# 1 PHASE METER

## FEATURES

**State of Art Microcontroller Based Design**

**1 Line 4 Digit ultra bright LED display**

**Site programmable CT ratio( Primary & Secondary)**

**Site programmable PT ratio ( Primary & Secondary)**

**True RMS measurement**

**Password Protection**

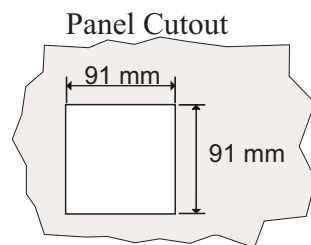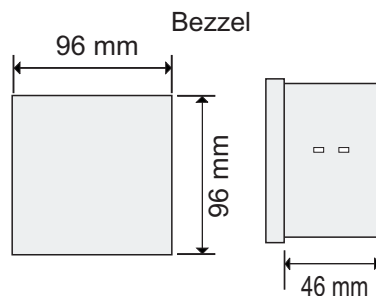**RS 485 Computer Interface (optional)**

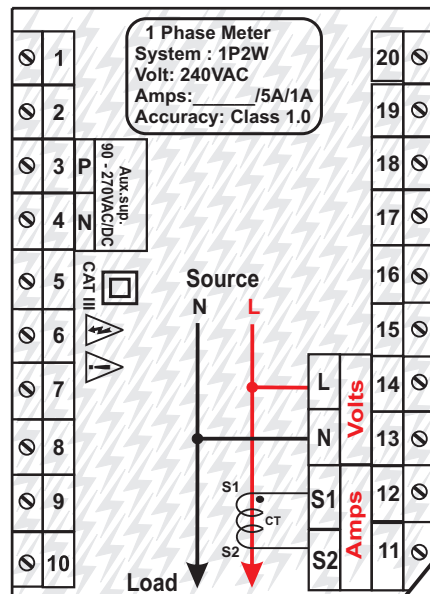**Harmonics ( Individual & Total )**

**Auto Ranging**

**Universal Aux. Supply**

## PARAMETERS

✓ **Active Energy**

✓ **Harmonics - Volts - Total ( THDV)**

✓ **Harmonics - Amps - Total ( THDI)**

✓ **Load Hour**

✓ **Volts**

✓ **Amps**

✓ **Power Factor**

✓ **Active Power(kW)**

✓ **Reactive Power(kVAr)**

✓ **Apparent Power(kVA)**

✓ **Frequency**

## MECHANICAL DIMENSION

### Bezzel

96 mm

96 mm

46 mm

### Panel Cutout

91 mm

91 mm

## Electrical Wiring / Connection Diagram

**1 Phase Meter**
**System : 1P2W**
**Volt: 240VAC**
**Amps:_____/5A/1A**
**Accuracy: Class 1.0**

Aux.sup: 90 - 270VAC/DC

CAT III

Source N — L

Volts — L 14, N 13

Amps — S1 12, S2 11

CT S1 / S2

Load

## DISPLAY PAGES

| Page | Symbol | PARAMETERS |
|---|---|---|
| 1 | V L-N ● | Voltage (L-N) |
| 2 | A ● | Amps |
| 3 | Hz ● | Frequency |
| 4 | W ● | Watts (Active Power) |
| 5 | Var ● | VAr ( Reactive Power) |
| 6 | VA ● | VA ( Apparent Power) |
| 7 | PF ● | Power Factor |
| 8 | E | Active Energy |
| 9 | uthd | Harmonics - Voltage - THDV |
| 10 | ithd | Harmonics - Current - THDI |
| 11 | t | load Hour |

### Manual Scroll Mode :

In this mode the display shows parameter of the selected page .
The parameter of next / previous page can be viewed by pressing [▲] or [▶/▼] key.

### Auto Scroll Mode :

In this mode the display shows parameter of page1 then scroll to page2 and so on.

### Display Freeze Mode :

This mode can be activated by pressing [ESC] key during normal meter operation.
When this key is pressed the display will remain on the parameter it is currently displaying.
In this mode [▲] key can be pressed to see the other parameters of this page only , but to scroll to next page parameters first you have to come out of freeze mode. Pressing [ESC] key once again will bring the meter out of freeze mode.

## SPECIFICATIONS

| | | |
|---|---|---|
| Input | : | 1 phase 2 wire |
| Volts | : | Range 5-300V |
| Amps | : | 0.015 to 6.00Amp |
| Burden | : | 0.2 VA max. per phase for Voltage & Current Inputs 3 VA max. on Aux. Supply |
| Aux.Supply | : | 90 - 270 VAC / DC |
| Display | : | 1 Line x 4 Digit {0.56 Inches 7 Segment LED Display} |
| Computation | : | True RMS |
| Frequency | : | 45 Hz - 65 Hz. |
| Ambient | : | -10 to 55℃ |
| Storage | : | -20 to 75℃ |
| Humidity | : | < 95 % Non-condensing |
| Weight | : | 280gms |
| Dimensions | : | 96 X 96 X 46 mm ( L x W x D) |
| Panel Cutout | : | ( 90 +1-0)mm X ( 90 +1-0) 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 | : | 0.1 for Energy , Auto ranging for other parameters. |
| Accuracy | : | ±0.5% of full scale for voltage, current, power,power factor. |
| Frquency | : | ±0.1% for Hz |
| Energy | : | class 1.0 |

## PROGRAMMING

1) Press [Prog] key to enter Program Mode.
2) The Meter Shows Password Entry Page { PASS and then 0000}.
Enter the Password using [▲] Key to increment count & [▶/▼] Key to move to the next digit. After entering the password press [Prog] 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

`PASS`

↓

`0000`

| Menu | Symbol | Description |
|------|--------|-------------|
| 1 | Addr | Unit Address for RS485 communication. |
| 2 | PtPr | To set PT Primary |
| 3 | PtSC | To set PT Primary |
| 4 | CtPr | To Set CT Primary |
| 5 | CtSC | To set CT Secondary |
| 6 | CLrE | To clear Energy |
| 7 | nPAS | To set New Password |
| 8 | bAUd | To set baud rate |
| 9 | PAr | To Select Parity |
| 10 | CLrt | To Clear Load Hour Timer |
| 11 | SCrL | To Select Auto / Manual Scroll |

Select the Menu to be edited using [▶/▼] [▲] Keys and press [Prog] Key to enter respective menu.

### Menu 1:(Unit Address for RS485 communication)
when [Prog] Key is pressed the display shows { 001}.
The address can be edited using [▲] & [▶/▼] Keys. After entering desired value press [Prog] key to save value.

`001`

### Menu 2: (To set PT Primary )
when [Prog] Key is pressed the display shows 0001 (Present value)
The ratio can be edited using [▲] & [▶/▼] Keys. After entering desired value press [Prog] key to save value.
For eg. If PT ratio is 22KV / 110V you can enter primary value as 0200 and secondary value 0001.

`0001`

### Menu 3: (To set PT Secondary)
when [Prog] Key is pressed the display shows 0001 (Present value)
The ratio can be edited using [▲] & [▶/▼] Keys. After entering desired value press [Prog] key to save value.

`0001`

### Menu 4: (To set CT Primary )
when [Prog] Key is pressed the display shows 0001 (Present value)
The value can be edited using [▲] [▶/▼] Keys. After entering desired value press [Prog] key to save value.

`0001`

### Menu 5: (To set CT Secondary)
when [Prog] Key is pressed the display shows 0001 (Present value)
The value can be edited using [▲] [▶/▼] Keys. After entering desired value press [Prog] key to save value.

`0001`

### Menu 6: (To clear Energy)
when [Prog] Key is pressed the display shows CLrE. Press [Prog] key once again, unit reconfirms by asking "ru SUrE ? CLrE" By pressing [Prog] Key once again the Import energies will get clear or press [ESC] Key to come out.

`ru SUrE ? CLrE`

### Menu 7:(To set New Password)
when [Prog] Key is pressed the display shows 0000 (Current password)
The password can be edited using [▲] & [▶/▼] Keys. After entering desired value press [Prog] key to save value.

`0000`

### Menu 8 : (To set the Baud Rate)
when [Prog] Key is pressed the display shows 9600 current Baud rate The Baud Rate for RS485 communication can be set using [▲] key. After entering desired value press [Prog] key to save value. Maximum Baud rate 9600.

`9600`

### Menu 9: (To set the Parity)
when [Prog] Key is pressed the display shows current parity . The Even / odd / none parity can be set using [▲] Key. After entering desired value press [Prog] key to save value.

`EuEn`

### Menu 10: (To Reset ON TIMER)
when [Prog] Key is pressed the display shows COnt. Press [Prog] key once again, unit reconfirms by asking "COnt ru SurE " By pressing [Prog] Key once again the ON TIMER will get clear or press [ESC] Key to come out.

`COnt ru SUrE`

### Menu 11: (To select Auto / Manual Scroll)
when [Prog] Key is pressed the display shows d I S / En.
You can select "dIS" to disable Auto scroll or select "EN" to enable Auto scroll using [▲] & [▶/▼] Keys.
After entering desired value press [Prog] key to save value.

`diS`

Press [ESC] 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.