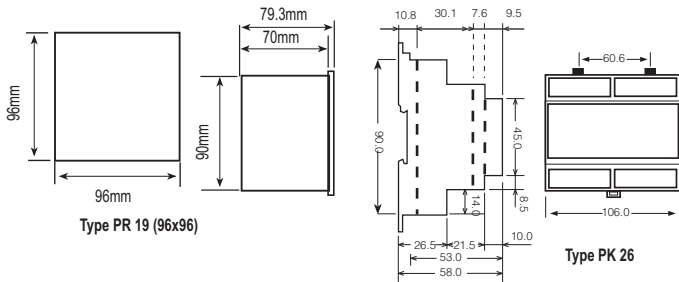
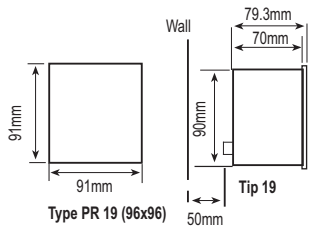


MULTIMETER EPM-06 / 06C / 06CS

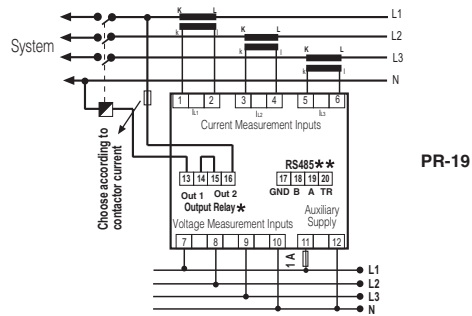
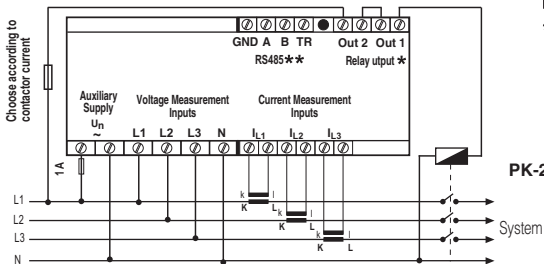
Dimensions



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.

Summary of the Contact Operations *

	ALTERNATIVE 1 (U-I)	ALTERNATIVE 2 (H-L)
Out 1	Current --> Under/Over	Voltage --> Under Frequency --> Under Current --> Under Phase Seq.
Out 2	Voltage --> Under/Over Frequency --> Under/Over Phase Seq.	Voltage --> Over Frequency --> Over Current --> Over

* Valid for EPM-06C/06CS

MULTIMETER EPM-06 / 06C / 06CS

INDEX

- Precautions for Installation and Safe Usage.....1
- Front Panel and Usage of Buttons.....1
- General Information and Applications.....1
- Using the Buttons.....2
- Transformer Menu (Ct / trn / Utr / ConnEctioN).....2
- User Password Settings (Pin Menu).....2
- Activating the User Password (Pin Act Menu).....2
- Changing the User Password (Pin Chg Menu).....2
- Output Setting Menu.....3
- Current Setting Menu (SP Current Menu).....3
- High/Low Current Settings (SP Cur Hi, SP Cur Lo Menu).....3
- Hysteresis Settings for High/Low Currents (CtR Hi Hys, CtR Lo Hys Menu).....3
- Delay-on Time for High/Low Currents (Hi on dEL, Lo on dEL Menu).....3
- Delay-off Time for High/Low Currents (Hi oFF dEL, Lo oFF dEL Menu).....3
- Start and Auto Function (StArT dEL and Auto rSt Menu).....4
- Instant Trip Function (CtR inSt rP Menu).....4
- Voltage Setpoint Menu (SP Volt Menu).....4
- High/Low Voltage Settings (SP UoL Hi, SP UoL Lo Menu).....4
- Hysteresis Settings for High/Low Voltages (UoL Hi Hys, UoL Lo Hys Menu).....4
- Delay-on Time for High/Low Voltages (Hi on dEL, Lo on dEL Menu).....5
- Delay-off Time for High/Low Voltages (Hi oFF dEL, Lo oFF dEL Menu).....5
- Frequency Menu.....6
- High/Low Frequency Settings (Frq Hi, Frq Lo Menu).....6
- Hysteresis Settings for High/Low Frequencies (Frq Hi Hys, Frq Lo Hys).....6
- Delay-on / Delay-off Time for High/Low Frequencies (Frq on dEL, Frq oFF dEL).....6
- Phase Sequence (Voltage Sequence Menu) and Instant Trip (UoL inSt rP Menu) Menu.....6
- Erasing the Max., Min. and Max. Demand Values (Reset Menu).....6
- Demand Time for Demand and Max. Demand (dE tM Menu).....7
- Communication Menu (RS-485).....7
- Technical Features and Default Factory Settings.....7
- Connection Diagram.....8

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.

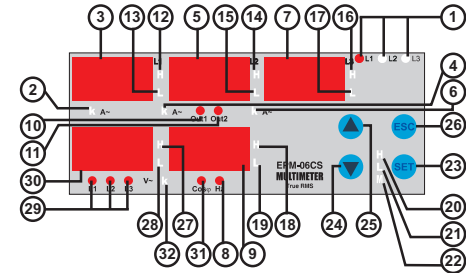
- Verify correct terminal connections when wiring.

- 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.



- 1 Phase LEDs. The LEDs turn on when the voltage value, which is applied to one of the current inputs, reach 30 V
- 2 First display's k LED (for L1). Measurement parameter is the unit of kilo when LED is turned on. ie: kA, kV
- 3 Display for L1.
- 4 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
- 5 Display for L2 and neutral current.
- 6 Third display's k LED (for L3). Measurement parameter is the unit of kilo when LED is turned on. ie: kA, kV
- 7 Display for L3.
- 8 Displays network frequency when Hz LED is turned on.
- 9 Display for frequency and Cosφ (for EPM-06C/06CS).
- 10 First warning output LED (Out1). Turned on when the output is activated.
- 11 Second warning output LED (Out2). Turned on when the output is activated.
- 12 Over current / voltage warning output for L1. (EPM-06C/06CS)
- 13 Low current / voltage warning output for L1. (EPM-06C/06CS)
- 14 Over current / voltage warning output for L2. (EPM-06C/06CS)
- 15 Low current / voltage warning output for L2. (EPM-06C/06CS)
- 16 Over current / voltage warning output for L3. (EPM-06C/06CS)
- 17 Low current / voltage warning output for L3. (EPM-06C/06CS)
- 18 Over current / frequency warning output for frequency (EPM-06C/06CS).
- 19 Low current / frequency warning output for frequency (EPM-06C/06CS).
- 20 H LED for max. instant current and voltage. Max. instant currents and voltages are displayed when this LED is turned on.
- 21 L LED for min. instant current and voltage. Min. instant currents and voltages are displayed when this LED is turned on.
- 22 M LED for max. demand. Max. demand values are displayed when this LED is turned on.
- 23 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.
- 24 Downward selection button. And also switching between the phases for EPM-06C/06CS.
- 25 Upward selection button. And also switching between the phases for EPM-06C/06CS.
- 26 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.
- 27 Over voltage warning LED which is displayed in fourth display.
- 28 Low voltage warning LED which is displayed in fourth display.
- 29 These LEDs are used for which phase refers to measurement of voltage in 4th display.
- 30 Display for monitoring the phase voltages (According to related phase).
- 31 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.
- 32 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.



MULTIMETER EPM-06 / 06C / 06CS

Below measurement and application can be implemented with EPM-06/06C/06CS:

- 1) Phase currents (IL), Neutral current (IN), frequency and Cosφ (EPM-06C/06CS); Phase-Phase and Phase-Neutral voltages can be measured.
- 2) Existence of live phases can be observed by L1-L2-L3 LEDs on the device.
- 3) Min. and max. values for measured currents and voltages can be monitored with only one button.
- 4) Max. demand values for measured current can be monitored, demand time can be defined in "dE t" menu.
- 5) A 4 digit password can be defined from pin menu in order to prevent the change of settings by unauthorized person.
- 6) Current transformer ratio is programmable. (1....2000)
Current transformer ratio can be programmed in term of "turn number" between 1....20 (for CT-25 adapted devices).
Voltage transformer ratio is programmable. (0.1 4000)
- 7) A user defined measurement range is used for monitoring the voltages and currents; and Out 1 & Out2 outputs are used for warning the user and disconnecting the device in case of exceeding the limits of measurement range.
- 8) In case of using the device for measuring the current values of motors etc., start delay (Auto On) protection can be used for preventing the equipment against the improper tripping, which is because of the demurrage current.
- 9) When a failure has occurred use the Latch function, in order to keep the device with saving its position (Latched), even if the failure conditions are removed.

7th, 8th and 9th subjects are valid for EPM-06C/06CS.

Using the Buttons:

Some buttons and button groups are used for the below special function when device is in the measurement mode (Without selecting a menu).

- ▲ Switching between the phase-phase voltages in fourth display. Used for changing the menu settings and parameters in programming mode.
 - ▼ Used for monitoring min. / max. currents and voltages or max. demand values. Switching to the programming mode if it pressed for 3 sec. In programming mode; it is used for switching to the menu and saving changes for the parameters.
 - ◀ Switching between neutral current and phase current in measurement mode. Switching to the previous menu and escaping the programming menu without saving the changes.
- If the Latch function is turned on (EPM-06C/06CS); output will be released when current(s) of system is exceed the defined values. When the system's current turns back to normal values then output doesn't react. Output can be triggered by the "ESC" button.

Commissioning and menu setting (for EPM-06/06C/06CS)

Energize the device after implementing the connections respected to the user manual.
Enter the proper menu settings in order to correct measurements and applications.

Current Transformer Ratio Setup:

In this menu, current transformer ratio is set between 1 - 2000. (This menu is not available in the devices which are adapted with CT-25.)
Note: If the current transformer is not used between the system and device, current transformer ratio is entered as '1'.
Example: If a current transformer which has a ratio of 30/5A is used between the system and device;
Current transformer ratio is entered as = 30/5 = 6.

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

Press SET button: trA Fo Ctr menu is displayed (In CT-25 adapted devices, trA Fo Utr or Con nEC to n menu can be displayed by scrolling the UP/DOWN buttons.)

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. trA Fo Ctr 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).

Programming the Turn Number:

This menu is available for CT-25 adapted devices. User defines the turn number, which is the number of how many tour the current cable has rounded into the CT-25. Numbers can be selected between 1-20. Greater the number of turn means greater the sensitivity.

trn	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Voltage Transformer Ratio:

In this menu, voltage transformer ratio is set between 0000,1 - 4000,0.
Note: If the voltage transformer is not used between the system and EPM-06, 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 device; Voltage transformer ratio is entered as 345. (34500/100)

Selecting the Connection Type :

Connection can be selected as Star or Delta in this menu.

Phase-Neutral voltage monitoring can be implemented if the "Star" connection is selected.

Phase-Phase voltage monitoring can be implemented if the "Delta" connection is selected.

NOTE: When the "Delta" connection is selected, "neutral current monitoring" can not be implemented even if it is activated and displaying function of ESC button will be disabled also.

User Password Setup:

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

Activating the user password :

This menu is used for activating the user password.
After the user password is activated for entering to the menus; if the ▲ button is pressed for 3 sec., while the instant values are observed, user password is required. If the user password is entered wrong device does not latch.
Note: Factory default value of user password is "0000"

Press SET button "001 / 9600 / no" menu is displayed.)

Enter the parameter values by scrolling UP/DOWN buttons (001...247 / 2400...38400 / no, EUEn, odd).

Press SET button, "Adr ESS / bAU d / PAnTy" 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).

Press SET button (Pin Act IUA IE 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. "Pin Act IUA IE" 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).

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MULTIMETER EPM-06 / 06C / 06CS

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).

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

Find RS-485 menu by scrolling UP/DOWN buttons.

Press SET button (Adr ESS menu is displayed.)

Find "Adr ESS / bAU d / PAnTy" menu by scrolling UP/DOWN buttons.

Press SET button "001 / 9600 / no" menu is displayed.)

Enter the parameter values by scrolling UP/DOWN buttons (001...247 / 2400...38400 / no, EUEn, odd).

Press SET button, "Adr ESS / bAU d / PAnTy" 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.

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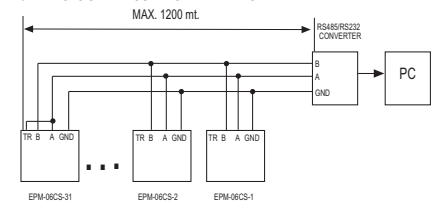
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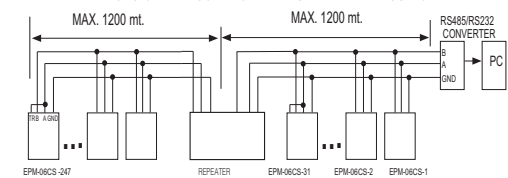
Press SET button. When "SAU E SET yES" is displayed (If you press ESC button or choose "no" option instead of "yES" then new data will be cancelled and previous value will be activated).

EPM-06CS COMPUTER CONNECTION

31 DEVICES CAN BE CONNECTED AT THE SAME LINE



MAX. 247 DEVICES CAN BE CONNECTED AT SAME LINE BY USING REPEATER.



- ### Technical Features
- Rated Voltage (Un) : Please look at back side of the device.
 - Operating frequency (f) : 45-65 Hz
 - Auxiliary Supply Power Consumption : < 4 VA
 - Measuring Input Power Consumption : < 1 VA
 - Measurement range : 0.05-5.5A~
 - Current : 2 - 120 A~ for CT-25
 - Voltage : 10-300 V AC (Phase - Neutral)
 - Class : 10-500 V AC (Phase - Phase)
 - Current Transformer Ratio : ±1% digit (10%-100% x full scale)
 - Turn number for CT-25 adapted models : 1...20
 - Voltage Transformer Ratio : 1...4000
 - Max. Ctr x Vtr : 40,000
 - Communications (for EPM-06CS) : MODBUS RTU (RS 485)
 - Optic isolated, programmable
 - Baud Rate (for EPM-06CS) : 2400-38400 bps
 - Address (for EPM-06CS) : 1-247
 - Parity (for EPM-06CS) : No, Odd, Even, 8 Data Bits, 2 Stop Bits
 - Output Relays (for EPM-06C/06CS) : 2 NO, 5A 1250 VA
 - Ambient Temperature : -5°C ~ +50°C
 - Display : Red LED display
 - Dimensions : PR-19, PK-26
 - Equipment Protection Class : Double Insulation - Class II (II)
 - Box Protection Class : IP 40
 - Terminal Protection Class : IP 00
 - Box Material : Nonflammable
 - Mounting : Panel Mounted (PR-19)
 - Wire Crossection (for terminals) : 2.5 mm²
 - Weight : 0.56 kg (PR-19)
 - 0.52 kg (PK-26)
 - Mounting Category : Class III
 - Panel Size : 91x91 mm (PR-19)
 - 46x107 mm (PK-26)

- ### Default Settings
- | UJ type | UJ type | UJ type | UJ type |
|---------------|---------------------|---------------------|---------------------|
| Ctrl - 0001 | Ctrl Hi L-1 - 5.000 | Ctrl Lo L-2 - 0.000 | Out relay - U-I |
| Utr - 0001 | Ctrl Hi L-2 - 5.000 | Ctrl Lo L-3 - 0.000 | Latch - off |
| trn - 01 | Ctrl Hi L-3 - 5.000 | Ctrl Lo L-n - 0.000 | Out Inverse - off |
| ConnCC - Star | Ctrl Hi L-n - 5.000 | Ctrl Lo HYS - 0.200 | |
| Pin Act - of | Ctrl Hi HYS - 0.100 | Lo on dEL - 010.0 | bAUd - 9600 |
| Pin - 0000 | Hi on dEL - 010.0 | Lo off dEL - 010.0 | AdRES - 001 |
| | Hi off dEL - 003.0 | Str Art dEL - 0.000 | PArTy - no |
| | Ctrl Lo L-1 - 0.000 | Auto reset - off | |
| | | Cur ins trp - off | |
| dt - 15 | | | |
| | UoL Hi L-1 - 250 | UoL Lo L-3 - 180 | Frq Hi - 63 |
| | UoL Hi L-2 - 250 | UoL Lo HYS - 0.100 | Frq Hi HYS - 01.00 |
| | UoL Hi L-3 - 250 | Lo on dEL - 003.0 | Frq Lo - 47 |
| | UoL Hi HYS - 10 | Lo off dEL - 003.0 | Frq Lo HYS - 01.00 |
| | Hi on dEL - 003.0 | UoL pHs SEQ - off | Frq on dEL - 003.0 |
| | Hi off dEL - 003.0 | UoL inS trP - off | Frq off dEL - 003.0 |
| | UoL Lo L-1 - 180 | | |
| | UoL Lo L-2 - 180 | | |

- ### CT-25 type
- | | | |
|---------------------|---------------------|---------------------|
| Ctrl Hi L-1 - 100.0 | Ctrl Lo L-2 - 0.000 | Ctrl Lo L-3 - 0.000 |
| Ctrl Hi L-2 - 100.0 | Ctrl Lo L-n - 0.000 | Ctrl Lo HYS - 2.000 |
| Ctrl Hi L-3 - 100.0 | Ctrl Lo HYS - 0.200 | Lo on dEL - 010.0 |
| Ctrl Hi L-n - 100.0 | Lo off dEL - 010.0 | Lo off dEL - 010.0 |
| Ctrl Hi HYS - 2.000 | Str Art dEL - 0.000 | Auto reset - off |
| Hi on dEL - 010.0 | Auto reset - off | Cur ins trp - off |
| Hi off dEL - 010.0 | | |
| Ctrl Lo L-1 - 0.000 | | |

MULTIMETER EPM-06 / 06C / 06CS

Programming the "SP C_{Ur} H_i", "SP C_{Ur} L_o", "SP U_{oL} H_i" and "SP U_{oL} L_o".

- Press SET button for 3 sec. (trA Fo menu is displayed.)
Find "SP C_{Ur} H_i / SP U_{oL} L_o" menu by scrolling UP-DOWN buttons.
- Press SET button. "SP C_{Ur} H_i / SP U_{oL} L_o" menu is displayed.
Find [(SP C_{Ur} H_i/SP C_{Ur} L_o) / (SP U_{oL} H_i/SP U_{oL} L_o)] menu by scrolling UP-DOWN buttons.
- Press SET button [(C_{Ur} H_i L₁/C_{Ur} L_o L₁) / (U_{oL} H_i L₁/U_{oL} L_o L₁)] 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. "C_{Ur} H_i L₁/C_{Ur} L_o L₁" / (U_{oL} H_i L₁/U_{oL} L_o L₁) 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).

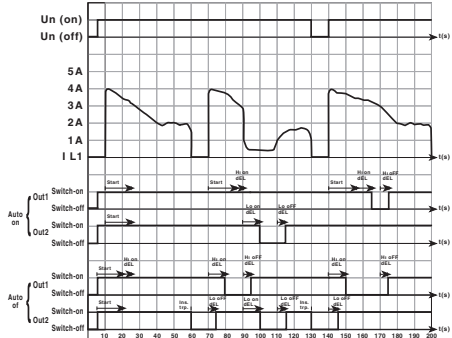
Start-up delay:

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 L1 is selected), 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 "50mAxC_{tr}" value, start-up delay time is reset and when the current value increases "50mAxC_{tr}", 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 (C_{Ur} H_i L₁-L₂, L₃-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 (C_{Ur} L_o L₁-L₂, L₃-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 "C_{Ur} inS trP", "Aut o rSt" and "U_{oL} inS trP"

- Press SET button for 3 sec. (trA Fo menu is displayed.)
Find "SP C_{Ur} H_i / SP U_{oL} L_o" menu by scrolling UP-DOWN buttons.
- Press SET button (SP C_{Ur} H_i / SP U_{oL} L_o) menu is displayed.
Find [(C_{Ur} inS trP / Aut o rSt) / U_{oL} inS trP] menu by scrolling UP-DOWN buttons.
- Press SET button [(C_{Ur} inS trP on / Aut o rSt on) / U_{oL} 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. [(C_{Ur} inS trP / Aut o rSt) / U_{oL} 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 U_{oL} L_o 1":

Using purposes of submenus of "SP U_{oL} L_o 1" explained below with details.

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 (U_{oL} 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 "U_{oL} 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 U_{oL} Hi L₁-L₂ and L₃ values automatically according to connection.

Example: If the connection type is selected as Star (with neutral); U_{oL} Hi HyS=10V U_{oL} Hi L₁=250V, U_{oL} Hi L₂=255V, U_{oL} Hi L₃=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:
U_{oL} Hi L₁ (L1-L2 Phase to phase voltage) = 433 V
U_{oL} Hi L₂ (L2-L3 Phase to phase voltage) = 441 V
U_{oL} Hi L₃ (L3-L1 Phase to phase voltage) = 450 V
U_{oL} Hi HyS = 10 V.

There are 6 submenus.
U_{oL} Hi L₁, U_{oL} Hi L₂, U_{oL} Hi L₃, U_{oL} Hi HyS, Hi on dEL, Hi off dEL.

MULTIMETER EPM-06 / 06C / 06CS

SP U_{oL} L_o

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 (U_{oL} 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 "U_{oL} 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 U_{oL} Lo L₁-L₂ and L₃ values automatically according to connection.

Example: If the connection type is selected as Star (with neutral); U_{oL} Lo HyS=10V
U_{oL} Lo L₁=180V, U_{oL} Lo L₂=175V, U_{oL} Lo L₃=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:
U_{oL} Lo L₁ (L1-L2 Phase to phase voltage) = 311 V
U_{oL} Lo L₂ (L2-L3 Phase to phase voltage) = 303 V
U_{oL} Lo L₃ (L3-L1 Phase to phase voltage) = 294 V
U_{oL} Lo HyS = 10 V.

There are 6 submenus.
U_{oL} Lo L₁, U_{oL} Lo L₂, U_{oL} Lo L₃, U_{oL} Lo HyS, Lo on dEL, Lo off dEL.

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 U_{oL} Hi" for details.

Note: L2 and L3 phases can be programmed similarly.

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 U_{oL} Lo" for details.

Note: L2 and L3 phases can be programmed similarly.

(Refer to Page-4 for SP C_{Ur} H_i, SP C_{Ur} L_o, SP U_{oL} Hi Ve SP U_{oL} Lo)

In this menu, required hysteresis voltage for high 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 U_{oL} Hi" for details.

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 U_{oL} 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 U_{oL} L_o 1 / SP C_{Ur} H_i" menu by scrolling UP-DOWN buttons.
- Press SET button (SP U_{oL} H_i / SP C_{Ur} H_i menu is displayed.)
Find [(SP U_{oL} H_i / SP U_{oL} L_o) / (SP C_{Ur} H_i / SP C_{Ur} L_o)] menu by scrolling UP-DOWN buttons.
- Press SET button [(U_{oL} H_i L₁/U_{oL} L_o L₁) / (C_{Ur} H_i L₁/C_{Ur} L_o L₁)] menu is displayed.
- Find [(U_{oL} H_i HyS / U_{oL} L_o HyS) / (C_{Ur} H_i HyS / C_{Ur} L_o HyS)] menu by scrolling UP-DOWN buttons.
- 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. [(U_{oL} H_i HyS / U_{oL} L_o HyS) / (C_{Ur} H_i HyS / C_{Ur} L_o 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).

"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 U_{oL} Hi" for details.)
"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 U_{oL} Lo" for details.)
"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 U_{oL} Hi" for details.)
"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 U_{oL} Lo" for details.)

"Hi on dEL", "Hi off dEL", "Lo on dEL", "Lo off dEL" settings are explained for SP U_{oL} L_o 1 and SP C_{Ur} H_i

- Press SET button for 3 sec. (trA Fo menu is displayed.)
Find "SP U_{oL} L_o 1 / SP C_{Ur} H_i" menu by scrolling UP-DOWN buttons.
- Press SET button (SP U_{oL} H_i / SP C_{Ur} H_i menu is displayed.)
Find [(SP U_{oL} H_i / SP U_{oL} L_o) / (SP C_{Ur} H_i / SP C_{Ur} L_o)] menu by scrolling UP-DOWN buttons.
- Press SET button [(U_{oL} H_i L₁/U_{oL} L_o L₁) / (C_{Ur} H_i L₁/C_{Ur} L_o L₁)] 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.