

# AMMETER

## EPM-4A / EPM-4C / EPM-4D / EPM-4P

**EPM-4D (Ammeter with Demand)** : EPM-4D is designed to measure RMS value of AC current which flows from the line and saving the instant and average demands. The current transformer ratio can be set between 5/5A and 10000/5A by the buttons on the panel.

**EPM-4A (Ammeter with Demand)** : With additional features to EPM-4D, current transformer ratio is selected as "drCt", CT-25 current transformer which can measure between 0,07 A - 200 A must be used.

**EPM-4C (Ammeter with Setpoint)** : EPM-4C measures the RMS value of AC current which flows from the line. If the measured AC current is over the high setpoint or it is under the low setpoint, output relay is switched on at the end of adjusted time delay. Also, it includes all functions of EPM-4A.

**EPM-4P (Ammeter with Pick-Up)** : In addition to EPM-4C, it also has Pick-Up relay. If the measured AC current is over the high setpoint or it is under the low setpoint, Pick-Up relay is switched on without delay. If current value returns within preset limits before the end of programmed delay time, Pick-Up relay is switched off without delay.

**\* Important Notice:** The secondary value of current transformer must be limited at 5A.

**Note** : If the current on the measurement input of the device is over 6 A or measurement according to entered primary value of current transformer is over 9999 A, there will be "hi" on the display.

**Turn (tr)** : Turn number of cable, which passes inside of CT-25 is selected in this menu. This number can be selected between 1 and 10. If only "drCt" is selected under "Ctr" menu, turn number will be activated.

### MEASUREMENT RANGES

| trn                 | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| I <sub>n</sub> min. | 0,700 | 0,350 | 0,233 | 0,175 | 0,140 | 0,117 | 0,100 | 0,088 | 0,078 | 0,070 |
| I <sub>n</sub> max. | 200,0 | 100,0 | 66,66 | 50,00 | 40,00 | 33,33 | 28,57 | 25,00 | 22,22 | 20,00 |

**Demand Time (dEt)** : Device records measured demand and maximum demand values. Demand is the average current value measured in demand time. Maximum demand is the maximum average current value measured in demand time. Maximum demand value remains stored, even if the power supply is off and demand value becomes "0" (zero).

**Setpoint (SPh ve SP L)** : When the AC current which flows through the device is over the high setpoint value or it is under the low setpoint value, the output relay is switched on in order to generate an error signal at the end of programmed delay time. If the AC current value returns within preset limits, before the end of the delay time, the relay resets itself and no tripping occurs.

**Latch Function (RLt)** : Latch function is used to select the output relay operation mode. Either "oF" or "on" position may be selected.

- At position "oF": If the current value returns to preset limits, output relay is switched off.
- At position "on": Even if the current value returns to preset limits, output relay remains switched on and switches off only by pressing the "Set" button.

**Instant Tripping (trP)** : If the AC current value is over the 1,5 times of setting value or it is under the 0,5 times of setting value, the output relay is switched on without any delay time. This function is user-selectable.

**Start Time Delay (Strt)** : When the current starts to flow initially, the setpoint values are ignored for the determined time. If auto start mode is activated, after the AC current is cutted, the device returns into its initial state.

**Automatic Start Mode (Auto)** : If this function is disabled (off), start-up delay (Strt) is activated only when initial current is applied to the measurement input of device. However, when this function is enabled (on), if measured current value decreases to "0" (zero) value and increases again, start-up delay is activated.

### Selection of Current Transformer Primary Value (For EPM-4A, 4C, 4D and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **Ctr** is displayed. (Ctr)

Press SET button. (5000)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (drCt) (\*drCt is not available for EPM-4D.) (drCt valid when CT-25 is used)

Press SET button to save.

**Example:** If a current transformer which has a ratio of 80/5 A is used, current transformer primary value is entered as "80".

### Setting of Turn Number (For EPM-4A, 4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **trn** is displayed. (trn)

Press SET button. (0001)

Press UP or DOWN button until requested value is displayed. (0010)

Press SET button to save.

### Setting of Demand Time (For EPM-4A, 4C, 4D and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **dEt** is displayed. (dEt)

Press SET button. (0015)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (0020)

Press SET button to save.

### Setting of High Setpoint Value (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **SPh** is displayed. (SPh)

Press SET button. (2500)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (2750)

Press SET button to save.

### Setting of Low Setpoint Value (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **SP L** is displayed. (SP L)

Press SET button. (2500)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (2250)

Press SET button to save.

### Setting of Hysteresis Value (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **hYS** is displayed. (hYS)

Press SET button. (5.000)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (6.000)

Press SET button to save.

### Setting of On Time Value (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **on t** is displayed. (on t)

Press SET button. (010.0)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (015.0)

Press SET button to save.

### Setting of Off Time Value (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **oF t** is displayed. (oF t)

Press SET button. (010.0)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (015.0)

Press SET button to save.

### Setting of Start Time Value (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **Strt** is displayed. (Strt)

Press SET button. (010.0)

Press UP or DOWN button until requested value is displayed. (If buttons are pressed continuously, displayed value is changed quickly). (015.0)

Press SET button to save.

### Setting of Auto Start Mode (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **Auto** is displayed. (Auto)

Press SET button. (on)

Press UP or DOWN button until requested value is displayed. (oF)

Press SET button to save.

### Setting of Instant Tripping Function (For EPM-4C and 4P)

Press SET button for 3 sec. (Ctr)

Press UP or DOWN button until **trP** is displayed. (trP)

Press SET button. (on)

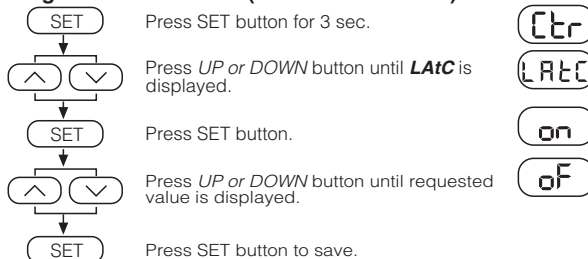
Press UP or DOWN button until requested value is displayed. (oF)

Press SET button to save..

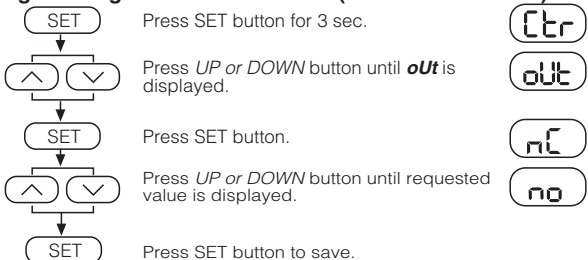
# AMMETER

## EPM-4A / EPM-4C / EPM-4D / EPM-4P

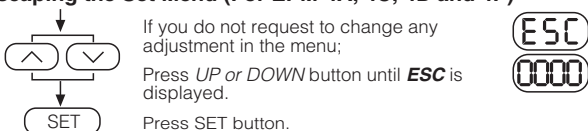
### Setting of Latch Function (For EPM-4C and 4P)



### Programming of Contact Situation (For EPM-4C and 4P)



### Escaping the Set Menu (For EPM-4A, 4C, 4D and 4P)



### Displaying of Demand (For EPM-4A, 4C, 4D and 4P)



### Displaying of Max. Demand (For EPM-4A, 4C, 4D and 4P)



### Deleting the Demand Values (For EPM-4A, 4C, 4D and 4P)

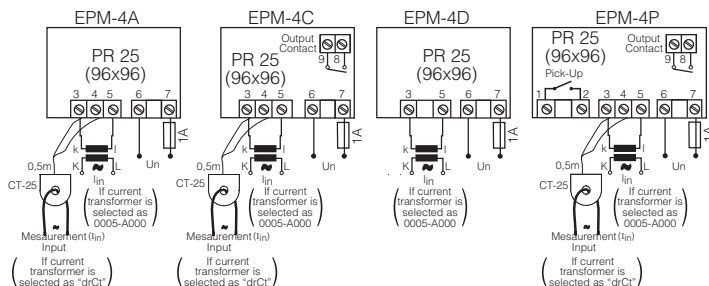
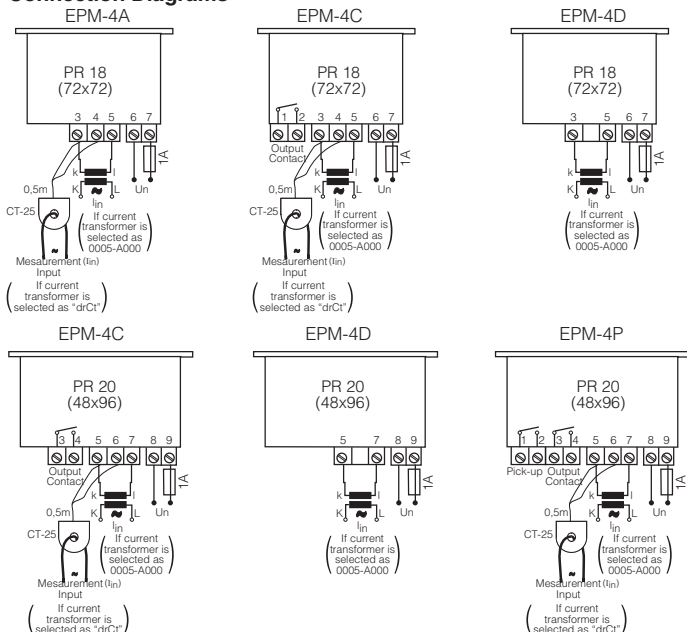


### Precautions For Installation and Safe Use

Failure to follow below 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 the device with a dried cloth.
- Verify correct terminal connections when wiring.
- Electrical equipment should be serviced only by your competent seller. No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.
- Only for rack panel mounting.

### Connection Diagrams



### Warning :

- A switch or circuit breaker must be connected between the network and the auxiliary supply input of device.
- Connected switch or circuit breaker must be in close proximity to the device.
- Connected switch or circuit breaker must be marked as the disconnecting device for the equipment.
- The type of the used fuse must be FF type and the current of the used fuse must be 1A.
- No need of a ventilator in the installation area
- Practical user manual must be put on the panel.

### Technical Data

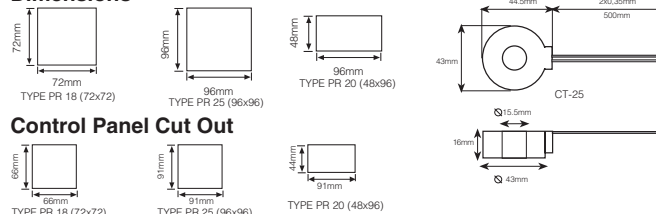
|                                  |   |
|----------------------------------|---|
| Operating Voltage ( $U_N$ )*     | : Please look at labels on the device.                          |
| Operating Range ( $\Delta U$ )   | : 45-65 Hz  |
| Operating Frequency (f)          | : 0,05-5,5 A  |
| Accuracy                         | : 1% $\pm$ 1 digit [(10%-100%) full scale]                      |
| Measuring Input ( $I_{in}$ )     | : 0,05-5,5 A  |
| Measuring Range                  | : 0,07-200 A (with CT-25 (for EPM-4A, 4C and 4P))               |
| Current Transformer Ratio (Ct)   | : 0,05 -10.000 A (with X5 CT)                                   |
| Power Consumption ( $P_{cons}$ ) | : 0,07-200 A (with CT-25 (for EPM-4A, 4C and 4P))               |
| Burden                           | : < 4 VA  |
| Output Contact                   | : < 1 VA  |
| Pick-Up Contact                  | : 5 A, 250 V, 1250 VA (Resistive) (for EPM-4C and 4P)           |
| Ins. Tripping                    | : 5 A, 250 V, 1250 VA (Resistive) (for EPM-4P)                  |
| Hysteresis                       | : > 1,5 x SP H or < 0,5 x SP L (for EPM-4C and 4P)              |
| Delay Times                      | : 0-0,5 x Full scale (for EPM-4C, 4P)                           |
| Demand Time (Average)            | : 0,0 - 999,9 sec. (for EPM-4C, 4P)                             |
| Enclosure                        | : 1-60 min.   |
| Equipment Protection             | : Non-flammable   |
| Ambient Temperature              | : Double Insulation (□), Measuring Category III                 |
| Degree of Protection             | : -5 °C; +50 °C   |
| Wire Thickness                   | : IP 40 (Front Panel)   |
| Installations                    | : 2,5mm <sup>2</sup> (for terminal block)                       |
| Dimensions                       | : 16 mm <sup>2</sup> (Measuring Input Wire Thickness for CT-25) |
| Weight                           | : Flush mounting with rear terminals                            |
|                                  | : Type PR 18, PR 25, PR 20                                      |
|                                  | : 0,31 kg (for PR 18)   |
|                                  | : 0,35 kg (for PR 25)   |
|                                  | : 0,28 kg (for PR 20)   |

### Packaging Information

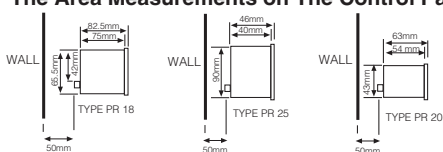
|                 |                      |
|-----------------|----------------------|
| Pcs per Package | : 16 Pcs (for PR 18) |
| Package Weight  | : 5 kg               |
| Pcs per Package | : 12 Pcs (for PR 25) |
| Package Weight  | : 4,2 kg             |
| Pcs per Package | : 20 Pcs (for PR 20) |
| Package Weight  | : 5,5 kg             |

- \* Please check the device label for proper value.
- \* Different supply voltages are adjustable upon request.

### Dimensions



### The Area Measurements on The Control Panel



### Factory Settings :

|              |              |              |           |
|--------------|--------------|--------------|-----------|
| Ctr = 0005   | SPL = 0.250  | oF t = 010.0 | trP = oF  |
| tm = 0001    | hYS = 0.100  | Strt = 006.0 | LatC = oF |
| dE t = 0015  | on t = 010.0 | AUto = oF    | oUt = no  |
| SP h = 4.000 |              |              |           |

