PROCOM®

ACE Series-Multifunction Panel Meter

Installation Guide

Rev.-01

ACE Series-Multifunction Panel Meter

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1. Introduction

ACE series meters are compact digital power meter, demand controller equipped with customized 6 digit, 3 row alphanumeric display. Four navigator keys & alphanumeric digits simplifies Display & configuration of meter. ACE series are available with accuracy class of 1.0 IEC 62053-21/(Optational 0.5,0.2 IEC- 62053-22) Modbus Communication on RS 485 Is Optional .

2. Features

- Simultaneous Display of Measured Quantity & Parameter
- Trip Function enables user to have record of integration qty. from a selected time
- Auto scaling of Kilo Giga, Mega and decimal Point
- Password protection for user programmable parameters
- Modbus Communication on RS - 485 (Optional)
- Meter / Wiring configuration is field programmable as Star/ Delta/ Single Phase connection.
- Accuracy Class 1.0 IEC 62053 - 21/ (Optional 0.5;0.2 IEC 62053-22)
- Selectable auto & manual scroll of display
- **Demand Controller**
  - RTC based demand monitoring
  - Selectable fixed interval or sliding window demand calculation
  - Predictive demand indication
  - Provision for critical load selection
  - There potential free contacts
    - Non critical load disconnection (predictive demand)
    - All load disconnection
    - Resistive load disconnection

3. Model Selection :

MEASUREMENT	PARAMETERS	ACE-1600	ACE-1900	ACE-2341	ACE-2441
Basic					
Voltage	VLL, VLN	■	■		■
Line Current	IR, IY, IB	■	■	■	■
Frequency	Hz	■	■		■
Average	I	■	■		■
Neutral Current	Calculated	■	■		■
Unbalance	%1 %V	■	■		■
Phase Angle	PA	■	■		
Power					
Apparent Power	Va, Va1, Va2, Va3	■	■	■	■
Active Power	W, W1, W2, W3		■	■	■
Power Factor	Pf, Pf1, Pf2, Pf3	■	■		■
Reactive Power	Var, Var1, Var2, Var3		■		
Integration Present					
Active Energy	Wh			■	■
Reactive Energy	±Varh				
Power Energy	Vah			■	■
Run Hour	RnHr			■	■
Load Hour	Ldhr			■	■
Interrupts	Nos.			■	■
Old					
Active Energy	Wh			■	■
Reactive Energy	±Varh				
Apparent Energy	Vah			■	■
Run Hour	RnHr			■	■
Load Hour	Ldhr			■	■
Interrupts	Nos.			■	■
Trip					
Active Energy	Wh				
Reactive Energy	±Varh				
Apparent Energy	Vah				
Run Hour	RnHr				
Load Hour	Ldhr				
Interrupts	Nos.				
THD					
THD	V&I				
DEMAND					
DEMAND	PDM,RDM,TRD,MDM,TDM				

MEASUREMENT	PARAMETERS	ACE-2442	ACE-2552	ACE-2555	ACE-4811	ACE-5555
Basic						
Voltage	VLL, VLN	■	■	■		■
Line Current	IR, IY, IB	■	■	■		■
Frequency	Hz	■	■	■		■
Average	I	■	■	■		■
Neutral Current	Calculated	■	■	■		■
Unbalance	%1 %V	■	■	■		■
Phase Angle	PA		■	■		■
Power						
Apparent Power	Va, Va1, Va2, Va3	■	■	■		■
Active Power	W, W1, W2, W3	■	■	■	■	■
Power Factor	Pf, Pf1, Pf2, Pf3	■	■	■	■	■
Reactive Power	Var, Var1, Var2, Var3		■	■		■
Integration Present						
Active Energy	Wh	■	■	■	■	■
Reactive Energy	±Varh		■	■		■
Power Energy	Vah	■	■	■		■
Run Hour	RnHr	■	■	■	■	■
Load Hour	Ldhr	■	■	■	■	■
Interrupts	Nos.	■	■	■	■	■
Old						
Active Energy	Wh	■	■	■	■	■
Reactive Energy	±Varh		■	■		■
Apparent Energy	Vah	■	■	■		■
Run Hour	RnHr	■	■	■	■	■
Load Hour	Ldhr	■	■	■	■	■
Interrupts	Nos.	■	■	■	■	■
Trip						
Active Energy	Wh	■	■	■	■	■
Reactive Energy	±Varh		■	■		■
Apparent Energy	Vah	■	■	■		■
Run Hour	RnHr	■	■	■	■	■
Load Hour	Ldhr	■	■	■	■	■
Interrupts	Nos.	■	■	■	■	■
THD						
THD	V&I			■		■
DEMAND						
DEMAND	PDM,RDM,TRD,MDM,TDM					■

* Application specific models can be created.

4. Specification

Accuracy	:	Class 1.0 IEC 62053 - 21/ (Optional 0.5;0.2 IEC 62053-22)
Input Voltage	:	Vr, Vy, Vb, Vn
Input Voltage Range	:	18-520V (L-L) / 10V-300V (L-N)
Isolation Voltage	:	2000V
Input Current	:	Ir, Iy, Ib
Input Current	:	50mA-6A (Accuracy range)
Starting Current	:	1-200mA (programmable)
CT Burden	:	0.2VA max. per phase
Current with stand	:	10A continuous, 50A for 1 Second
Input Frequency	:	40 to 70Hz
Auxiliary Supply	:	35-300V AC/DC
Auxiliary supply burden	:	<4VA
Display	:	3 Row 6 Digit (4 Alpha-numeric)
Display Scrolling	:	Automatic/Manual
Pulse Output Contact Rating	:	50mA (Optional, Max. Pulse width 250+-50ms 24VDC
Communication	:	Modbus Comm. on RS-485 (Optional)
CT Primary setting	:	1A to 999kA
CT Secondary setting	:	1A to 10A
PT Primary setting	:	50V to 999kV
PT Secondary setting	:	50V to 999 V

5. Integer Flow

V.PRIxA.PRI x1.732	Max Reading	Max Time to Reset the Integrator in Run Hours	Max Time to Overflow Energy at Full Scale
1VA to 100KVA	999999.999K	100 Years	1.3 Years
100KVA to 100MVA	999999.999M	100 Years	1.3 Years
>100MVA	999999.999G	100 Years	Depends Upon Setting

6. Auxiliary Supply :

SMPS Supply with input range 35-300V AC/DC. Burden on auxiliary supply is less than 4VA.

7. PT Supply :

ACE can withstand maximum voltage of upto 1000V. Meter can be configured for 3P-4Wire, 3P-3Wire/1Phase connection. Maximum Burden on PT is Less than 0.1VA

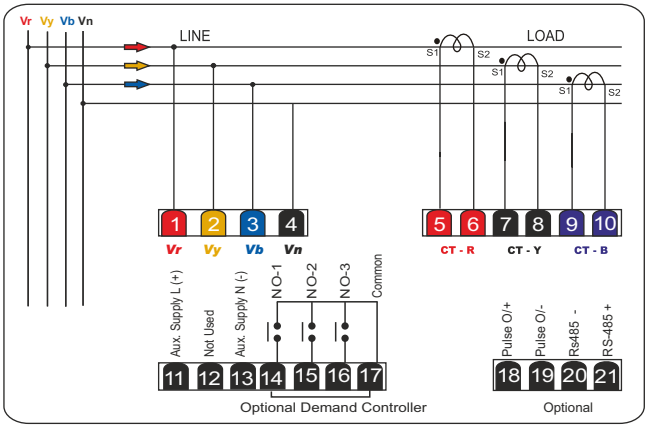
Note : In Case of Dual Source Meter Terminals G1 & G2 (15-17)pin are Used for Selection of Source 2 .

8. CT Connection :

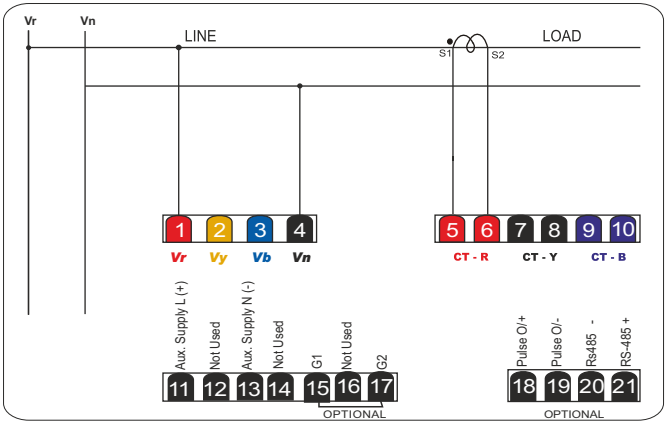
Nominal Current of ACE Meter is 6 Amp. Maximum Continuous Current is 10Amp & Current with stand is 50A for 1 Second. Burden on ct less than 0.2VA

9. Wiring Diagrams

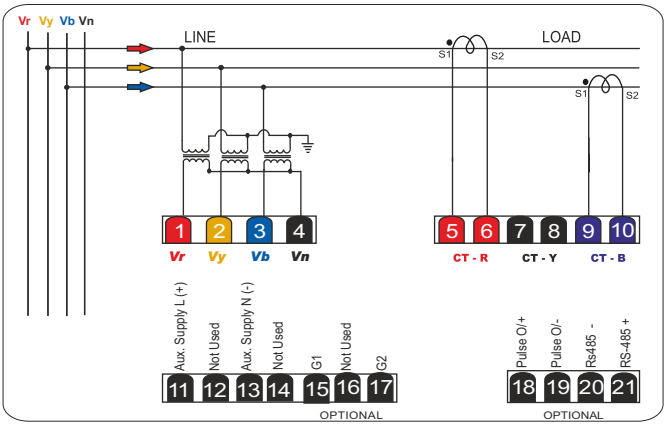
9.1 3-Phase 4-wire connection



9.2 Single phase connection



9.3 3-phase 3-wire delta connection



10. Key Functions

KEY	In EDIT Mode	In Measurement Mode
▲ Inrement	Increment the value of selected parameters.	Long push (for 3sec approx for Scroll ON/OFF
▼ Decrement	Decrement the value of selected parameters.	----------
▶ Forward	Scrolling to the next parameter in EDIT mode	Scrolling between different measurements parameters.
◀ Backward	----------	Scrolling between different measurements parameters.

P11. 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 forward & backward keys.

12. KVA Measurement Method

3d Recommended method of measurement in case of distorted/unbalance load condition.

Arthematic Conventional method of measurement.

13. Trip function :

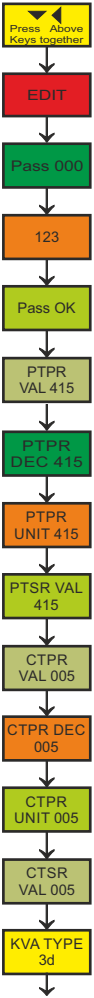
Trip function enables the user to have reading of selected cumulative measurement between any two selected time. Please refer 14.5 for resetting the trip reading

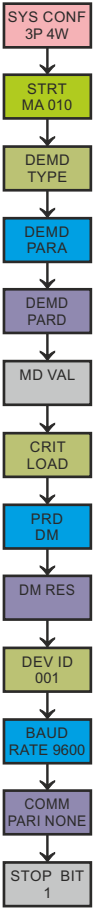
14.0 Edit Mode Details

Display	Description	Range
PTPR VAL	PT Primary Value	50-999
PTPR dEC	PT Primary Decimal Place	-
PTPR UNIT	PT Primary Voltage Unit	Decimal, Kilo
PTSR VAL	PT Secondary Value	50-999
CTPR VAL	CT Primary Value	1-999
CTPR dEC	CT Primary Decimal place	-
CTPR UNIT	CT Primary Unit	Decimal, Kilo
CTSR VAL	CT Secondary Value	1-10
KVA TYPE	KVA Measurement Mode	3d,ARTH
SYS CONF	System Configuration	3P4W,3P3W,1P
STRT MA	Starting Current	1mA-200mA
DEMD TYP	Demand Type	Fixed, Sliding
DEMD PARA	Demand Parameter	Current, KVA, KW
DEMD PARD	Demand Interval Period	1-60 mm
MD VAL	Maximum Demand Value	10-100%
CRIT LOAD	Critical Load	1%-20%
PRD DM	Predictive Remand	10-90%
DM RES	Demand Restore Value	10-70%
dEV Id	Device Identification For Communication	1-247
bAUd Rate	Communication baud rate	1200,2400,4800,9600,19200
Comm PARI	Communication parity bit	Even, odd, None
Stop bit	Stop Bit for Communication	1-2

15 . Setting/Configuration Modes :

15.1 EDIT Mode : Parameter values can be changed in ‘EDIT’ mode, ‘EDIT’ mode is password protected.


Press Above Keys together
Press decrement and backward key together
EDIT
EDIT appears on display.
Press forward key.
Pass 000
Display will show PASS 000
Press forward key.
123
Press increment key to reach 123 which is the default password.
Press forward key,
Pass OK
Display will show PASS OK.
Press forward key.
PTPR VAL 415
To change the PT primary value, press increment / decrement key
Press forward key.
PTPR DEC 415
To change the decimal point of PT primary value press increment key
Press forward key.
PTPR UNIT 415
To change the unit of PT primary value press increment key
Press forward key.
PTSR VAL 415
To change the PT secondary value, press increment / decrement key
Press forward key.
CTPR VAL 005
To change the CT primary value, press increment / decrement key
Press forward key.
CTPR DEC 005
To change the decimal point of CT primary value press increment key
Press forward key.
CTPR UNIT 005
To change the unit of CT primary value press increment key
Press forward key.
CTSR VAL 005
To change the CT secondary value, press increment/decrement key
Press forward key.
KVA TYPE 3d
To change the KVA measure mode, press increment/decrement key
Press forward key.


SYS CONF 3P 4W
To select the systems configuration, press increment/decrement key
Press **forward** key.
STRT MA 010
To change value of starting current, press increment/decrement key
Press **forward** key.
DEMD TYPE
To change the demand type, press increment/decrement key
Press **forward** key.
DEMD PARA
To change the demand parameter, press increment/decrement key
Press **forward** key.
DEMD PARD
To change the demand interval period, press increment/decrement key
Press **forward** key.
MD VAL
To change the maximum demand value, press increment/decrement key
Press **forward** key.
CRIT LOAD
To change the value of critical load, press increment/decrement key
Press **forward** key.
PRD DM
To change value of predictive demand, press increment/decrement key
Press **forward** key.
DM RES
To change the demand restore value, press increment/decrement key
Press **forward** key.
DEV ID 001
To change device ID for communication, press increment/decrement key
Press **forward** key.
BAUD RATE 9600
To change baud rate for communication, press increment/decrement key
Press **forward** key.
COMM PARI NONE
To change parity bit for communication, press increment/decrement key
Press **forward** key.
STOP BIT 1
To change stop bit for communication, press increment/decrement key

15.2 View Mode: User can view all set values in this mode without entering password Change of values is not permitted in this mode.

Press **decrement** and **backward** key together

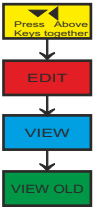
EDIT appears on display

Press **increment** key.

Display will show **View.** Press **forward** key to enter into **view** mode.

Each press of forward key user view next parameter

15.3 View Old Mode :



Press **decrement** and **backward** key together

EDIT appears on display

Press **increment** key.

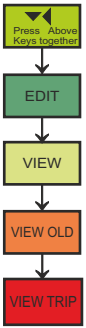
Display will show **View**

Press **increment** key and the

Display will show **VIEW OLD** Press **forward** key to enter the **OLD** mode.

Each press of forward key user view old integrated parameter i.e KWH, KVAH, run hour, load hour, interruption

15.4TRIP Setting Mode :



Press decrement & backward key together

EDIT appears on screen

Press increment key

Display will show view

Press increment key

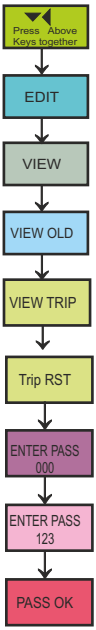
Display will show VIEW OLD

Press increment key

Display will show VIEW TRIP. Press forward key to enter into **view** trip mode.

Each press of forward key user can view log of integration parameter since the last reset i.e KWH, KVAH, run hour, load hour, interruption.

15.5 Trip Reset Mode :



Press decrement & backward key together

EDIT appears on screen

Press increment key

Display will show view

Press increment key

Display will show VIEW OLD

Press increment key

Display will show VIEW TRIP

Press increment key

Display will show Trip RST

Press forward key

Display will show ENTER PASS 000

Press increment key

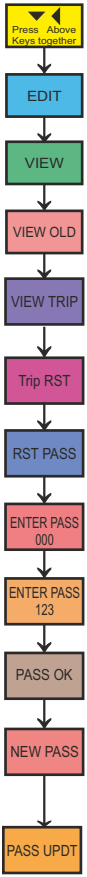
Display will show ENTER PASS 123

Press forward key

Display will show PASS OK.

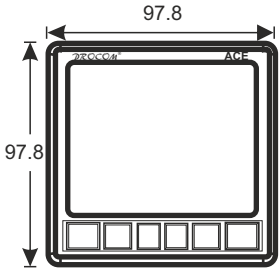
Reset of trip data is password protected. Entering correct password in this mode, resets trip values of integration parameter.

15.6 RST Password :

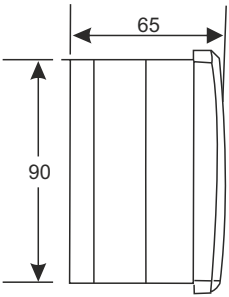


New password can be programmed in this mode. Once the password is changed, it is not possible to retrieve the old password, hence it is recommended to have a record of new password.

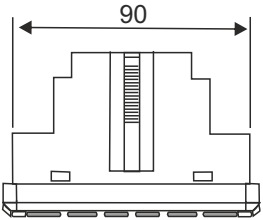
16. Dimensional details



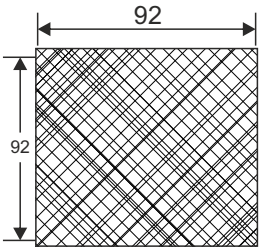
Front View



Left View



Top View



Panel Cutout

All dimensions are in mm.

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