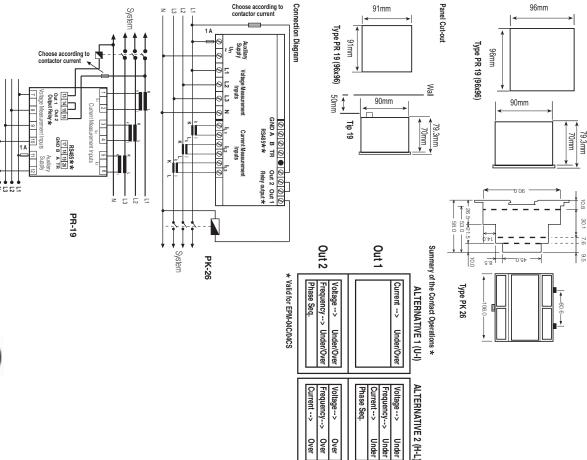
Dimensions



Over Over Over

Under

is available for EPM-04CS

Output, SP Current and SP Volt menus are available for EPM-04C/04CS; RS-485 menu

echnical Features and Default Factory Settings.

High/Low Frequency Settings (Frq Hı, Frq Lo Menu Hysteresis Settings for High/Low Frequencies (F-H Hys

Hysteresis Settings for HightLow Currents (H Hys, I-t, Hys Ment)...

Dealy-on Time for HightLow Currents (H H and I-t, Ond Ment)...

Dealy-off Time for HightLow Currents (H dd I-t, Old Menu)...

Start and Auto Function (SIA1 dEL and Auto ISI Menu)...

Instant Tip Function (CU in Si Pf Menu)...

Surrent Setting Menu (SP Current Menu) High/Low Current Settings (SP Cur Hı, SP Cur Lo Menu) Activating the User Password (Pin Act Menu). Changing the User Password (Pin CHg Menu). Fransformer Menu (Ctr / tm / Utr / ConnECtion)

Setting Menu

Jsing the Buttons

eral Information and Applications.



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

ω

Available only for EPM-04C/04CS

Available only for EPM-04CS

A4034 / Rev.8

EPM-04 / 04C / 04CS MULTIMETER

INDEX

≡Z-TRAUQ INC.≡

ω (G) (-) (8) **(2) @**3 Θ

- Phase LEDs:The LEDs turn on when the voltage value, which is applied to one of the current inputs, reach 30 $\rm V$
- First display's k LED (for L1). Measurement parameter is the unit of kilo when LED is turned on. ie: kA, kV
- when LED is turned on. ie: kA, kV Second display's k LED (for L2). Measu Display for L1 parameter is the unit of kilo
- Display for L2. when LED is turned on. ie: kA, kV Third display's k LED (for L3). Measure ment parameter is the unit of kilo

Display for L3.

kilo when this LED is turned on. Display for neutral current and frequency (for EPM-04C/04CS).

K LED for neutral current. Measurement parameter is displayed in unit of Displays network frequency when Hz LED is turned on

Failure to follow those instructions will result in death or serious injury PRECAUTIONS FOR INSTALLATION AND SAFE USE

In CT-25 (120A) compliant models, only CT-25 current transforme

Other type of CT's have a high risk to damage to device.

Do not try to clean the device with solvent or the like. Only clean with dry Disconnect all power before working on equipment.

When the device is connected to the network, do not remove the front

- First warning output LED (Out1). Turned on when the output is activated second warning output LED (Out2). Turned on when the output is activated
- ow current / voltage warning output for L1. (EPM-04C/04CS) Over current / voltage warning output for L1. (EPM-04C/04CS)
- Over current / voltage warning output for L2. (EPM-04C/04CS)
- ow current / voltage warning output for L2. (EPM-04C/04CS)
- Over current / voltage warning output for L3. (EPM-04C/04CS) Low current / voltage warning output for L3. (EPM-04C/04CS)
- Over current / frequency warning output for frequency and neutral current

for any consequences arising out of the use of this material.

No responsibility is assured by manufacturer or any of its subsidiaries

Fuse must be F type and limit value doesn't exceed 1A.

Only for rack panel mounting.

Electrical equipment should be serviced only by your component seller

Verify correct terminal connections when wiring.

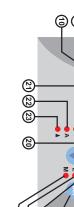
- (EPM-04C/04CS). ow current / frequency warning output for frequency and neutral current
- (EPM-04C/04CS)
- displays the frequency in 4th display. Monitoring the L1, L2, L3 voltages values when V LED is turned on and
- displays the neutral current in 4th display. Monitoring the L1, L2, L3 currents values when A LED is turned on and Indicates the activating delta connection when $oldsymbol{\Delta}$ is turned on. Neutral
- H LED for max. instant current and voltage. Max. instant currents and current protection is disactivated even if is activated.
- L LED for min. oltages are displayed when this LED is turned on. instant current and voltage. Min. instant currents and
- M LED for max. demand. Max. demand values are displayed when this LED is turned on. oltages are displayed when this LED is turned on
- 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. SET button. It is used to enter into the menu and to save the values.

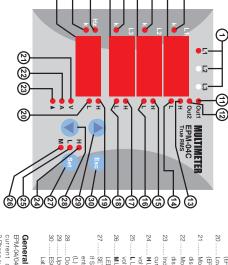
- Upward selection button.
 ESC button. Escaping from the menu. And also used for switching off the

General information

3-Phase system. EPM-04/04C/04CS is designed for measuring Phase current and voltages (Phase-Phase and EPM-04C/04CS; Phase-Neutral) in a

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.





Below measurement and application can be implemented with EPM-04/04C/04CS.

, Neutral current (IN), Phase-Phase and Phase-Neutral sured .

voltages can be measured.

2 Existence of the phases can be observed by L1-L2-L3 LEDs on the device.

3 Existence of the phases can be observed currents and voltages can be monitored with only one button.

3) Min and max, values for measured current can be monitored, demand if the phase can be edifined in "del" if menu.

5) A 4 digit password can be delined from pin menu in order to prevent the change of seitings by mainbridzed person.

6) Current transformer ratio is programmable. (12000)

Current transformer ratio is programmable. (12000)

Current transformer ratio is programmable. (12000)

Voltage transformer ratio is programmable. (12000)

7) A user defined measurement range is used for warning the user and disconnecting the device in case of exceeding the limits of measurement rance.

Bings.

7th, 8th and 9th subjects are valid for EPM-04C/04CS.

(ALED is activated) or phase voltages of the voltage of voltage of the voltage of Using the Buttons: Some buttons and butt buttons and button groups are used for the below special function device is in the measurement mode (Without selecting a menu).

Libed for monitoring min / Irrax currents and voltages or rax demand values. Suth programming mode it it pressed for 3 sec. In programming mode; it is used for switching to the neural and saving changes for the parameters.

Switching to the previous menu and escaping the programming menu without saving the changes. Switching to the previous menu and escaping the programming menu without saving the changes of (EPM-04C/04CS), output will be a little stach function its unned on (EPM-04C/04CS), output will be referred values. We desired without the company of the company of

proper menu settings in order to correct measurements and

Current Transformer Ratio Setup: In this menu, current transformer ratio is

Note: If the current transformer is not used between the system and device, current transformer train 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. nu, current transformer ratio is set between 1 - 2000. In is not available in the devices which are adapted

Current: transformer ratio is entered as = 30/5 = 6.

(BE) Press SET button; M.F. O'tr menu is displayed (in CT-25 adapted devises; M.F. O'tr mis displayed fine consistence).

(BE) (Not to K.D. Ur or Connect on menu can be displayed by scrolling the Unit to K.D. Ur or Connect on menu can be displayed value appears.

(BE) (NAF-OUT or Connect of menu can be connect on the UPDOWN button. Blinking the first digit of displayed value appears.

(BE) (NAF-OUT or Connect of menu can be connected admission).

(BE) (NAF-OUT or Connected admission).

Ener the plinking digit value by scroling 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 pass SET button, "NA Fo Cit." is displayed (Data is entered but is not activated yet. For activating the new data belieses follow the below seleps). 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 sees SEX button or choose "no" option instead of "yES" then new data will be cancelled and previous value will be activated). F-8, Fo (E-) K OLEO MULTIMETER 000 **④ ▶** 555 **③ ④ ⓑ**

Programming the Turn Number:
This menu is available for CT-25 adapted devices. User defines the unn number, which is the number of how many but the current cable has ownded into the CT-25. Numbers can be selected between 1-20. Detailer the number of lum mensar greater the

Voltage Transformer Ratio:

In this menu, voltage transformer ratio is set between 0000,1 - 4000.

**Note: If the voltage transformer ratio is entered as: 1.

**EPHAGA, 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 experiently system and device; Voltage transformer ratio is used between the system an is entered as 345. (34500/100)

F٥

Selecting the Connection Type:

רסט

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.

User Password Setup: In this menu user password word is defined and activated

5

You must define and activate a 4 digit user password for preventing device settings from the illegal usage. are 2 sub menu in the Pın menu

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

Activating the user password:

This menu is sed for activating the user password.

This menu is sed for activating the user password.

After the user password is activated for entering to the menus:

If the @b button is pressed of a set, while the instant values

are observed, user password is required. If the user password is entered wrong device does not latch, user password is entered wrong device does not latch, user password is "0000"

activating the user password, in the measurement mode



Find the "Pin" menu by scrolling UP/DOWN buttons.

Press SET button (Pin ACtIUA tE is displayed.)



digits busing Est. button, tea Est. button, "Pa ACI, of "Is disableed," for Can be selected by sorting UP/DOWN buttons, (Data is entered but is not activated yet. For activating the new data please follow the below steps). **④ ⓑ** 8 8

Press SET button. When "SAU E SEt yES" is displayed (If you press ESC button or choose "no" be cancelled and previous: Press ESC button one by one until "SAU E SEt yES" is displayed. option instead of "yES" value will be activated). P 10 1 ACE 1 3 #0 # O< O► O► OUTO ENLOCS "then ii. B • • fa ≤ (5)

(SET)

Changing of User Password: This menu is used for changing the user password. Note: Factory default value for user password is "0000"

2 E E

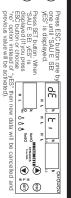
Find the "Pin" menu Press SET button 3 sec. (trA Fo menu is displayed.)

activating the user password, in the measurement mode

Press SET button (Pin ACt IUA tE is by scrolling UP/DOWN buttons. - - - CHA - - -380 **(1)** (4) (5)

Find the "Pin CHA n9E" menu by scrolling UP/DOWN buttons

EPM-04 / 04C / 04CS MULTIMETER



Serial Communication (for EPM-04CS)

otocol which is optical be transfer to the n parameters can be



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

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

④ ⓑ 858 **ⓒ**

Press SET button, "Adr ESS / bAU d / PArity" is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps)

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 ESC button one by one until "SAU E SEt yES" is displayed

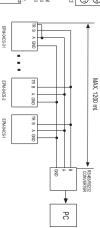
MODBUS RTU PROTOCOL (Available only for EPM-04CS) Standart MODBUS RTU message is shown below.

38. T = T	
times	Т
imes corresponds to a time in wanication bus to allow the conne- pe and the beginning of another.	ADDRESS 8 BIT
ds to a allow t	E
Times corresponds to a time in which data must not be exchanged on the munication bus to allow the connected devices to recognize the end of one ssage and the beginning of another. This time must be at least 3.5 characters.	FUNCTION 8 BIT
탏얼	_
data mus devices t time mus	DATA NX8BIT
which data must not be exchanged on the cted devices to recognize the end of one . This time must be at least 3.5 characters	CRCH
exchange ze the en ast 3.5 ch	CRCL
d on the d of one aracters	_
O O O	

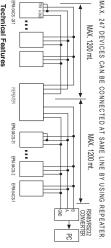
The Times corresponds to a time in which data must not be exchanged on the communication but to allow the commonged devices to recognize the end of one message and the beginning of another. This time must be at least 35 characters at the selected bat date. Acres range (1-247) is stores or the connected selected bat date. Acres range (1-247) is address of the connected selected bat date. Acres range (1-247) is address of the connected selected but allowed. The date field contains data sent to the slave by master or data sent to master by slave, and the contains data sent to the same of the contains o

Read Hold (03) funding isseed for each potential of each clause of requiring or an elegater abole, device will sand an error message register abole, device will for example to read phase 1 voltage by sending a message to the device. Of 130 00 00 00 00 20 xx Xx XX 10 Device address 10 Register number LSB 20 Register number Reg

EPM-04CS COMPUTER CONNECTION 31 DEVICES CAN BE CONNECTED AT THE SAME LINE



MAX. 1200 mt. MAX. 1200 mt.



Technical Features
Raise/ Vollage (Un)
Operating frequency (I)
Operating frequency (I)
Auxiliary Supply Power Consumption
Measuring input Power Consumption
Measurement Tange
Measurement Tange Voltage 0.05-5.5A~ 2 - 120 A~ for CT-25 10-300 V AC (Phase - Neutral) 10-500 V AC (Phase - Phase) 1±3 digit (10%-100%) x full scale) 1±. 2000 : Please look at back side of the device. 45-65 Hz < 4 VA < 1 VA

Class
Current Transformer Ratio
Turn number for CT-25 adapted models
Voltage Transformer Ratio
Max. CTr. VII

American Visions (for FPM-04CS) Communications (for EPM-04CS) Optic isolated, programmable 2400-4800-9600-19200-38400 bps MODBUS RTU (RS 485)

Parity (for EPM-04CS)
Output Relays(for EPM-04C/04CS)
Ambiant Temperature Baud Rate (for EPM-04CS) Address (for EPM-04CS) d LED display -19, PK-26 uble Insulation - Class II () Odd, Even, 8 Data Bits, 2 Stop Bits IO, 250 V AC, 5A, 1250 VA

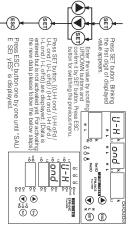
Display
Dimensions
Equipment Protection Class
Box Protection Class rotection Class

Wire Cross section (for terminals) Weight Mounting Category Panel Size Nonflamable
Panel Mounted (PR-19)
Rail Mounted (PR-26)
2.5 mm²
0.65 kg (PR-19)
0.62 kg (PR-26)
Class III
91x31 mm (PR-19)
46x107 mm (PR-26)

Default Settings

Pin Act - oF Pin - 0000 ConnEC -UHILA UHILA UHILA UHILA UHILA UHIOFA UHIOFA UHIOFA 1 - 250 - 250 3 - 250 S - 10 d - 003.0 1 - 003.0 - 180 . 0001 . 0001 . StAr U-L L-3
U-L HyS
U-L ond
U-L oFd
VoL PHS SEq
VoL in StriP
VoL in StriP IHHLS IHHLS IHHLS IHHONG 5.000 5.000 5.000 5.000 1.5000 1.000 1.000 1.000 1.000 LL-2 - 0.000 LL-1 - 0.000 LL-1 - 0.000 LL-1 - 0.000 L- 0.000 L- 0.000 L- 0.000 Str And GEL - 0.000 Auto reset - 0.000 Auto reset - 0.000 180 010.0 003.0 0FF Frq Hi - 63 F-H HyS - 01.00 Frq Lo - 47 F-L HyS - 01.00 Frq ond - 003.0 Frq oFd - 003.0 AddrES - 001 PArty - no Out relay **Latch** Out Inverse

					25 type
	7	I-H HyS - 2.000			
Auto reset Cur ins trp	Str Art dEL	- Fond	IL Hys	F	H- L-2
유유	- 0.000	010.0	- 2.000	0.000	- 0.000



s SET button. When "SAU E SEt yES" is disp button or choose "no" option instead of "yES" ancelled and previous value will be activated). then new data will

Setpoints for Frequency : In this menu, Frequency ra ment, rrequency range can be defiend ing to High and Low values of Frequency ement.

measurement.

If the frequency of the system decreases the Frq HI value; output is switched **on** and LED is turned **on**.

(Refer to Output menu) and H LED for frequency is

If the frequency is furned on continuously if the frequency of system are under the high set value (Frq H) as a hysterests (FH H/s), output is turned on at the end of defined time (Frq orb). ED is furned on and H LED is unded of, at the end of the adjusted time (Frq Orb), output I LED turns on and H LEbs turn of the control of the con If the frequency of the system exceeds the high set value. H. LED relating to frequency blinks, output switched **off** at the end of defined time (Frq Ond). LED turned **off** (Refer to Output menu) and H.LED for

It the frequency of the system is over the low set value (Frq Lo), output is turned **on**, LED is turned **on** LLED is turned **off**.

If the frequency of the system decreases the low set value (Frq Los, LLED binks; output is turned **off** at the end of defined time (Frq ond), LED is turned **off** and LLED is turned **on** continuously.

If the frequency of the system is over the low set value (F-L HyS) as a hysteresis (Frq Hys), output is turned **on** at the end of defined time (Frq Ofd), LED is turned **on** and LLED is turned **off**.

Note: System frequency is measured for L1

There are 6 submenus. Frq Hı, Frq Lo, F-H HyS, F-L HyS, Frq Ond, Frq oFd

Max. value for system frequency, this value can be defined between 0...70.00 Hz. If the value is set to zero (0), the high frequency warning is disabled.

٥.

Note: Attention for common using of output and relay LED for voltage. Min. value for system frequency, this value can be defined between 0...70,00 Hz. If the value is set to zero (0), the low frequency warning is disabled.

SSH In this menu, required hysteresis value can be defined between 0...20.00 Hz. in order to switching **off** the "high frequency"

4-1 SSH In this menu, required hysteresis value can be defined between 0...20.00 Hz. in order to switching **off** the "low frequency" warning.

Delay-on time for activation of alarm for high and low frequency value.

This value can be defined between 000.0..999.9 in term of second..

Delay-off time for disactivation of alarm for high and low frequency value.
This value can be defined between 000.0...999.9 in term of second..

6

545 P. C.

Phase sequence can be turned **orioff** in this menu-inversed phase violage which is applied to the measurement inputs (1-12-13) can be monitored. Default setting is off in order to let the device to warn user in case of inversed phase situation please change the **off** position as **on** in 'Uou PHS SEq' menu. Phase sequence **U**nction is disabled if the selection is

Phase Sequence monitoring. and L3 LEDs blink and output output released lately when "UoL PHS SEq" is turned **on** and sequence is inverted with any reason. Output 2 is used if U-I is selected and Output? If H-L is selected in Output menu for the

じ

Instant Tripping Function.
At position ON, if any VL-L VL-N values exceeds 1.5.
It position ON, if any VL-L VL-N values exceeds 1.5.
It position ON if any values of high voltages (UoL Hi L-7/L-2/L-3) values;
It he "voltage output" switches OFF instantly, output
LED turned OFF and H LED, for related voltage, is
turned ON. (Please refer to "Output")

Reset function.

In this menu, values of min., max, max, demand are erased. It saves the instantaneously measured min, and max, values of the device mo its memory. Peases kindly look at to the section of FUNCTIONS OF BUTTONS for min, and max, values. The more representation of the maximum of the memory are not affected from the electric interruptions, in the FES Et. HL, or fES Et. dE menu; when you choose yES and quit from all menus, if you confirm the changes, min, max, and max, demand values of all parameters are erased at the same in the same.

Find rES Et menu by scrolling UP-DOWN buttons.



Press SET button (rES Et HL menu menu is displayed.)

Press SET button ("rES Et dE no / rES Et HL no" is displayed.)



Press SET button, rES Et dE / rES Et HL is displayed. (Data is entered but is not activated yet. Activating the new data, please follow the below steps)

SET SC

쓨 Demand Time. Max. Demand tim Demand time can be defined between 01-60 minute in this

(SET) Press SET button for 3 sec (trA Fo menu is displayed.) Find dE ti menu by scrolling UP-DOWN buttons.

Press SET button displayed value app ton. Blinking the first digit appears.

If any phase voltage decrease 0.5 times low voltages (JoL.-I/I.-2/I.-3); the "voltage output" switches OFF instantly, output LED turned OFF and Lo LED, for related voltage, is turned ON.

[Refer to Page-4 for "Cur in StrP", "Aut or St" and the left of Page-4 for "

"UoL inS trP")

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

using the UP-DOWN buttons, other ameters can be selected. If you want

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

MUITIMETER EPW-04C

Enter the binking digit value by scroling UP/DOWN buttons. Switch the other digits by using SET button; use ESC button to go to the other digits by using SET button; use ESC button to go to consider Affective our enter this last digit press of the other digits by the other digits of the other digits of the new digits and please follow the below seps.) **④ ▶** 855 **(?**)

EPM-04 / 04C / 04CS MULTIMETER

UP/DOWN/SET buttons. UP/DOWN/SET buttons. Enter the old password by scrolling the new password by scrolling 8 566 9999

Enter

④ ⓑ MULTIMETER EPM-OIC

Enter the new password again by scrolling UP/DOWN/SET buttons.

Press SET button, "Pin CHA n9E" is displayed.
(Data is entered but is not activated yet. For activating the new data please follow the below steps)

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 ESC button one by one until "SAU E SEt yES" is displayed

Output menu: In this menu, using of oUt PUt function is explained with details below

Note: When U4 (voltage-current) is selected; Out2 is monitoring according to high or low voltage, frequency values and phase sequence. Out1 is monitoring according to high or low-current value.

When H-L (high-low) is selected; Out2 is monitoring according to high values for voltage, frequency and low-current. Out1 is monitoring according to low values for Out Relay function:
In this menu high-low or voltage-current monitoring is determined for Out1 and Out2 outputs.

voltage or current.

Please refer to page 8 for a summary of the contact



Out Latch function:
If the Latch function is t occured, keep remained at its position even if the failure has over. Press (e) button in order to triggering the relay when the tall use situation is removed.

Out inverse function: Released outputs triggered at the end of delay off time when moved.

" Lovu INIU ErS" function is selected off:

"Device is started with closed output contacts (out1, out2) in
the normal network conditions according to settings.

"Otherwise devices started with open position of the contacts.

Default setting is "off":

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



Press SET button, U-I blinks in 4th display, and oUT inU ErS) (oFF blinks for oUt LAt CH

Select U-I or H-L by scrolling UP/DOWN buttons. (Select on or oFF for "oUt LAt CH" and "oUT in U EiS")

Press SET button, oUt rEL AY is displeading activated yet. Activating the new data, please follow the below steps) Press ESC button one by one until "SAU E SEt yES" is displayed. 58 " " ET " 83 Out O EPALAGES A **(1)** (a) (b)

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).

2 **Programming "SP CUr rnt":**Using purposes of submenus of "SP CUr rnt" explained

Aln case of using the device for measuring the current values of motors etc., start delay (Altor St) function can be used for preventing the equipment against the improper tripping, which is because of the demurrage current. If the system current decreases 50mAxCtr then start-up delay is resetted and related output detect the system automatically. This feature must be observed in case of using this function.

this menu, high set points for current values are programmed, values for IL1, IL2, IL3 and IN can be entered one by one. all the current values are under the H value; Out 1 output is itched on, LED of Output1 turned on and LED of H turned itched on, LED of Output1 turned on and LED of H turned on the current value.

turned an continuously. It 21 H3 and IN) are below the high set value If all currents (L1, IL, IL3 and IN) are below the high set value if the las a hysteresis current (r.H. HyS), output 1 output switches on at the end of the defined time (r.H. Old), output 1 LED turned on and H LED turned off.

I-H L-1, I-H L-2, I-H L-3, I-H L-n, I-H HyS, I-H ond, I-H oFd

Note: High Current values are programmed for IL1, IL2, IL3 and IN separately but I-H HyS (hysteresis), I+H ond (delay on time) and I+H ord (delay off ime) values are common and they have same values for IL1, IL2, IL3 and IN.

In this menu, low set points for current values are programmed. Lo values for III, II, II, II and nII (lo can be entered one by one. Lo value out on the unit of the current values are over the Lo value; Out output is switched on, LED of Output1 turned on and LED of Li unned switched on, LED of Output1 turned on and LED of Li unned to the current values are over the control of the current values.

If any current (L1, 11, 2, 11,3 and 1N) exceeds the low set value. LLED binks and Cubry of output switches of all the end of the defined time (H-L ond), Juliput 1 LED turned off and LLED turned off and LLED turned off and LLED (L1) and (L1) are over the low set value (L1) if all currents (L1, 11, 12, and 1N) are over the low set value (L2) as a hysteres output (H-H)S), output 1 Cubry off which is not a little than output (L1) and (

Note: Low Current values are programmed for IL1, IL2, IL3 and IN separately but I-L1+yS (hysteresis), I-L and (delay on time) and I-L oF4 (delay of time) values are common and they have same values for IL1, IL2, IL3 and IN. s menu has 7 sub menus. L-1, I-L L-2, I-L L-3, I-L L-n, I-L HyS, I-L ond, I-L oFd

this menu, max. current value for IL1 is ogrammed. The current value can be programmed

i... 1200. A (for CT-25 adapted device trn=1) walue is set to zero (0), the high current warning abled (I-H L-2 and I-H L-3 are programmed any).

Heter "SP Cur H+" for details, its menu, min, current value for ILI is its manmed. The current value can be programmed .5,000 A (Ctr = 1); .120,0 A (for CT-25

5,000 A (Ctr = 1);
12(0 A f(0 CT-25 adapted device trn=1);
12(0 A f(0 CT-25 adapted device trn=1);
ue is set to zero (0); the low current warning
ued (I-L L-2 and I-L L-3 are programmed
led (I-L L-2 and I-L L-3 are programmed
Peter "SP Cur Lo for details;
));

SSH menu, required hysteresis current for high twaming is programmed. (same for IL1, IL2, d IN.)

--nt value can be programmed between: 500 A (Cr = 1) 0.00 A (for CT-25 adapted device trn=1) Cur Hi^{**} for details. required hysteresis current for low ing is programmed. (same for IL1, IL2,

S5H value can be programmed between;)0 A (Ctr = 1) \(\text{for CT-25 adapted device trn=1}\)
\(\text{o" for details.}\)

me for activating the output for high current |. It is common for all currents (IL1, IL2, IL3 med between 000,0 and

for details.)

7-1-Puo H-1 ne for activating the output for low current . It is common for all currents (IL1, IL2, IL3

poo can be programmed betw rms of seconds. Cur Lo" for details.) een 000,0 and

or releasing the output for high current common for all currents (IL1, IL2, IL3

7-1

can be programmed between 000,0 and yrms of seconds. Cur Hi"for details,)

releasing the output for low current common for all currents (IL1, IL2, IL3

s can be programmed between 000,0 and erms of seconds.

P Cur Lo" for details.)

Page-5 for Setting instructions)

ω

Find "SP CUr mt / SP UoL t" menu by scrolling UP-DOWN buttons. Press SET button for 3 sec. Press SET button for 3 sec. Ener the blinking digit
value by scorling

(IPDOWN buttons.

SET button to be price of pits

SET button to be price of pits

Deas SET button.

(Data is entered but is not activated yet. For activating the new date

(Data is entered but is not activated yet. For activating the new date Press SET button. Blinking the first digidisplayed value appears. Press SET button [(I-H L-1/I-L L-1) , (U-H L-1/U-L L-1) menu is displayed. Find [(SP CUr HI/SP CUr Lo) / (SP UoL HI/SP UoL Lo)] menu by scrolling UP-DOWN buttons. Press SET button, "SP CUr Hı/ SP UoL Hı" menu is displayed. Press SET button for 3 sec (trA Fo menu is displayed 92 Out O EPH 4403 ű בְּחֵר " ביטך MULTIMETER A ESC out() EPH-04C3 W L (SE) --HULTIMETER
HE EPW-04C
True Files

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

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

SET ESC

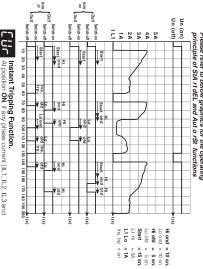
Out ternals whiched ON in this time period (When UH is selected); in this time period, even if the current value exceeds the limits device doesn't sense it as a warning. The device doesn't onlineval. This function is used with "Auto Reset" function. Start-up delay: Start Delay Time Time is used to prevent from faulty caused by motor start-up current

Auto Reset Function:

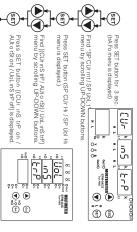
If Auto Reset function is selected as ON:
Each time that the current decreases "50mAxCr" value,
sarrup delay time is seel and when the current value
increases "50mAxCr", sear-rup delay function is s

Auto Reset function is selected as OFF; the power supply is switched off and then switched n, start-up delay function is activated.

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



Programming "CUr inS trP", "AUt o rSt" and "UoL inS trP"



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

Press SET button, [(CUr 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 "SAUE 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).

8 **Programming "SP UoL t":** Jsing purposes of submenus of "SP UoL t" explained below with



95 Uol 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.

are under the H value; releated reley is switched on, its LED turned any (bease refer "Output") and releated H LEDs are turned off.
If all the voltage values (Phase-Neutral (Phase-Phase) are over the H value, H LED blinks and releated output is switched off at the end of "delay on time" (U-H ond), its LED turned off (please refer "Output") and releated output its JED turned off (please refer "Output") and releated output its JED turned off (please refer "Output") and releated If all the voltage values (Phase-Neutral / Phase-Phase)

If all voltage (Phase-Neutral / Phase-Phase) are below the high set value (Hi) as a hysteresis voltage (U-H HyS), releated output is switched on at the end of the "cleiay of time" (U-H oFg), its LED turned on (please refer 'Output") and H LED is turned off.

U-H L-1, U-H L-2 and U-H L-3 values automatically according to connection. Note: High Voltage values are programmed for (Phase-Neutral (Phase-Phase) separately but "Hi-HyS" (hysterses)) and "Hi ond" (delay on time) and "HoS" (delay off time) values are common; these parameters have same values for Phase-Neutral / I When Connection type (Star/Delta) is selected (refer to Connection menu), device will change the

Example: If the connection type is selected as Star (with neutral); U-H HyS=10V U-H L-1=250V, U-H L-2=255V, U-H 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:
U-H L-1 (L1-L2 Phase to phase voltage) =
U-H L-2 (L2-L3 Phase to phase voltage) =
U-H L-3 (L3-L1 Phase to phase voltage) = U-H-HyS = 10 V. 433 V 441 V 450 V

There are 6 submenus. U-H L-1, U-H L-2, U-H L-3, U-H HyS, U-H ond, U-H oFd.

A position ON it if any phase our ent (II.1 II.2, II.3 and N) secreeds 15 firms of high (HH-1.1 HH-1.2; HH-1.3 HH-1.4) values, the Courrent output is whiches off reaethy. (II) values, the Courrent output is related at position OFF, if any phase current (II.1 II.2, III.3 and Al position OFF, if any phase current (II.1 II.2, III.3 and III.1 II.2, III.3 and III.1 II.2, III.3 and III.1 II.2, III.3 and III.1 III.3 in II.3 in III.3 in II.3 in III.3 in II.3 in II.3 in II.3 in II.3 i

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EPM-04 / 04C / 04CS MULTIMETER



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

If all the voltage values (Phase-Neutral / Phase-Phase) are over the Lo value; releated output is switched **on**, its LED turned **on** (please refer "Output") and releated

If any of the voltage valueses (Phase-Neutral / Phase-Phase) decreases the Lo value _L LED blinks and releated output is switched off at the end of "delay on time" (V-L ond), its LED turned off (please refr Output) and releated 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-L HyS), releated relay is switched on at the end of the "delay dfitime" (U-L oFd), 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-L HyS" (flystenesis), "U-L ond" (delay on time) and "U-L ofd" (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 J-L L-1, U-L L-2 and U-L L-3 values automatically according to connection.

Example: If the connetion type is selected as Star (with neutral): U-L-Hys=10V

U-L L-1=180V, U-L L-2=175V, U-L L-3=170V and then this connection type is selected as Defta (without neutral), bevice will change the values after calculated them according to Phase-Phase values.

J-L L-1 (L1-L2 Phase to phase voltage) = 311 V J-L L-2 (L2-L3 Phase to phase voltage) = 303 V J-L L-3 (L3-L1 Phase to phase voltage) = 294 V

U-L L-1, U-L L-2, U-L ond, U-L oFd There are 6 submenus U-L L-3, U-L HyS

menu.

High value for L1, when the Star is selected; high value for L1-L2, when the Delta selected can be defined in this .300 for Star connection and 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.

Note: L2 and L3 programmed similarly. phases can

Low value for L1, when the Star is selected; low value for L1-L2, when the Delta selected can be defined in this

defined.

If the value is set to zero (0), the high voltage warning is disabled. Refer "SP Uol Lo" for details. 300 for Star connection and 500 for Delta connection can be

Note: L2 and L3 phases can programmed similarly. be

(Refer to Page-4 for SP CUr Hı, SP CUr Lo SP UoL Hı ve SP UoL Lo)

55H H-0-H In this menu, required hysteresis vollade H or high voltage warning is programmed (same for Phase-Neural/Phase-Phase) 2,000 for Star connection and be defined.

Refer 'SP UoL Hr' for details.

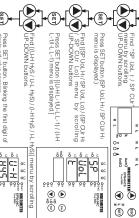
In this menu, required hysteresis voltage for low voltage warning is programmed. (same for Phase-Neutral/Phase-Phase)
0....200V for Star connection and 0....200V for Delta connection can . defined. sfer "SP UoL Lo" for details.

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.)

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Press SET button. Blinking the first digit of displayed value appears. I previous digit. After you entered the last digit neess SET button, digit neess SET button, (I/UH HyS) (-I/H HyS) I (-I/HS)) is displayed. (Data is entered but is not activated yet. For activating the new data please follow the below steps). blinking digit value by UP/DOWN buttons. SEASON MANAGEMENT OF THE PROPERTY OF THE PROPE € 55 € 55 € 7

Press SET button, When "SAU E SEt yES" is displayed (If you press ESC then new data will be cand Press ESC button one by one until "SAU E SEt yES" is displayed. . SSH . H-R Out O MULTIMETER A Out O DEPARTMENT A H -**● ● ● ●**

The value can be programmed betwee 000,0 and 999,9 in terms of seconds. (Refer "SP UoL Hi" for details.)

elay on" time for activating the output for th voltage warning. It is common for all ltages (same for Phase-Neutral/Phase-

U-L "Delay on" time for activating the output for low voltage warning. It is common for all voltages (same for Phase-Neutral/Phase-

H-1 The value can be programmed between 0000 and 999 9 in terms of seconds. Select "Select "Delay off" time for activating the output for "Delay off" time for activating the output for youngayers (same for Phase-Neutral/Phase-Phase).

This "walke can be programmed between 2000, and 999.94 in terms of seconds. (Refer "SP Uol. Hr" for details;) "belay off time for activating the output for low voltage warming, it is common for all voltages (same for Phase-Neutral/Phase-Phase).

I'll The value can be programmed between QD, and 999 gin learns of seconds.

Refer SP Uct_Lo 'for details,

Programming the "U-H ond", "U-H ord", "U-L ond", "U-L ofd",

"I-H ond", "I-L ond", "I-L ond",

Find [(SP Ub.L.h./ SP Ub.L.b.) / (SP CUt h) / SP Cut n) menu by scrolling Pess SET button [(U-HL-1/ U-L.l-1) / (H-L-1/ I-L.l-1) menu is displayed.]	Press SET button (SP UoL Hi / SP CUr Hi menu is displayed.)	Find "SP Uct t / SP CUr"	Fress SET button for 3 sec. SP k (trA Formenu is displayed.)
\$\frac{\delta^{\delta}}{\delta^{\delta}} \frac{\delta^{\delta}}{\delta^{\delta}} \frac	OF LEADING ON LEADING OF LEADIng	K OutO Traines W L SET	K Uot k t k onowou

Find [(U-H ond / U-H oFd / U-L ond / U-L oFd) / (I-H ond / I-H oFd / I-L oFd)] menu by scrolling UP-DOWN buttons.