-S	To set PT Secondary Value
4	Ct-P	To set CT Primary Value
5	Ct-S	To set CT Secondary Value
6	CLrE	To clear Energy
7	nPAS	To set New Password
8	bAUD	To set baud rate & odd / even parity
9	CLrE	To Reset Timer
10	SCrL	To Select Auto / Manual Scroll




Select the Menu to be edited using   Keys and press  Key to enter respective menu.

Menu 1:(Unit Address for RS485 communication)  
when  Key is pressed the display shows {Addr 001}.


The address can be edited using  &  Keys. After entering desired value press  key to save value.




Menu 2:(To set PT Primary)

when  Key is pressed the display shows {Pt P 0000 0001}.


The ratio can be edited using  &  Keys. After entering desired value press  key to save value.




Menu 3:(To set PT Secondary)

when  Key is pressed the display shows {Pt S 0000 0001}.


The ratio can be edited using  &  Keys. After entering desired value press  key to save value.




Menu 4:(To set CT Primary)

when  Key is pressed the display shows {Ct P 0000 0001}.





The value can be edited using  &  Keys. After entering desired value press  key to save value.

Menu 5:(To set CT Secondary)


when  Key is pressed the display shows {Ct S 0000 0001}.




The value can be edited using  &  Keys. After entering desired value press  key to save value.

Menu 6:(To clear Energy)






when  Key is pressed the display shows CLrE. Press  key once again, unit reconfirms by asking " SUR E ? CLrE" By pressing  Key once again the energies will get clear or press  Key to come out.

Menu 7:(To set New Password)





when  Key is pressed the display shows "CHG PASS 2000".

The password can be edited using  &  Keys. After entering desired value press  key to save value.


Menu 8 : (To set the Baud Rate & Parity)




when  Key is pressed the display shows "baud". The Baud Rate for RS485 communication can be set using  Key. Using  key you can select baud / parity menu. The Even / odd / none parity can be set using  Key. After entering desired value press  key to save value. Maximum Baud rate 9600.


Menu 9: (To Reset Load TIMER)

when  Key is pressed the display shows CLrT. Press  key once again, unit reconfirms by asking " ru Sur E ? " By pressing  Key once again the load TIMER will get clear or press  Key to come out.

Menu 10: (To select Auto / Manual Scroll)

when  Key is pressed the display shows ScrL.

You can select "dIS" to disable Auto scroll or select "EN" to enable Auto scroll using  &  Keys. After entering desired value press  key to save value

Press  Key to come out of Program MODE.

### Safety Precautions :

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If the equipment is not used in a manner specified by the manufacturer it might impair the protection provided by the equipment.

If there is physical damage to the unit then do not use it.

Read complete instruction prior to installation and operation of the unit.

### Wiring Guidelines :

- 1) To Prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement.
- 2) Wiring shall be done strictly according to the terminal layout with shortest connection. Confirm that all connection are correct.

### Caution :

- 1) To ensure the safe operation of unit , check the wiring and connections.