



## ACE PLUS D ENERGY METER



Installation Guide

Rev.-01

# ACE PLUS D-Energy Meter

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## 1. Introduction :

ACE PLUS D meters are compact digital DC energy / current , equipped with customized 128X64 Pixel backlit graphical display. Four navigator keys & Graphical Display simplifies configuration of meter. PCM-K are available with accuracy class of 1.0 & 0.5 IEC 62053-21/(Optional 0.5;0.2 IEC- 62053-22).

MODBUS Communication On RS 485.

PCM-K is Commonly used for DC Energy measurement of telecom sites.

DC currents is routed through a standard shunt resistance, value of shunt is site selectable as 50mv, 75mv, 100mv.

## 2. Features :

- Password protection for user programmable parameters
- Modbus Communication on RS - 485.
- Accuracy Class 0.5 FS IEC 62053 - 21/ (Optional 0.5;0.2 IEC 62053-22)
- 128x64 pixel graphical display
- Poly carbonate body
- IP 65 from front

## 3. Specification :

Accuracy	: Class 0.5% FS
Aux. Input Voltage	: DC 10-30VDC
Input Voltage Range	: 10-300 V-DC
Input Current	: $I_1$
Input Current Range	: 5-120%
Shunt	: 50mV, 75mV, 100mV
Auxiliary supply burden	: <2W
Display	: Graphical- 128x64
Communication	: MODBUS Comm. on RS-485

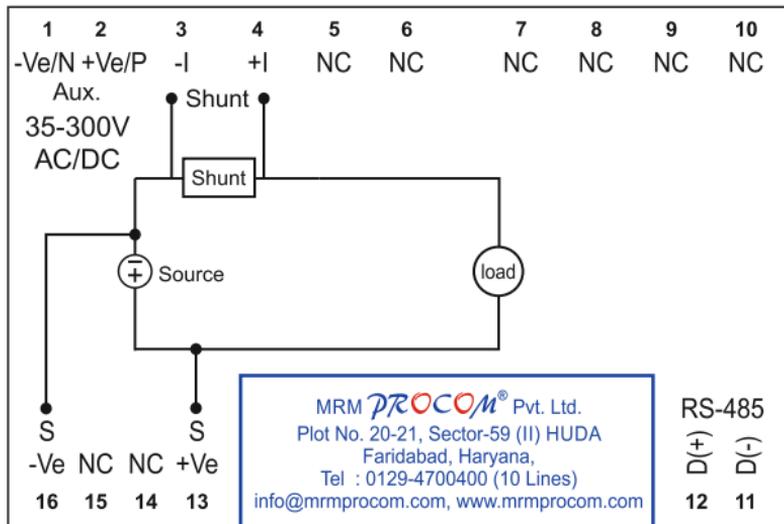
## 4. Auxiliary Supply :

SMPS Supply with input range 10-30 VDC. Burden on auxiliary supply is less than 2W.

## 5. Shunt Connection :

PCM-K is suitable for 50mV, 75mV & 100mV Shunt voltage is site programmable along with full load dc current.

## 6. Wiring Diagrams :



## 7. Key Functions

KEY	In EDIT Mode	In Measurement Mode
▲ Increment	Increment the value of selected parameters.	Long push (for 3sec approx) for Scroll ON/OFF
▼ Decrement	Decrement the value of selected parameters.	-----
▶ Next	Scrolling to the next parameter in EDIT mode	Scrolling between different measurements parameters.
◀ Back	Scrolling to the previous parameter in EDIT mode	Scrolling between different measurements parameters.
▲+▼	-----	Press Inc & Dec key together to enter in programming mode

## 8 . Setting/Configuration Modes :

### 8.1 EDIT Mode :

This mode is password protected. Set values can be changed in this mode (Editable setting are indicated in table 15.1 along-with setting range)

Example-To change the shunt from 50 mV to 75 mV follow the following steps :-

- a) Press **Increment and decrement** key together
- b) EDIT appears on display.
- c) Press **Next** key.
- d) Display will show **Enter** Password 0 , press **increment** key to reach 123 which is the default password.
- e) Once 123 is set, press **Next** key, display will show PASS OK.
- f) Press **Next** key.
- g) Display will show SHUNT MILL Vol 50, use **Increment** key to reach 75 and press **Next** key.

### 8.2 View Mode :

It is possible to view all the set values even without entering the password. Change of values are not permitted in this mode.

### 8.3 Reset 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.

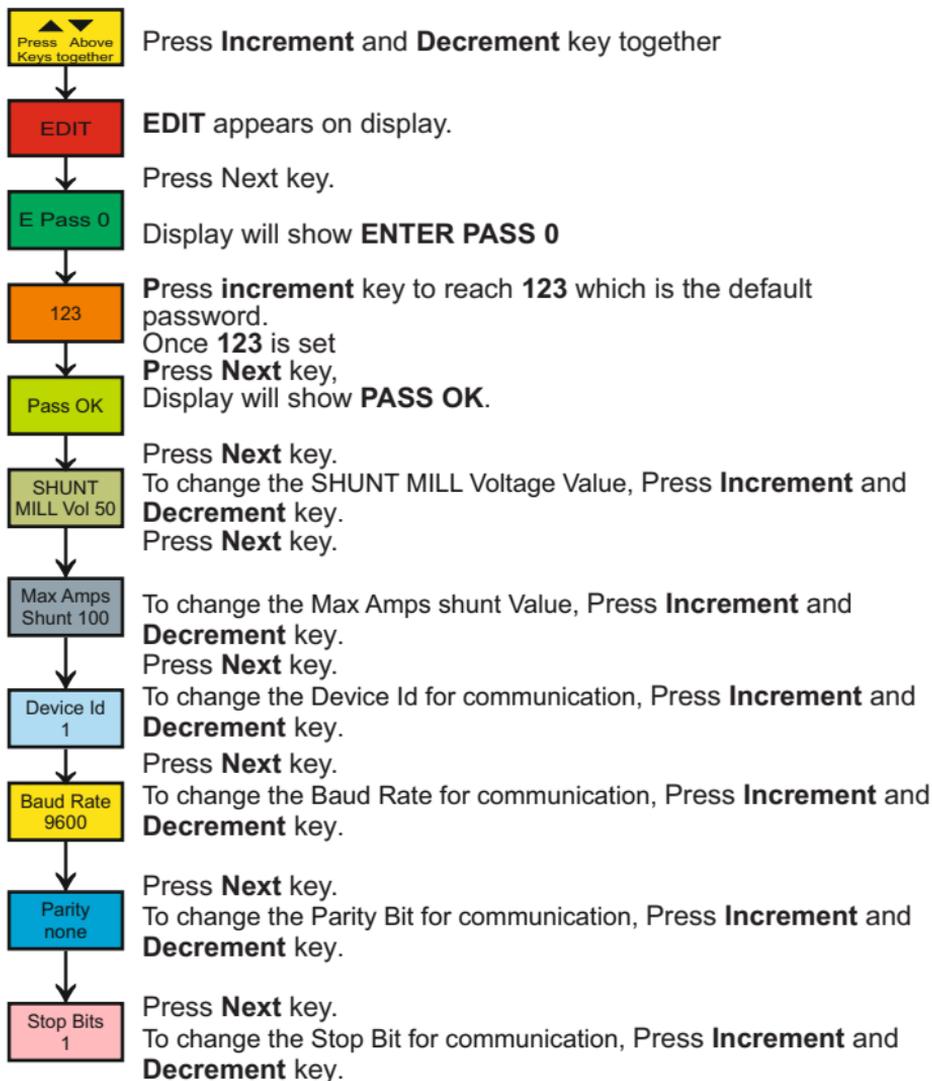
### 8.4 Reset Energy :

In this mode, we can reset the energy.

## 9. Programming Mode Details :

### 9.1 EDIT Mode :

Parameter values can be changed in 'EDIT' mode, 'EDIT' mode is password protected.



## 9.2 View Mode:

User can view all set values in this mode without entering password :



Press **increment and decrement** key together



**EDIT** appears on display  
Press **increment** key.

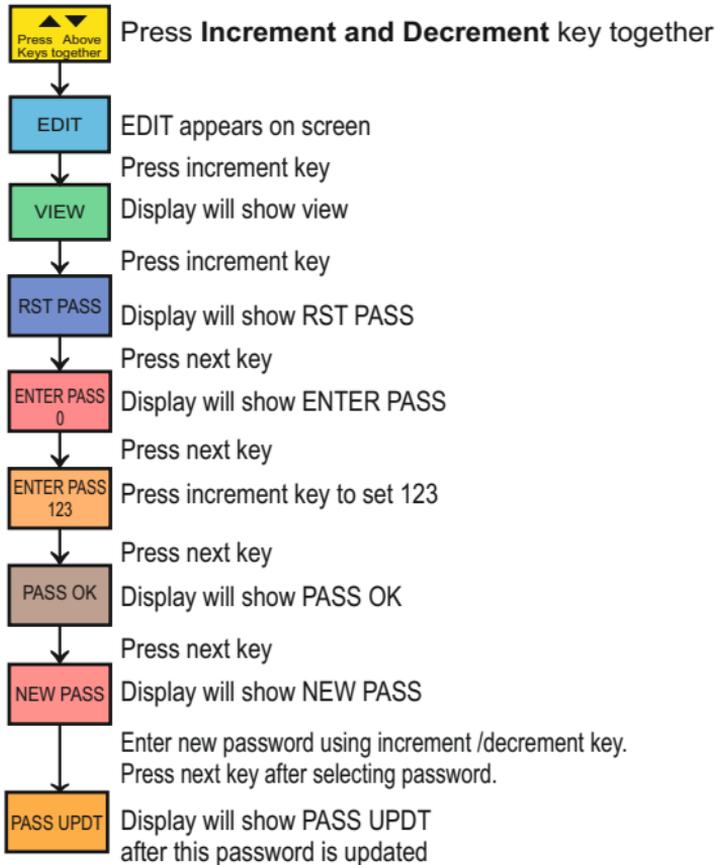


Display will show **View**  
Press next key to enter into **view** mode.

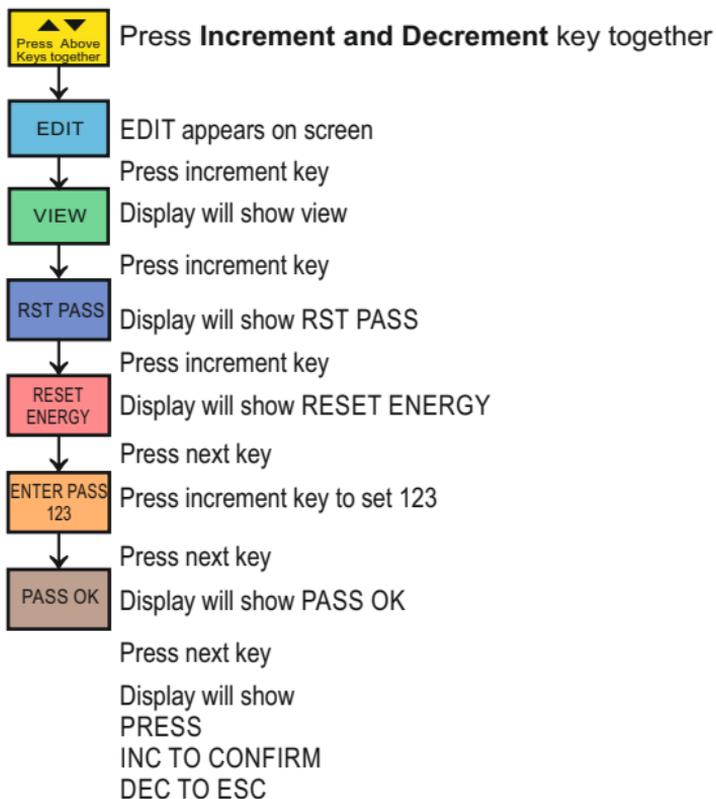


First editable parameter which is SHUNT MILL Voltage Value appears on display. User can view next parameter value by pressing **next** key

### 9.3 RESET Password :



## 9.4 RESET Energy :



When you press INC key , energy will reset

## 10.0 Modbus Table (RS-485)

### Modbus Protocol - RTU

Device ID	-	Default (1)
Baurd Rate	-	Default(9600)
Stop Bit	-	Default (one)
Data Bit	-	Default(8 bit)

The communication from meter is "Big Endian" that is, the more significant byte of a value is sent before the less significant byte.

All parameters can be read as individual or block. The Parameter address table is generalized table for all Meters. The availability of the parameters is model dependent, please refer to the product catalog for the parameters available. If the parameter is not available then a value of '0' (zero) is sent through the meter. As all parameters are in 32bits, so length 1 is not allowed.

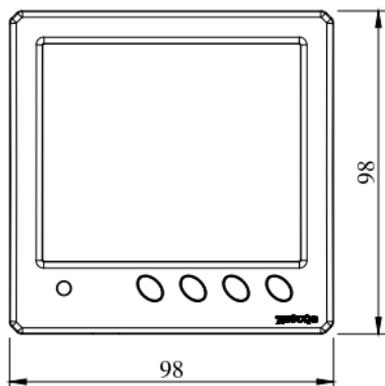
It is recommended to use twisted pair shielded cable for RS485 Communication and a good quality data converter, RS485 to RS232 and USB to Serial, if being used. A termination resistance of 120 ohm is recommended at the terminals of cable as per Rs485 specifications.

### Instance Parameter

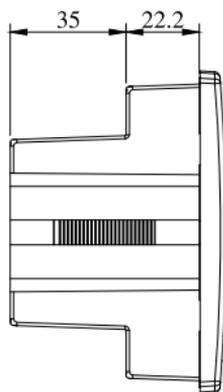
( Function code Read 0x3H (Holding Reg))

Sno.	Parameter	Address	Type	Bytes	Div	Unit
1	Current	4001	Float	4		Amp
2	Voltage	4003	Float	4		Volt
3	Power	4005	Float	4		Watt
4	Energy	4007	Float	4		WH

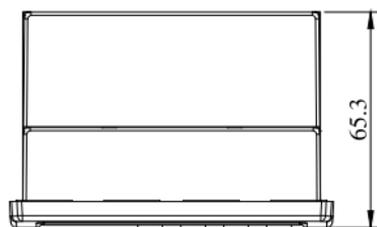
## 11. Dimensional details



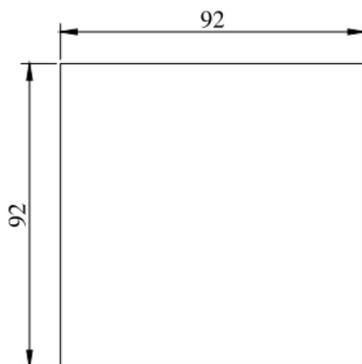
Front / View



Left / View



Top / View



Cut / View

All dimensions are in mm.

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