PROCOM®

ACE-BMP Motor Protection Meter

Installation Guide

ACE-BMP Motor Protection Meter

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1. Introduction :

ACE-BMP meter is a compact meter will 3 row of display & indication led. Four navigator keys for easy configuration of meter . ACE-BMP are available with accuracy class of 1.0 IEC 62053-21. It has a RS-232 communication.

2. Features

- Display of Measured Quantity & Parameter
- Password protection for user programmable parameters
- RS-232 Communication
- Accuracy Class 1.0 IEC 62053 - 21
- Selectable auto & manual scroll of display
- Parameter and Fault indication LEDs.
- Poly carbonate body
- IP 65 from front

3. Specification

Accuracy	:	Class 1.0 IEC 62053 - 21/ (Optional 0.5;0.2 IEC 62053-22)
Input Voltage	:	Vr, Vy, Vb
Input Voltage Range	:	50-550V (L-L) / 50V-300V (L-N)
Isolation Voltage	:	2000V
Input Current	:	Ir, Iy, Ib
Current with stand	:	10A continuous, 50A for 1 Second
Input Frequency	:	40 to 70Hz
Auxiliary Supply	:	50-300V AC/DC
Auxiliary supply burden	:	<4VA
Display	:	3 Row 4 Digit
Display Scrolling	:	Automatic/Manual
Communication	:	RS-232 Communication

4. Switch Description

Switch Symol	Switch Function in edit mode	Switch Function in measurement
▲	Increment the value of selected parameters.	Long push (for 3sec approx for Scroll ON/OFF
▼	Decrement the value of selected parameters.	----------
▶	Scrolling to the next parameter in EDIT mode	Scrolling between different measurements parameters.
▼ & ▶	Programming Mode Entry	By pressing these two buttons user can enter into programming mode.

5. Meter Measurement Scrolling :

Display can be set as auto scroll/Manual scroll Scrolling mode can be changes from auto to manual & vice versa by long press (for 3 sec) of increment key.

In auto scroll the measurement display changes to next page automatically while in manual mode (scroll) measurement page can be selected by pressing Next key

6. LEDs Description

Respective led will glow according to the current parameter on display

LEDs	Indication Description
● VLL	LINE TO LINE VOLTAGE
● A	CURRENT IN AMPERES
● Hz	FREQUENCY
● KW	Kilo WATT
● ΣKW	kilo AVERAGE WATT
● PF	POWER FACTOR
● APF	AVERAGE POWER FACTOR
● KWh	KILO WATT HOUR

Below leds glows on detection of any faults.

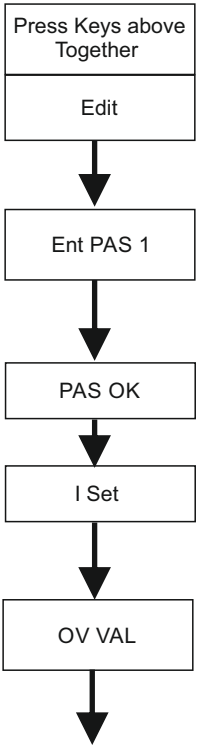
LEDs	Indication Description
● SEQ	PHASE SEQUENCE
● ROT	LOCK ROTOR CURRENT
● PL	PHASE LOSS
● OV	OVER VOLTAGE
● UV	UNDER VOLTAGE
● UC	UNDER CURRENT
● CUB	CURRENT UNBALANCE
● VUB	VOLTAGE UNBALANCE

7. Parameter Mode

Parameter Name on Display	Explanation of Parameter	Factory Setting	Setting Range
Ent PAS (Enter password)	System settings are password protected. Password is a three digit number.	1	1-999
I Set	The desired reference current value for under current & rotor lock current monitoring.	12.0	00.5-20.0
OV VAL	The desired over voltage limit	470	350-550
OV HYS	The desired over voltage hysteresis.	10	5-50
OV DLY	The desired over voltage fault delay	4	1-999
UV VAL	The desired under voltage limit	380	300-500
UV HYS	The desired under voltage hysteresis.	10	5-50
UV DLY	The desired under voltage fault delay.	4	1-999
UC VAL	The desired under current value	50	30-90
UC DLY	The desired under current fault delay	4	1-999
LOC ROT	Set the desired rotor lock current setting	200	200-700
VOL UNB	Set the desired voltage unbalance value	20	10-80
VUNB DLY	Set the desired voltage unbalance fault delay	10	1-999
CURR UNB	Set the desired current unbalance value	20	10-80
CUNB DLY	Set the desired voltage unbalance fault delay	20	1-999
ON DLY		30	1-999
SYS CONF		Auto	Auto: manual: BYP Ser

• **8. Setting Procedure: How to Enter in Parameter Mode**

- Press Dec. & Phase/Prog switches simultaneously. The controller shall display, "Edt".
- To enter in edit parameter mode



Press Dec. & next switch together

▼ & ▶

Edt appears on display.

Press ▶ switch to move forward

Display will show PAS 1

Press ▲ or ▼ switch to reach 1 which is the default password. Once 1 is set Press ▶ switch to move forward

Display will show PAS Ok

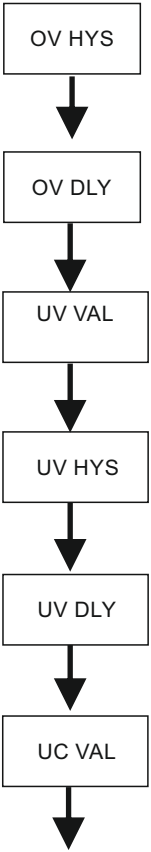
Press ▶ switch to move forward

Display will show I Set 12
Press ▲ or ▼ switch to to select the desired reference current value

Press ▶ switch to move forward

Display will show OV VAL 470

Press ▲ or ▼ switch to to select the desired Over voltage limit.
Press ▶ switch to move forward



Display will show OV HYS 10

Press ▲ or ▼ switch to select the desired Over voltage hysteresis. Press ▷ switch to move forward

Display will show OV DLY 4

Press ▲ or ▼ swtich to select the desired Over Voltage Delay. Press ▷ switch to move forward

Display will show UV VAL 380

Press ▲ or ▼ switch to select the desired UV limit press ▷ switch to move forward

Display will show UV HYS 10

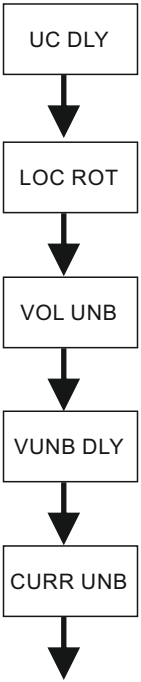
Press ▲ or ▼ switch to select the desired UV HYS limit press ▷ switch to move forward

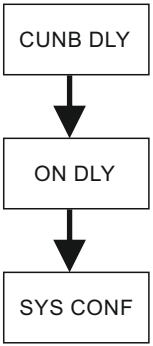
Display will show UV DLY 4

Press ▲ or ▼ switch to select the desired UV DLY limit press ▷ switch to move forward

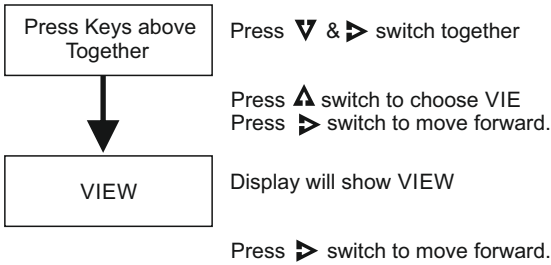
Display will show UC VAL 50

Press ▲ or ▼ switch to select the desired under current value press ▷ switch to move forward


UC DLY
Display will show UC DLY 4
Press ▲ or ▼ switch to select the desired under current delay
press ▶ switch to move forward
LOC ROT
Display will show LOC ROT 200
Press ▲ or ▼ switch to select the desired Loc Rot limit
press ▶ switch to move forward
VOL UNB
Display will show VOL UNB 20
Press ▲ or ▼ switch to select the desired VOL UNB limit
press ▶ switch to move forward
VUNB DLY
Display will show VUNB DLY 10
Press ▲ or ▼ switch to select the desired VUNB DLY limit
press ▶ switch to move forward
CURR UNB
Display will show CURR UNB 20
Press ▲ or ▼ switch to select the desired CURR UNB limit
press ▶ switch to move forward

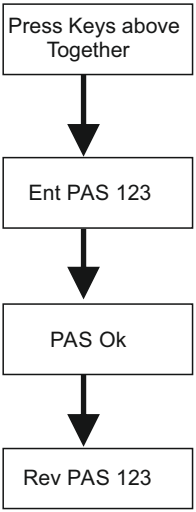


9. Setting Procedure: How to Enter in View Mode



By pressing ▶ switch browse through all the set parameters one by one.
Setting change is not allowed in this mode

10. Setting Procedure: How to Reset Password



Display will show PAS UPT (Password Updated)

11. Fault Description

- Phase Loss (Single Phase Prevention).
  Phase loss is the total loss of one of the three phases.

- Phase Sequence/Phase Reversal.
  A Phase reversal problem occurs when the supply phase is reversed due to wrong connection or on reversing any of the phase of the three phases in power distribution systems.

- Voltage Unbalance or Excessive phase angle error.
  Voltage unbalance takes place when the magnitudes of phase or line voltages are different and the phase angles differ from the balanced conditions, or both. Voltage unbalance is defined as the largest

difference between the average RMS voltage and the RMS value of any single voltage phase divided by the average RMS voltage, usually expressed as a percentage.

$$\frac{\text{Maximum Deviation from Average Voltage}}{\text{Average Voltage}} \times 100\%$$

Example:
measured voltages:
415 volts
418 volts
400 volts

Average Voltage = 411

$$\frac{11}{239} \times 100 = 4.6\% \text{ voltage unbalance}$$

- Current Unbalance
  usually expressed as a percentage.

$$\frac{\text{Maximum Deviation from Average Current}}{\text{Average Current}} \times 100\%$$

Example:
measured voltages:
5 Amps
3 Amps
1 Amps

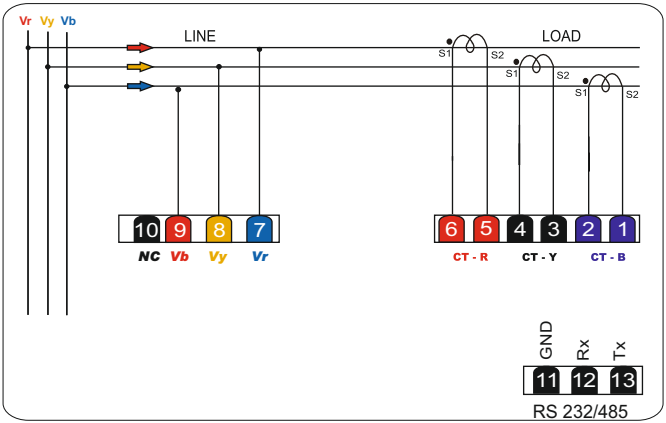
Average Amps = 3 Amps

$$\frac{2}{3} \times 100 = 66.66\% \text{ current unbalance}$$

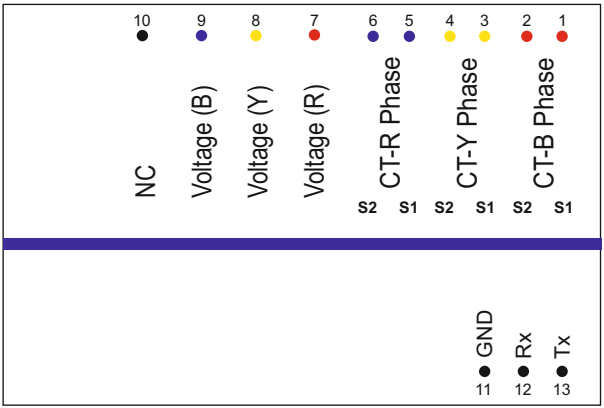
- Under Voltage
  under voltage is a condition in which voltage is lower than the set value.
- Over Voltage
  over voltage is a condition in which voltage is above the set value.
- Under Current
  under current is a condition in which current is lower than the set value.

12. Wiring Diagrams

3-Phase 4-wire connection



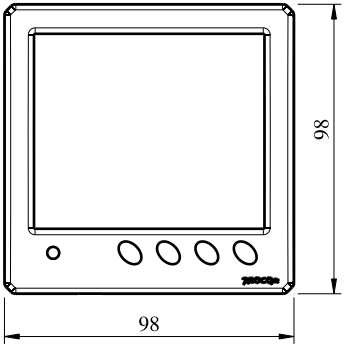
13. Terminals Diagrams



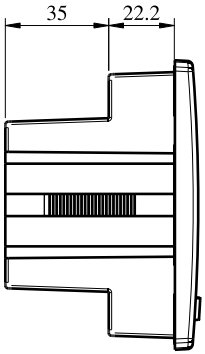
14. Terminal Numbers

Terminal No.	Description
1	CT B S1
2	CT B S2
3	CT Y S1
4	CT Y S2
5	CT R S1
6	CT R S2
7	Voltage (R)
8	Voltage (Y)
9	Voltage (B)
10	NC
11	GND
12	Rx
13	Tx

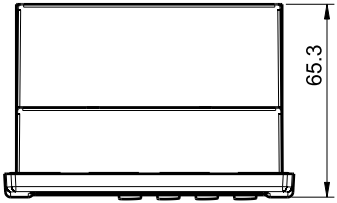
16. Dimensional Details



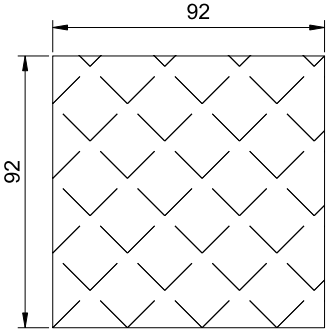
Front View



Left View



Top View



Panel Cut Out

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