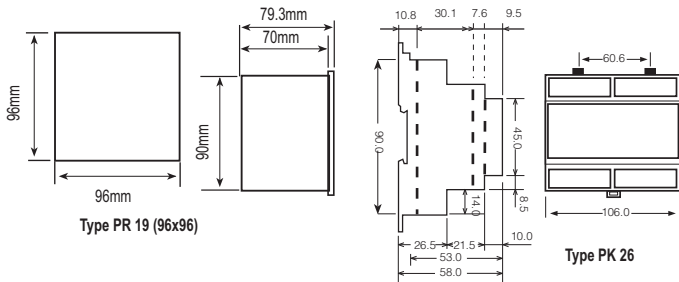
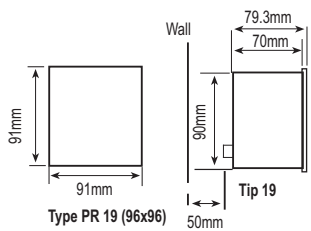


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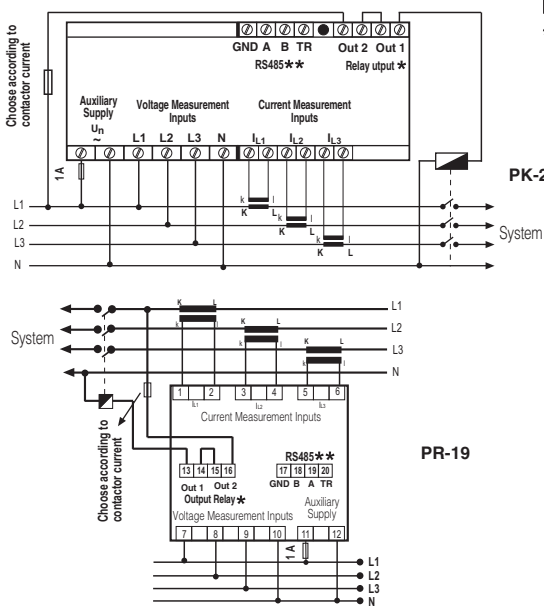
Dimensions



Panel Cut-out



Connection Diagram



* Available only for EPM-06C/06CS
** Available only for EPM-06CS

Note: For CT-25 models:
k: When CT-25 is used, Red cable is connected to k terminal.
l: When CT-25 is used, Black cable is connected to l terminal.



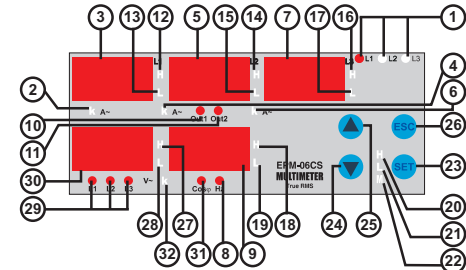
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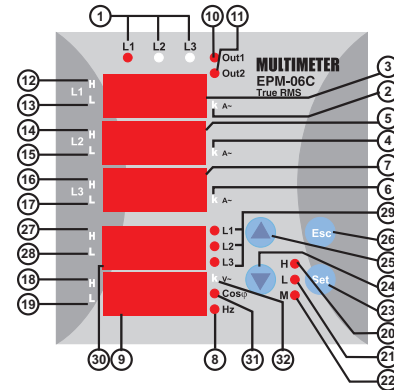
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Output, SP Current and SP Volt menus are available for EPM-06C/06CS; RS-485 menu is available for EPM-06CS.

PRECAUTIONS FOR INSTALLATION AND SAFE USE

- In CT-25 (120A) compliant models, only CT-25 current transformer must be used.
- Other type of CT's have a high risk to damage to device.
- 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.
- Only for rack panel mounting.
- Fuse must be F type and limit value doesn't exceed 1A.
- No responsibility is assured by the manufacturer or any of its subsidiaries for any consequences arising out of the use of this material.



- Phase LEDs: The LEDs turn on when the voltage value, which is applied to one of the current inputs, reach 30 V
- First display's k LED (for L1). Measurement parameter is the unit of kilo when LED is turned on. ie: kA, kV
- Display for L1.
- Second display's k LED (for L2 and neutral current). Measurement parameter is the unit of kilo when LED is turned on. ie: kA, kV
- Display for L2 and neutral current.
- Third display's k LED (for L3). Measurement parameter is the unit of kilo when LED is turned on. ie: kA, kV
- Display for L3.
- Displays network frequency when Hz LED is turned on.
- Display for frequency and Cosφ (for EPM-06C/06CS).
- First warning output LED (Out1). Turned on when the output is activated.
- Second warning output LED (Out2). Turned on when the output is activated.
- Over current / voltage warning output for L1. (EPM-06C/06CS)
- Low current / voltage warning output for L1. (EPM-06C/06CS)
- Over current / voltage warning output for L2. (EPM-06C/06CS)
- Low current / voltage warning output for L2. (EPM-06C/06CS)
- Over current / voltage warning output for L3. (EPM-06C/06CS)
- Low current / voltage warning output for L3. (EPM-06C/06CS)
- Over current / frequency warning output for frequency (EPM-06C/06CS).
- Low current / frequency warning output for frequency (EPM-06C/06CS).
- H LED for max. instant current and voltage. Max. instant currents and voltages are displayed when this LED is turned on.
- L LED for min. instant current and voltage. Min. instant currents and voltages are displayed when this LED is turned on.
- M LED for max. demand. Max. demand values are displayed when this LED is turned on.
- SET button. It is used to enter into the menu and to save the values. If SET button is pressed for 3 sec. in the measurement mode, you can enter into menus. This button is used for monitoring the max. (H), Min. (L) current values and max. demand values in measurement mode.
- Downward selection button. And also switching between the phases for EPM-06C/06CS.
- Upward selection button. And also switching between the phases for EPM-06C/06CS.
- ESC button. Displaying the neutral current during the measurement mode. Escaping from the menu. And also used for switching off the Latch function while this function has activated.
- Over voltage warning LED which is displayed in fourth display.
- Low voltage warning LED which is displayed in fourth display.
- These LEDs are used for which phase refers to measurement of voltage in 4th display.
- Display for monitoring the phase voltages (According to related phase).
- This LED; indicates Cosφ when L1, L2 or L3 activated for monitoring voltage values in 4th display.
Indicates average value of **inductive Cosφ** when L1-L2 are activated.
Indicates average value of **capacitive Cosφ** when L2-L3 are activated.
- k LED for monitored phase in 4th display.



General information

EPM-06/06C/06CS is designed for measuring the below parameters in a 3-Phase system. Phase current, frequency, neutral current and voltages (Phase-Phase and Phase-Neutral).
 EPM-06C/06CS;
 Device has 2 warning output which named as Out1 and Out2. (NO-Normally Open)
 Please refer to "Output" menu for the functions of the relays.

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Programming the "SP CŪr Hi", "SP CŪr Lo", "SP UoL Hi" and "SP UoL Lo".

Press SET button for 3 sec. (trA Fo menu is displayed.)

Find "SP CŪr rnt / SP UoL L" menu by scrolling UP-DOWN buttons.

Press SET button. "SP CŪr Hi / SP UoL Hi" menu is displayed.

Find [(SP CŪr Hi/SP CŪr Lo) / (SP UoL Hi/SP UoL Lo)] menu by scrolling UP-DOWN buttons.

Press SET button [(CŪr Hi L-1/CŪr Lo L-1) / (UoL Hi L-1/UoL Lo L-1) menu is displayed.]

Press SET button. Blinking the first digit of displayed value appears.

Enter the blinking digit value by scrolling UP/DOWN buttons. Switch to the other digits by using SET button, use ESC button to go to previous digit. After you entered the last digit press SET button. "CŪr Hi L-1/CŪr Lo L-1" / (UoL Hi L-1/UoL Lo L-1" is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps).

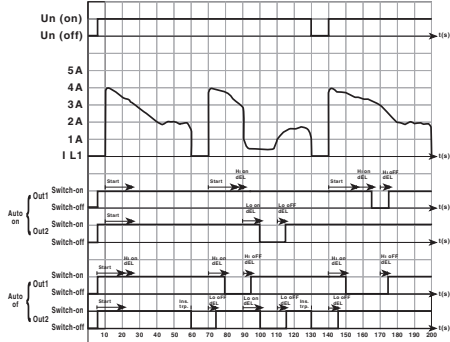
Press ESC button one by one until "SAU E SET yES" is displayed.

Press SET button. When "SAU E SET yES" is displayed (if you press ESC button or choose "no" option instead of "yES" then new data will be cancelled and previous value will be activated).

Start-up delay:
Start Delay Time is used to prevent from faulty switchings caused by motor start-up current (demurrage current).
When Out1 remain switched ON in this time period (even if the current value exceeds the limits device doesn't sense it as a warning. The device doesn't give a warning even if the current value isn't in the setting interval. This function is used with "Auto Reset" function.

Auto Reset Function:
If **Auto Reset** function is selected as ON; Each time that the current decreases "50mAxCtr" value, start-up delay time is reset and when the current value increases "50mAxCtr", start-up delay function is activated.
If **Auto Reset** function is selected as OFF; if the power supply is switched off and then switched on, start-up delay function is activated.

Please refer to below graphics for the operating principle of STA rt dEL and Aut o rSt functions



Instant Tripping Function.
At position ON, if any phase current (IL1, IL2, IL3 and IN) exceeds 1.5 times of high (CŪr Hi L-1, L-2, L-3, L-n) values, the "current output" switches off instantly, output LED turned off and H LEDs for related currents turned on. (Please refer to "Output").
At position OFF, if any phase current (IL1, IL2, IL3 and IN) decrease 0.5 times of low (CŪr Lo L-1, L-2, L-3, L-n) values, the "current output" switches off instantly, output LED turned off and L LEDs for related currents turned on. (Please refer to "Output").
At position OFF, instant tripping function is cancelled.

Programming "CŪr inS trP", "Aut o rSt" and "UoL inS trP"

Press SET button for 3 sec. (trA Fo menu is displayed.)

Find "SP CŪr rnt / SP UoL L" menu by scrolling UP-DOWN buttons.

Press SET button (SP CŪr Hi / SP UoL Hi menu is displayed.)

Find [(CŪr inS trP / Aut o rSt) / UoL inS trP] menu by scrolling UP-DOWN buttons.

Press SET button [(CŪr inS trP on / Aut o rSt on) / UoL inS trP off] is displayed.

Select "on" in order to activating the "instant trip function" (Aut o rSt), select "off" in order to deactivating the "instant trip function", by scrolling UP/DOWN buttons.

Press SET button, [(CŪr inS trP / Aut o rSt) / UoL inS trP] is displayed. (Selection is entered but is not activated yet. For activating the new selection, please follow the below steps).

Press ESC button one by one until "SAU E SET yES" is displayed.

Press SET button. When "SAU E SET yES" is displayed (if you press ESC button or choose "no" option instead of "yES" then new data will be cancelled and previous value will be activated).

Programming "SP UoL L":

Using purposes of submenus of "SP UoL L" explained below with details.

SP UoL L
t

In this menu, high set points for voltage values are programmed. Hi values for Phase-Neutral / Phase-Phase (according to Star / Delta selection) can be entered one by one.

If all the voltage values (Phase-Neutral / Phase-Phase) are under the Hi value; related relay is switched on, its LED turned on (please refer "Output") and related H LEDs are turned off.
If all the voltage values (Phase-Neutral / Phase-Phase) are over the Hi value, H LED blinks and related output is switched off at the end of "delay on time" (Hi on dEL), its LED turned off (please refer "Output") and related H LEDs are turned on.

If all voltage (Phase-Neutral / Phase-Phase) are below the high set value (Hi) as a hysteresis voltage (UoL Hi HyS), related output is switched on at the end of the "delay off time" (Hi off dEL), its LED turned on (please refer "Output") and H LED is turned off.
Note: High Voltage values are programmed for (Phase-Neutral / Phase-Phase) separately but "UoL Hi HyS" (hysteresis) and "Hi on dEL" (delay on time) and "Hi off dEL" (delay off time) values are common; these parameters have same values for Phase-Neutral / Phase-Phase.
When Connection type (Star/Delta) is selected (refer to Connection menu), device will change the UoL Hi L-1, L-2 and L-3 values automatically according to connection.

Example: If the connection type is selected as Star (with neutral); UoL Hi HyS=10V UoL Hi L-1=250V, UoL Hi L-2=255V, UoL Hi L-3=260V and then this connection type is selected as Delta (without neutral), device will change the values after calculated them according to Phase-Phase values.
New values:
UoL Hi L-1 (L1-L2 Phase to phase voltage) = 433 V
UoL Hi L-2 (L2-L3 Phase to phase voltage) = 441 V
UoL Hi L-3 (L3-L1 Phase to phase voltage) = 450 V
UoL Hi HyS = 10 V.
There are 6 submenus.
UoL Hi L-1, UoL Hi L-2, UoL Hi L-3, UoL Hi HyS, Hi on dEL, Hi off dEL.

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SP UoL Lo

In this menu, low set points for voltage values are programmed. Lo values for Phase-Neutral / Phase-Phase (according to Star / Delta selection) can be entered one by one.
If all the voltage values (Phase-Neutral / Phase-Phase) are over the Lo value; related output is switched on, its LED turned on (please refer "Output") and related L LEDs are turned off.
If any of the voltage values (Phase-Neutral / Phase-Phase) decrease the Lo value, L LED blinks and related output is switched off at the end of "delay on time" (Lo on dEL), its LED turned off (please refer "Output") and related L LED is turned on continuously.
If all voltage (Phase-Neutral / Phase-Phase) values increase the low set value (Lo) as a hysteresis voltage (UoL Lo HyS), related relay is switched on at the end of the "delay off time" (Lo off dEL), its LED turned on (please refer "Output") and L LED is turned off.
Note: Low Voltage values are programmed for (Phase-Neutral / Phase-Phase) separately but "UoL Lo HyS" (hysteresis), "Lo on dEL" (delay on time) and "Lo off dEL" (delay off time) values are common; these parameters have same values for Phase-Neutral / Phase-Phase.
When Connection type (Star/Delta) is selected (refer to Connection menu), device will change the UoL Lo L-1, L-2 and L-3 values automatically according to connection.

Example: If the connection type is selected as Star (with neutral); UoL Lo HyS=10V
UoL Lo L-1=180V, UoL Lo L-2=175V, UoL Lo L-3=170V and then this connection type is selected as Delta (without neutral), device will change the values after calculated them according to Phase-Phase values.
New values:
UoL Lo L-1 (L1-L2 Phase to phase voltage) = 311 V
UoL Lo L-2 (L2-L3 Phase to phase voltage) = 303 V
UoL Lo L-3 (L3-L1 Phase to phase voltage) = 294 V
UoL Lo HyS = 10 V.
There are 6 submenus.
UoL Lo L-1, UoL Lo L-2, UoL Lo L-3, UoL Lo HyS, Lo on dEL, Lo off dEL.

UoL Lo L-1
High value for L1, when the Star is selected; high value for L1-L2, when the Delta selected can be defined in this menu.
0...300 for Star connection and 0...500 for Delta connection can be defined.
If the value is set to zero (0), the high voltage warning is disabled. Refer "SP UoL Hi" for details.

UoL Lo L-2
Low value for L1, when the Star is selected; low value for L1-L2, when the Delta selected can be defined in this menu.
0...300 for Star connection and 0...500 for Delta connection can be defined.
If the value is set to zero (0), the high voltage warning is disabled. Refer "SP UoL Lo" for details.

UoL Lo L-3
Low value for L1, when the Star is selected; low value for L1-L2, when the Delta selected can be defined in this menu.
0...300 for Star connection and 0...500 for Delta connection can be defined.
If the value is set to zero (0), the high voltage warning is disabled. Refer "SP UoL Lo" for details.

Note: L2 and L3 phases can be programmed similarly.

UoL Lo
Low value for L1, when the Star is selected; low value for L1-L2, when the Delta selected can be defined in this menu.
0...300 for Star connection and 0...500 for Delta connection can be defined.
If the value is set to zero (0), the high voltage warning is disabled. Refer "SP UoL Lo" for details.

Note: L2 and L3 phases can be programmed similarly.

UoL Lo HyS
In this menu, required hysteresis voltage for low voltage warning is programmed. (same for Phase-Neutral/Phase-Phase).
0...200V for Star connection and 0...200V for Delta connection can be defined.
Refer "SP UoL Hi" for details.

UoL Lo HyS
In this menu, required hysteresis voltage for low voltage warning is programmed. (same for Phase-Neutral/Phase-Phase).
0...200V for Star connection and 0...200V for Delta connection can be defined.
Refer "SP UoL Lo" for details.

Programming the "U-H HyS", "U-L HyS", "I-H HyS", "I-L HyS"

Press SET button for 3 sec. (trA Fo menu is displayed.)

Find "SP UoL L" menu by scrolling UP-DOWN buttons.

Press SET button (SP UoL Hi / SP CŪr Hi menu is displayed.)

Find [(SP UoL Hi / SP UoL Lo) / (SP CŪr Hi / SP CŪr Lo)] menu by scrolling UP-DOWN buttons.

Press SET button [(UoL Hi L-1 / UoL Lo L-1) / (CŪr Hi L-1 / CŪr Lo L-1) menu is displayed.]

Press SET button. Blinking the first digit of displayed value appears.

Enter the blinking digit value by scrolling UP/DOWN buttons. Switch to the other digits by using SET button, use ESC button to go to previous digit. After you entered the last digit press SET button. (UoL Hi HyS / UoL Lo HyS) / (CŪr Hi HyS / CŪr Lo HyS) is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps).

Press ESC button one by one until "SAU E SET yES" is displayed.

Press SET button. When "SAU E SET yES" is displayed (if you press ESC button or choose "no" option instead of "yES" then new data will be cancelled and previous value will be activated).

UoL Lo HyS
"Delay on" time for activating the output for high voltage warning. It is common for all voltages (same for Phase-Neutral/Phase-Phase).
The value can be programmed between 000.0 and 999.9 in terms of seconds. (Refer "SP UoL Hi" for details.)

UoL Lo HyS
"Delay on" time for activating the output for low voltage warning. It is common for all voltages (same for Phase-Neutral/Phase-Phase).
The value can be programmed between 000.0 and 999.9 in terms of seconds. (Refer "SP UoL Lo" for details.)

UoL Lo HyS
"Delay off" time for activating the output for high voltage warning. It is common for all voltages (same for Phase-Neutral/Phase-Phase).
The value can be programmed between 000.0 and 999.9 in terms of seconds. (Refer "SP UoL Hi" for details.)

UoL Lo HyS
"Delay off" time for activating the output for low voltage warning. It is common for all voltages (same for Phase-Neutral/Phase-Phase).
The value can be programmed between 000.0 and 999.9 in terms of seconds. (Refer "SP UoL Lo" for details.)

UoL Lo HyS
"Hi on dEL", "Hi off dEL", "Lo on dEL", "Lo off dEL" settings are explained for SP UoL L and SP CŪr rnt

Press SET button for 3 sec. (trA Fo menu is displayed.)

Find "SP UoL L" / SP CŪr menu by scrolling UP-DOWN buttons.

Press SET button (SP UoL Hi / SP CŪr Hi menu is displayed.)

Find [(SP UoL Hi / SP UoL Lo) / (SP CŪr Hi / SP CŪr Lo)] menu by scrolling UP-DOWN buttons.

Press SET button [(UoL Hi L-1 / UoL Lo L-1) / (CŪr Hi L-1 / CŪr Lo L-1) menu is displayed.]

Find [(Hi on dEL / Hi off dEL / Lo on dEL / Lo off dEL) / (Hi on dEL / Hi off dEL / Lo on dEL / Lo off dEL)] menu by scrolling UP-DOWN buttons.