

# DIGITAL POWERMETER

## EPR-04

### EPR-04 DIGITAL POWERMETER

EPR-04 is a 3-phase digital powermeter and energymeter which measures:

- Active Power (W)
- Active Energy (kWh)
- Reactive Power (VAr)
- Reactive Energy (kVArh)
- Apparent Power (VA)
- Cosφ

These values are scrolled between by the set button (⏏) First 3 displays show L1, L2 and L3 phase values and the 4th display shows total value of each selected measured value (W, VAr, VA, kWh or kVArh).

EPR-04 also measures Maximum Demand, Demand, maximum and minimum values of power.

#### When :

1. W led lights: Active Power
2. VAr led lights: Reactive Power
3. VA led lights: Apparent Power
4. kWh led lights:
  - a-) A-I :Imported Active Energy
  - b-) A-E :Exported Active Energy
5. kVArh led lights:
  - a-) r-L :Reactive-Inductive Energy
  - b-) r-C :Reactive-Capacitive Energy
6. Cosφ led lights :Cosφ of the network is measured.

#### Operating Principle:

EPR-04 displays the energy and power values by multiplying voltage and current ratios by values read from input. So, the displayed values are the real values of system.

#### Demand and Maximum Demand

Demand is average of power for the demand time. Demand time can be changed between 1-60 minutes.

Maximum demand is the max. value of the average power values measured during demand time. If the new average value exceeds the maximum demand value, the new demand value is recorded as maximum demand.

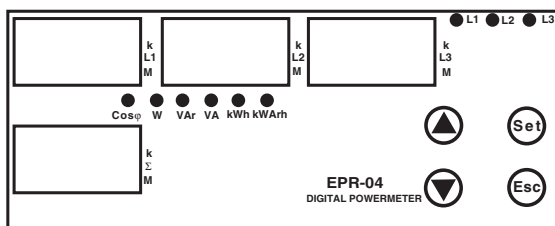
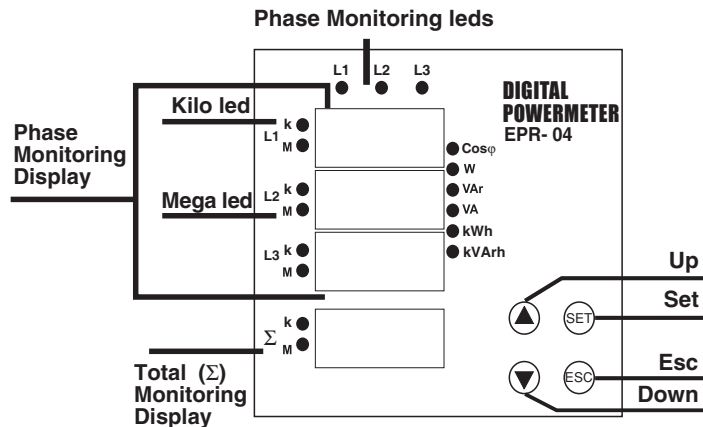
#### Displaying of Min.,Max. and Demand Values:

Min. and Max. values are defined for Active Power(W),reactive power(VAr) and apparent power(VA). Demand values are defined for total active power(W),total reactive power(VAr) and total apparent power(VA).

If measured instant value is smaller than min. value which was stored before, it is stored as new min. value. If measured instant value is greater than max. value which was stored before, it is stored as new max. value.

Demand value is the smallest value of the measured values in demand time. If the smallest value of the measured values (for example 15 minute) in demand time is greater than the demand value which was stored before, it is stored as new demand value.

If one of defined parameters is displayed when up or down buttons are pressed min., max or demand values are displayed. When an undefined parameter is displayed if up or down buttons are pressed, instant value is continued to display. For example when power factor is displayed instant values are continued to display because min., max. and demand values are undefined.



### FUNCTIONS OF BUTTONS

- When W led lights, it shows max. power values which are measured instantaneously and it shows total average demand values. Also it is used for moving upwards in the menu.
- When W led lights, it shows min. power values which are measured instantaneously and it shows total average demand values. Also it is used for moving downwards in the menu.
- It is used for passing between parameters such as W, VAr, VA, kWh, kVArh, cosφ. When it is pressed for 5 second, adjustment mode is entered. In the adjustment mode it is used for saving parameters and moving to the sub menu.
- In the adjustment mode, it is used for entering to the upper menu or it is used for quitting from the adjustment mode without saving the values.

### Current Transformer Ratio Setup

In this menu, current transformer ratio is adjusted.

**Note:** If the current transformer is not used between the system and EPR-04, current transformer ratio is entered as '1'.

**Example:** ; If a current transformer which has a ratio of 250/5A is used between the system and EPR-04 ; Current transformer ratio is entered as  
 = 250/5  
 = 50 .

Push SET button 5 seconds (Ctr menu is displayed)

Push SET button (The number which is the last digit of second display blinks)

By using UP-DOWN buttons enter to the fourth digit of desired value.

Push SET button (First number of the third display blinks). If you did not enter the first digit correct, you can reentry by pressing the ESC button.

By using UP-DOWN buttons, enter to the second digit of desired value.

Push SET button (The number which is in the middle of the third display blinks. If you did not enter the second digit correct, you can reentry by pressing the ESC button.

By using UP-DOWN buttons, enter to the third digit of desired value

Push SET button (The number which is the last digit of third display blinks). If you did not enter the third digit correct, you can reentry by pressing the ESC button

By using UP-DOWN buttons, enter to the last digit of desired value.

Push set button, Ctr is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps).

Push ESC button one by one until (SAU SET yES) appears at the display.

Push SET button when (SAU SET yES) appears at the display. (When SAU SET yES appears at the display, If you push ESC button or choose "no" option instead of "yES" option, new data will be canceled and previous value will be activated.

### Voltage Transformer Ratio Setup

In this menu, voltage transformer ratio is adjusted.

**Note:** If the voltage transformer is not used between the system and EPR-04, voltage transformer ratio is entered as '1'.

**Example:** ; If a voltage transformer which has a ratio of 34.5KV/100V is used between the system and EPR-04 ; Voltage transformer ratio is entered as  
 = 34500/100  
 = 345

Push SET button 5 seconds (Ctr menu is displayed)

By using UP-DOWN buttons find the Utr menu.

Push SET button (The number which is the last digit of second display blinks)

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By using UP-DOWN buttons enter to the first digit of desired value.

Push SET button (First digit of the third display blinks). If you did not enter the first digit correct, you can reentry by pressing the ESC button.

By using UP-DOWN buttons, enter to the second digit of desired value.

Push SET button (The number which is in the middle of the third display blinks). If you did not enter the second digit correct, you can reentry by pressing the ESC button.

By using UP-DOWN buttons, enter to the third digit of desired value.

Push SET button (The number which is the last digit of third display blinks). If you did not enter the third digit correct, you can reentry by pressing the ESC button.

By using UP-DOWN buttons, enter to the last digit of desired value.

Push set button, Utr is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps).

Push set button, Utr is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps).

Push ESC button one by one until (SAU SET yES) appears at the display.

Push SET button when (SAU SET yES) appears at the display. (When SAU SET yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option, new data will be canceled and previous value will be activated).

## Demand Time Setup:

**dt** In this menu, demand time is adjusted.

Push SET button 5 seconds (Ctr menu is displayed).

By using UP-DOWN buttons find the dt menu.

Push SET button (The number which is in the middle of the third display blinks.)

By using UP-DOWN buttons, enter to the third digit of desired value.

Push SET button (The number which is the last digit of third display blinks). If you did not enter the third digit correct, you can reentry by pressing the ESC button.

By using UP-DOWN buttons, enter to the last digit of desired value.

Push set button, dt is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps).

Push ESC button one by one until (SAU SET yES) appears at the display.

Push SET button when (SAU SET yES) appears at the display. (When SAU SET yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option, you quit from adjustment menu without saving new settings and device continues to work with previous settings).

Push SET button when (SAU SET yES) appears at the display. (When SAU SET yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option, you quit from adjustment menu without saving new settings and device continues to work with previous settings).

## Monitoring and Erasing of minimum and maximum values:

**Clr** In this menu, values of min., max. or energymeter's are erased. It saves the instantaneously measured min. and max. values of EPR-04 into its memory. Please kindly look at to the section of **FUNCTIONS OF BUTTONS** for min. and max. values.

**dE** **En** **Note:** Informations which are saved to the memory are not affected from the electric interruptions.

In the Clr dE or En menu ; when you choose yES option and quit from all menus, if you confirm the changes, min. and max. values of all parameters or values of energymeters are erased at the same time. **For erasing the values of min. and max. or energymeter**; In the measurement mode

Push SET button 5 seconds (Ctr menu is displayed).

By using the UP-DOWN buttons find the Clr dE or En menu.

Push SET button. (Clr dE no menu is displayed)

By using the UP-DOWN buttons ; If you want to delete the values choose yES, if not choose no.

Push SET button. (Clr dE is displayed)

Push ESC button.

## User password Setup:

**Pin** In this menu user password is defined and activated. You must define and activate a 4 digit user password for preventing device settings from the illegal usage. There are 2 sub menu under the Pin menu.

### Changing of User Password:

**Pin** This menu is used for changing the user password. **Note:** Factory default value for user password is "1234".

**CH9** For changing the user password; In the measurement mode,

Push SET button 5 seconds (Ctr menu is displayed)

By using UP-DOWN buttons find Pin menu.

Push SET button (Pin Act menu is displayed.)

By using the UP-DOWN buttons find Pin CHg menu.

By using UP-DOWN-SET buttons enter the old password

By using UP-DOWN-SET buttons enter the new password

By using UP-DOWN-SET buttons reenter the new password.

Push SET button, Pin CHg is displayed. Data is entered but is not activated yet. For activating the new data please follow the below steps.

Push ESC button one by one until (SAU SET yES) appears at the display.

Push SET button when (SAU SET yES) appears at the display. (When SAU SET yES appears at the display, if you push ESC button or choose "no" option instead of "yES" option, you quit from adjustment menu without saving new settings and device continues to work with previous settings).

### Activating the user password:

**Pin** This menu is used for activating the user password. After the user password is activated for entering to the menus; while the instant values are observed, user password is required if the button is pushed for 5 sn. If the user password is entered wrong, device does not latch.

**Note:** Factory default value of user password is "1234". For activating the user password; In the measurement mode,

Push SET button 5 sn. (Ctr menu is displayed)

By using UP-DOWN buttons find Pin menu.

Push SET button (Pin Act menu is displayed.)

Push SET button (The number which is the last digit of second display blinks)

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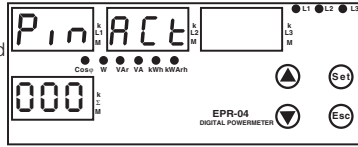


By using UP-DOWN buttons enter to the first digit of desired value.

Push SET button (First number of the third display blinks). If you did not enter the first digit correct, you can reentry by pressing the ESC button

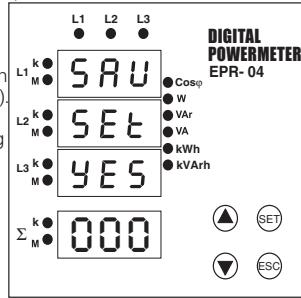
By using UP-DOWN buttons, enter to the second digit of desired value.

Push SET button (The number which is in the middle of the third display blinks). If you did not enter the second digit correct, you can reentry by pressing the ESC button)



By using UP-DOWN buttons, enter to the third digit of desired value

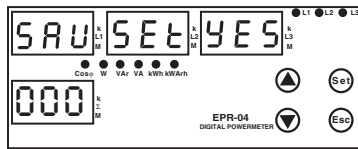
Push SET button (The number which is the last digit of third display blinks). If you did not enter the third digit correct, you can reentry by pressing the ESC button)



By using UP-DOWN buttons, enter to the last digit of desired value.

Push SET button, Pin Act of is displayed (Data is entered but is not activated yet. For activating the new data please follow the below steps)

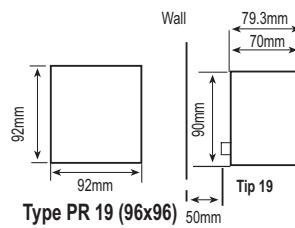
Push ESC button one by one until (SAU SEt YES) appears at the display..



Push SET button when (SAU SEt YES) appears at the display. (When SAU SEt YES appears at the display, if you push ESC

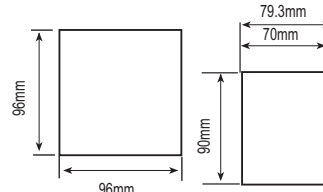
button or choose "no" option instead of "YES" option, new data will be canceled and previous value will be activated.)

### The area Measurements on The Control Panel

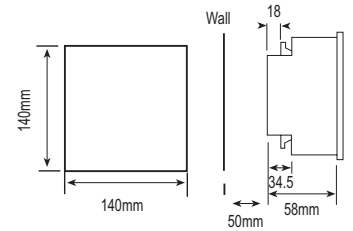


Type PR 19 (96x96)

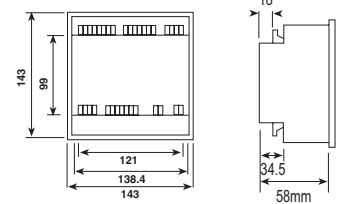
### Dimensions



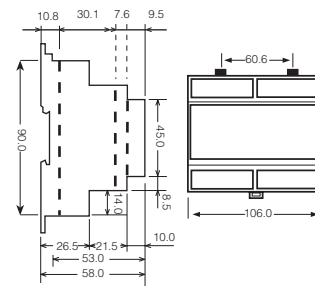
Type PR 19 (96x96)



Type PR 16




Type PR 16



Type PK-26

### TECHNICAL DATA

Operating Voltage (Un)	: Please look at the back labels on the device
Operating frequency (f)	: 50/60 Hz
Auxiliary supply Power Consumption:	: < 4 VA
Measuring Input Power Consumption:	: < 1VA
V <sub>In</sub>	: 10-300VAC 50/60Hz. (L-N) : 10-500VAC 50/60Hz. (L-L)
I <sub>In</sub>	: 0.05 - 5.5 A~
Measuring Range	: 0...999 M (W,Var,VA) : 9999999.99 kWh,kVArh
Measuring Category	: CAT III
Class	: 1±1digit [(10%-110%) xFull Scale]
Voltage Transformer Ratio	: 1 ... 2000
Current Transformer Ratio	: 1 ... 2000
Demand Time	: 1-60 min. (programmable)
Operation Current	: Max. 50 mA
Operation Voltage	: 5.....24 V DC, max. 30 VDC
Input	: 12...48 V DC
Ambient Temperature	: -5°C; +50°C
Display	: Red LED Display
Dimensions	: PR-19
Equipment Protection Class	: Double Insulation-Class II (  )
Box Protection Class	: IP 40
Box Material	: Non-flammable
Installation	: Panel Mounted (PR-16, PR-19) : Rail Mounted (PK-26)
Wire Thickness(for terminal block)	: 2.5 mm <sup>2</sup>
Weight	: 0.45 kg (PR-19, PK-26) : 0.8 kg (PR-16)
Installation Category	: Class III

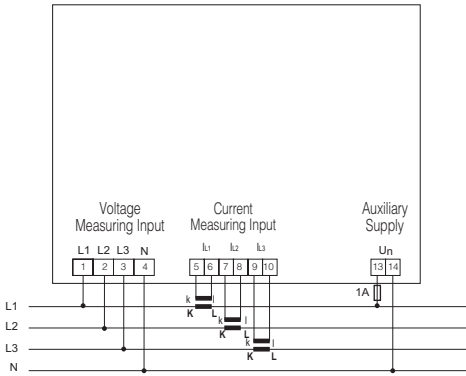
### PRECAUTIONS FOR INSTALLATION AND SAFE USE

- Failure to follow those instructions will result in death or serious injury.
- Disconnect all power before working on equipment..
  - When the device is connected to the network, do not remove the front panel.
  - Do not try to clean the device with solvent or the like.Only clean with dry cloth.
  - Verify correct terminal connections when wiring.
  - Electrical equipment should be serviced only by your component seller.
  - No responsibility is assured by manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.



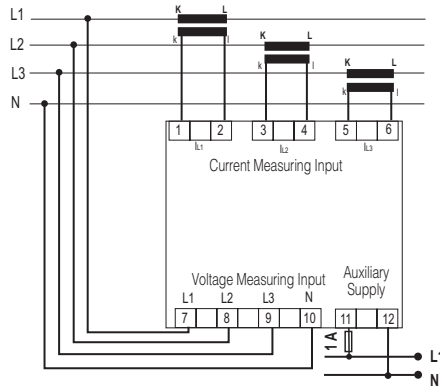
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PR-16 Box Connection Diagram



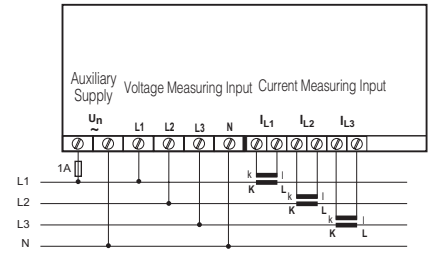
3 Phase neutral

PR 19 Box Connection Diagram

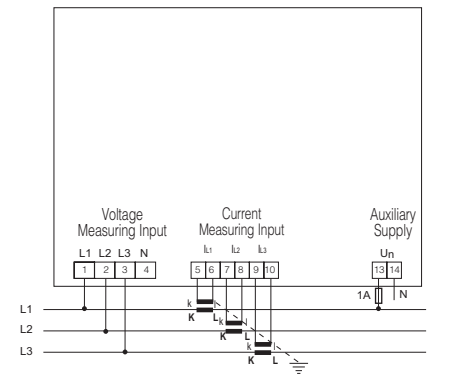


3 Phase neutral

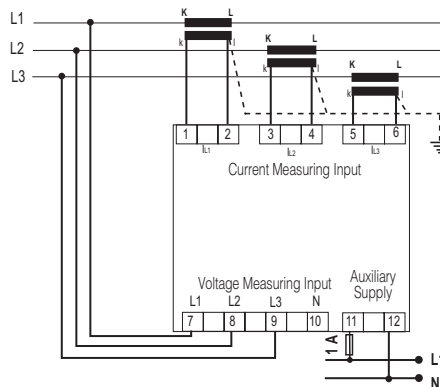
PK 26 Box Connection Diagram



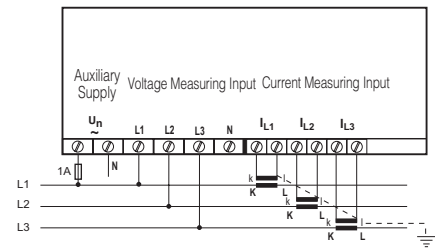
3 Phase neutral



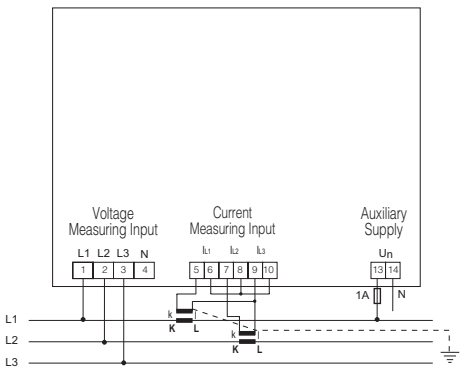
3 Phase without neutral



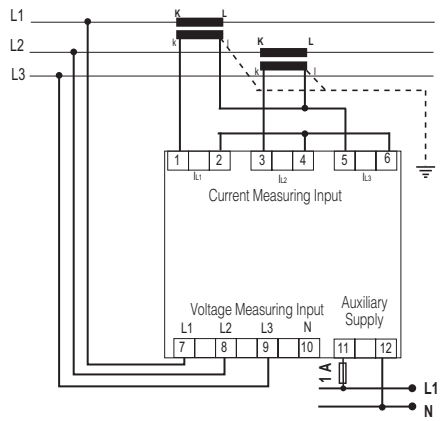
3 Phase without neutral



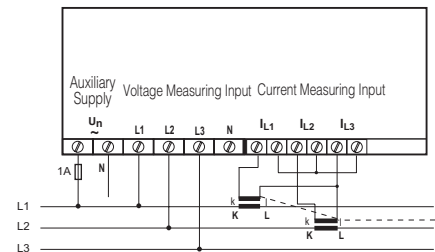
3 Phase without neutral



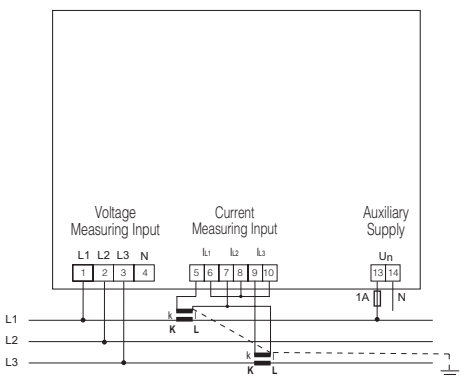
3 Phase without neutral current input with Aron wiring configuration



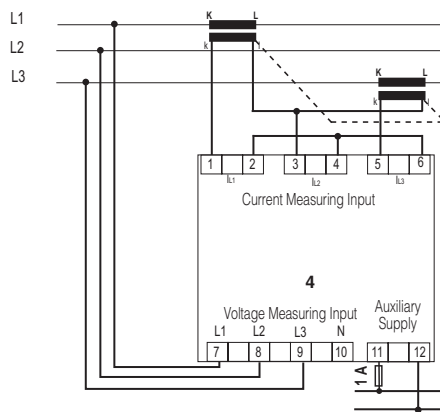
3 Phase without neutral current input with Aron wiring configuration



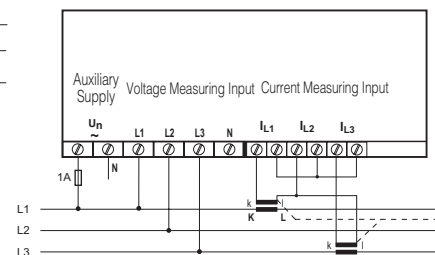
3 Phase without neutral current input with Aron wiring configuration



3 Phase without neutral current input with Aron wiring configuration



3 Phase without neutral current input with Aron wiring configuration



3 Phase without neutral current input with Aron wiring configuration