POWER ANALYZER LCD VIPS80L

FEATURES

State of Art Microcontroller Based Design

4x4 Line,8x1 Line LCD display with Bar Graph

Site programmable CT ratio(Primary & Secondary)

Site programmable PT ratio (Primary & Secondary)

True RMS measurement

Password Protection

Maximum demand with Relay contact

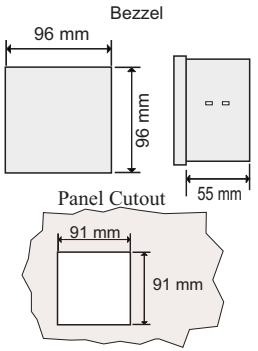
RS 485 Computer Interface

Harmonics (Individual & Total)

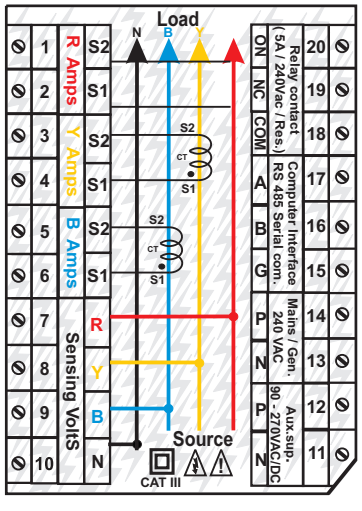
Auto Ranging

Universal Aux. Supply

MECHANICAL DIMENSION



Electrical Wiring / Connection Diagram



PARAMETERS

- ✓ **Volts : R Y (Phase - Phase)**
  YB (Phase - Phase)
  BR (Phase - Phase)
  Average (Phase - Phase)
  RN (Phase - Neutral)
  YN (Phase - Neutral)
  BN (Phase - Neutral)
  Average (Phase - Neutral)
- ✓ **Amps : R Phase**
  Y Phase
  B Phase
  Average
- ✓ **Power Factor : R Phase**
  Y Phase
  B Phase
  System
- ✓ **Active Power (KW) : R Phase**
  Y Phase
  B Phase
  Total
- ✓ **Apparent power KVA) : R Phase**
  Y Phase
  B Phase
  Total
- ✓ **Reactive Power (KVAr) : R Phase**
  Y Phase
  B Phase
  Total
- ✓ **Frequency : System**
- ✓ **Phasor Angle (Phase wise)**
- ✓ **Phase Angle (Phase wise)**
- ✓ **Import Maximum Demand**
- ✓ **Import Peak Maximum Demand**
- ✓ **Export Maximum Demand**
- ✓ **Export Peak Maximum Demand**
- ✓ **Import Active Energy**
- ✓ **Import Reactive -Inductive Energy**
- ✓ **Import Reactive -Capacitive Energy**
- ✓ **Import Apparent Energy**
- ✓ **Export Active Energy**
- ✓ **Export Reactive -Inductive Energy**
- ✓ **Export Reactive -Capacitive Energy**
- ✓ **Export Apparent Energy**
- ✓ **Harmonics - Volts - Total (THDV Phase wise & Avg)**
- ✓ **Harmonics - Amps - Total (THDI Phase wise & Avg)**
- ✓ **Harmonics - Volts - Individual (upto 31st) on RS485**
- ✓ **Harmonics - Amps - Individual (upto 31st) on RS485**
- ✓ **Load Hour - Import**
- ✓ **Load Hour - Export**
- ✓ **ON Hour(for which the meter is on with/withoutload)**

DISPLAY PAGES

Scrolling of display pages using programming key

Page	Symbol	PARAMETERS
1	V L-L	Voltage (L-L) RY, YB, BR & Average
2	V L-N	Voltage (L-N) RN, YN, BN & Average
3	PHr	Phasor Angle between Voltage in degrees
4	A	Amps R, Y, B & Total
5	Hz	Frequency
6	W	Watts (Active Power) R, Y, B & Total
7	Var	VAr (Reactive Power) R, Y, B & Total
8	VA	VA (Apparent Power) R, Y, B & Total
9	PF	Power Factor R, Y, B & System
10	PHI	Phase Angle between volt & Amps in degrees
11	I md	Import Maximum Demand
12	I Pmd	Import Peak Maximum Demand
13	Emd	Export Maximum Demand
14	EPmd	Export Peak Maximum Demand
15	uthd	Harmonics - Voltage - THDV Phase wise & Avg
16	ithd	Harmonics - Current - THDI Phase wise & Avg
17	Onht	ON Hour (duration for which the meter is ON with /without load)
18	Ldt I	Load Hour (timer) - Import
19	LdtE	Load Hour (timer) - Export

Bar Graph

I1% , I2%, I3% to display the % of current in R , Y , B phases respectively.

8 Digit Energy Display

Scrolling of 8 digit display using esc key

Page	Symbol	Description
1	Imp Kwh	Import Active Energy
2	Imp -m- KVarh	Import Reactive - Inductive Energy
3	Imp -||- KVarh	Import Reactive - Capacitive Energy
4	Imp KVah	Import Apparent Energy
5	Exp Kwh	Export Active Energy
6	Exp -m- KVarh	Export Reactive - Inductive Energy
7	Exp -||- KVarh	Export Reactive - Capacitive Energy
8	Exp KVah	Export Apparent Energy

NOTE

The display pages can be scrolled using ▲ and ▶/▼ keys .
The 8 digit energy display can be scrolled using ESC key.

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 phase for Voltage & Current Inputs 3 VA max. on Aux. Supply
Aux.Supply	:	90 - 270 VAC / DC
Display	:	4x4 Line,8x1 Line LCD display with Bar Graph
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 55 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 {USR PASS 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

Menu	Symbol	Description
1	Addr	Unit Address for RS485 communication.
2	Pt-r	To set PT Primary & Secondary Value
3	Ct-r	To set CT Primary & Secondary Value
4	CLr I	To clear Import Energy
5	CLrE	To clear Export Energy
6	nPAS	To set New Password
7	mdtY	To select MD type
8	md It	To set MD Integration time
9	md- I	To set MD Threshold for Import
10	md-E	To set MD Threshold for Export
11	CPd I	To clear Peak MD Import
12	CPdE	To clear Peak MD Export
13	bAUd	To set baud rate & odd / even parity
14	COnt	To Reset ON Timer
15	CLt I	To Reset Import Timer
16	CLtE	To Reset Export Timer
17	SCrL	To Select Auto / Manual Scroll

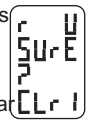
Select the Menu to be edited using (▶/▼) (▲) Keys and press (Prog) Key to enter respective menu.

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

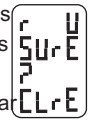
Menu 2:**(To set PT Primary & Secondary)**
when (Prog) Key is pressed the display shows Pt-r {Pt P 0001 & Pt S 0001}.
The value can be edited usin (▲) (▶/▼) Keys. After entering desired value press (Prog) key to save value.
For eg. If PT ratio is 22KV / 110V you can enter value as 0200 0001.

Menu 3:**(To set CT Primary & Secondary)**
when (Prog) Key is pressed the display shows Ct-r {Ct P 0001 & Ct S 0001}.
The value can be edited usin (▲) (▶/▼) Keys. After entering desired value press (Prog) key to save value.

Menu 4: **(To clear Import Energy)**
when (Prog) Key is pressed the display shows CLrI. Press (Prog) key once again, unit reconfirms by asking "ru SUrE ? CLrI" By pressing (Prog) Key once again the Import energies will get clear or press (ESC) Key to come out.



Menu 5: **(To clear Export Energy)**
when (Prog) Key is pressed the display shows CLrE. Press (Prog) key once again, unit reconfirms by asking "ru SUrE ? CLrE" By pressin (Prog) Key once again the Import energies will get clear or press (ESC) Key to come out.



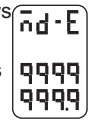
Menu 6:**(To set New Password)**
when (Prog) Key is pressed the display shows " CHG PASS 0000 ".
The password can be edited using (▲) & (▶/▼) Keys. After entering desired value press (Prog) key to save value.

Menu 7:**(To select Maximum Demand (MD) Type)**
when (Prog) Key is pressed the display shows " md type ".
By Pressing (▲) Key ACt (Active power) or APP(Apparent Power) can be selected. After selecting desired type press (Prog) key to save .

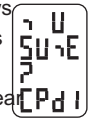
Menu 8: **(To set MD Integration time)**
when (Prog) Key is pressed the display shows " mdIntp ".
The time can be edited using (▲) & (▶/▼) (time is in minutes) . After entering desired value press (Prog) key to save value.

Menu 9 : **(To set MD threshold for Import)**
when (Prog) Key is pressed the display shows "md -I" . The threshold can be edited using (▲) & (▶/▼) Keys. After entering desired value press (Prog) y to save value.Once this threshold croses Relay will Energise for 30 Seconds. The value to be entered should be in kW / kVA.

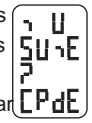
Menu 10 : **(To set MD threshold for Export)**
when (Prog) Key is pressed the display shows "md -E" . The threshold can be edited usin (▲) & (▶/▼) Keys. After entering desired value press (Prog) y to save value.Once this threshold croses Relay will Energise for 30 Seconds. The value to be entered should be in kW / kVA.



Menu 11 : **(To clear Peak MD Import)**
when (Prog) Key is pressed the display shows CPdI.Press (Prog) key once again, unit reconfirms by asking "ru SUrE ? CPdI" By pressin (Prog) Key once again the Peak MD import will get clear or press (ESC) Key to come out.

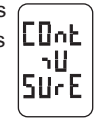


Menu 12 : **(To clear Peak MD Export)**
when (Prog) Key is pressed the display shows CPdE.Press (Prog) key once again, unit reconfirms by asking "ru SUrE ? CPdE" By pressing (Prog) Key once again the Peak MD Export will get clear or press (ESC) Key to come out.



Menu 13 : **(To set the Baud Rate & Parity)**
when (Prog) Key is pressed the display shows "baud". The Baud Rate for RS485 communication can be set using (▲) ey. Using (▶/▼) y you can select Baud / Parity menu.The Even / odd / none parity can be set using (▲) Key.
After entering desired value press (Prog) ey to save value. Maximum Baud rate 9600.

Menu 14: **(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 pressin (Prog) Key once again the ON TIMER will get clear or press (ESC) Key to come out.



Menu 15: **(To Reset IMPORT TIMER)**
when (Prog) Key is pressed the display shows CLtI. Press (Prog) key once again, unit reconfirms by asking "CLtI ru SurE " By pressing (Prog) Key once again the IMPORT TIMER will get clear or press (ESC) Key to come out.

Menu 16: **(To Reset EXPORT TIMER)**
when (Prog) Key is pressed the display shows CLtE.Press (Prog) key once again, unit reconfirms by asking "CLtE ru SurE " By pressing (Prog) Key once again the EXPORT TIMER will get clear or press (ESC) Key to come out.

Menu 17: **(To select Auto / Manual Scroll)**
when (Prog) Key is pressed the display shows ScrL.
You can select "dIS" to disable Auto scroll or select "EN" to enable Auto scroll using (▲) & (▶/▼) Keys.

Press (ESC) Key to come out of Program MODE.

Notes :

1) MD relay will come ON for 30 secs once the set threshold is crossed.
2) 230VAC input has to be given across terminal marked M/G to put the meter in Export/ DG mode for dual source operators.
3) Ensure S1,S2,CT connectors & R,Y,B sequence is correct. In case S1,S2 is reverse watt reading will appear with a negative sign.
4) When M/G input is available watt readings will become negative to indicate now DG/ Export mode is active.
5) The meter can also be put in DG/ Export mode by sending a broadcast command on RS485 Bus (see protocal details).
In this case 230VAC need not be applied on the M/G terminals.

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.