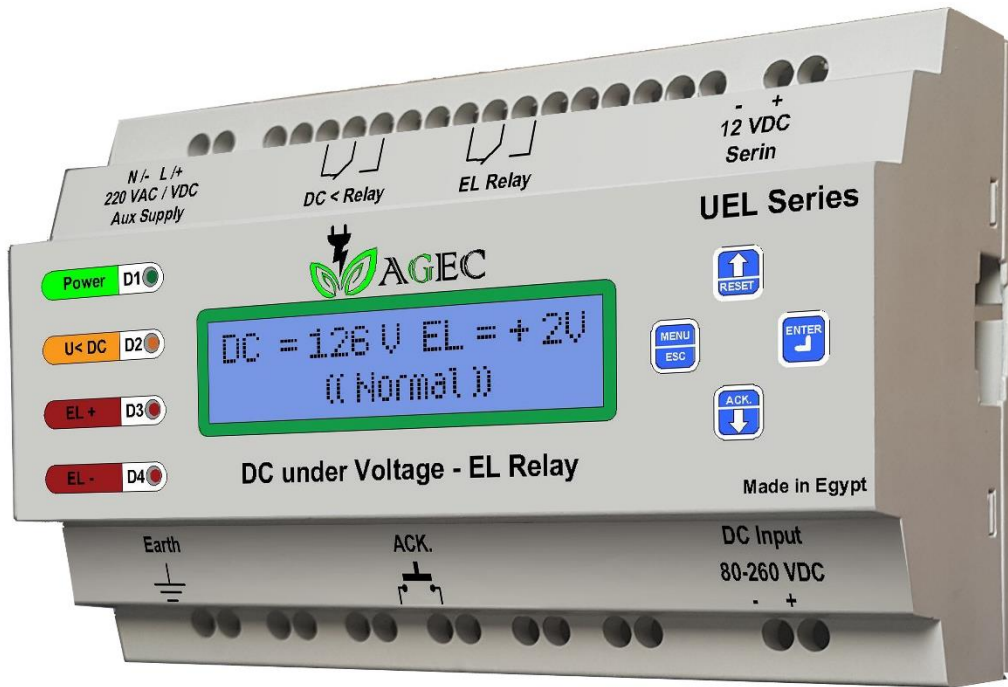




Advanced Green Energy & Control

Under DC and Earth Leakage protection relay

M A N U A L



UEL Series
March 2019

٠٢/٢٦٢٣٠١٠٧ - تلفاكس: القاهرة - النزهة الجديدة - ش بلال بن رباح - 8z Block - Belal ben Rabah St. - AlnozhaAlgadede - Cairo - Egypt - Tel/Fax: 02-26230107
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***For your safety, please read the following before using.**

1. Safety Cautions

Warning

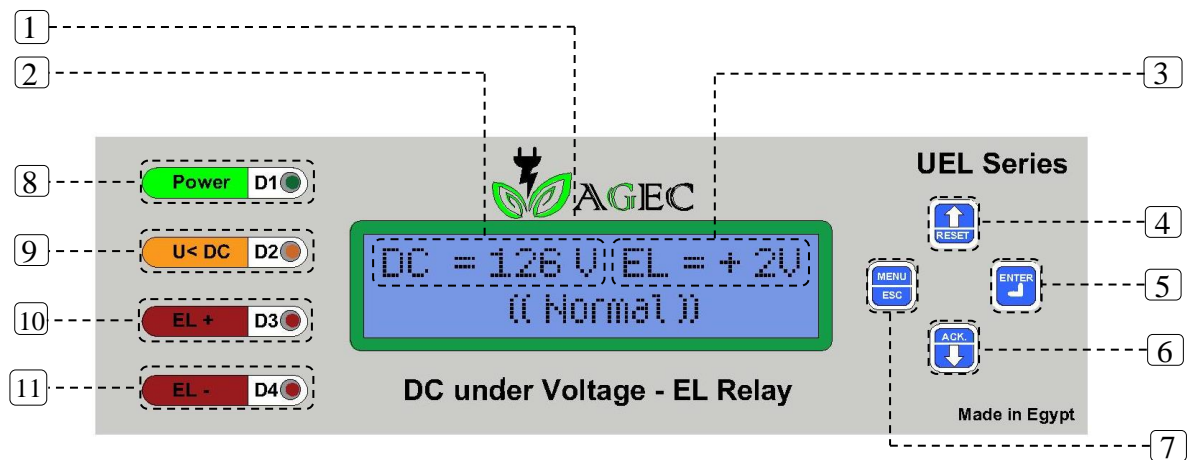
1. **Must be mounted on Panel.**
May give an electrical shock.
2. **Do not connect terminals while power is on.**
May give an electrical shock.
3. **Do not disassemble or modify this unit. If it is necessary, please contact us.**
May give an electrical shock / cause fire.
4. **Please check the terminals numbers before connecting power lines.**
May cause fire.
5. **While cleaning the unit, do not use water or an oil-based detergent.**
May cause an electrical shock / fire / damage of the unit.
6. **check the polarity before connecting terminals.**
May cause fire.

2. Features:

- 1- Universal power supply AC/DC.
- 2- Measure and display the real value of the output DC voltage.
- 3- Measure and display the real value of the earth leakage voltage.
- 4- DC under voltage (**ANSI 27**) limits protection can be adjusted via display.
- 5- Earth leakage voltage limits protection can be adjusted via display.
- 6- Fault indication in LCD.
- 7- All settings is stored in EEPROM.
- 8- Numerical LCD (16 * 2).
- 9- Parameters is adjustable via keypad.
- 10- Two change over Form C relay for DC under voltage and Earth Leakage functions.
- 11- 12 VDC output for common alarm (Serina).
- 12- Four indication Leds (Power – Under DC – Earth Leakage (+) – Earth Leakage (-)).
- 13- Auto / Manual reset option.
- 14- Local / Remote Ack. to silence the Serina.

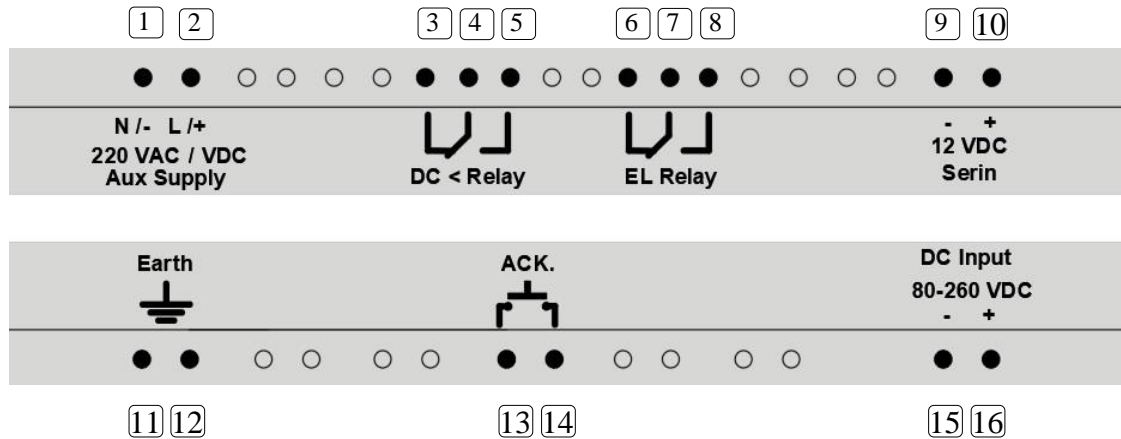
3. Device identification

3.1. Front



- 1 Numerical (16*2) LCD display shows measurements, settings and faults.
- 2 DC voltage measurement.
- 3 Earth Leakage measurement.
- 4 Up arrow key (Increase parameter value in edition mode) – Reset in Protection mode.
- 5 Enter key (Store parameter value and enter in edition mode)
- 6 Down arrow key (Decrease parameter value in edition mode) – ACK in Protection mode.
- 7 Menu/ESC key (Enter to and Exit from edition mode)
- 8 Green Led for power indication.
- 9 Yellow Led for under voltage indication.
- 10 Red Led for positive earth leakage indication.
- 11 Red Led for negative earth leakage indication.

3.2. Connection



- 1 Neutral or Negative of the aux. supply.
- 2 Line or Positive of the aux. supply.

- 3 Normally Close of internal relay (250VAC – 2 A) for DC under voltage protection.
- 4 Common of internal relay (250VAC – 2 A) for DC under voltage protection.
- 5 Normally Open of internal relay (250VAC – 2 A) for DC under voltage protection.

- 6 Normally Close of internal relay (250VAC – 2 A) for Earth Leakage protection.
- 7 Common of internal relay (250VAC – 2 A) for Earth Leakage protection.
- 8 Normally Open of internal relay (250VAC – 2 A) for Earth Leakage protection.

- 9 Negative of Serina output.
- 10 Positive of Serina output (12 VDC - 500 mA).

- 11 Earth of the device& Station.
- 12 Earth of the device& Station.

- 13 Remote ACK. push button to silence the Serina.
- 14 Remote ACK. push button to silence the Serina.

- 15 Negative of the DC Voltage or batteries.
- 16 Positive of the DC Voltage or batteries.

4. Operations Procedures:

4.1 Start up :

First when connect power to the device the LCD will show the following:


```
AGEC
TEL: 02-26230107
```

Then shows the following for example:



```
DC = 125 V   EL= + 2V
(( Normal ))
```

4.2 Settings :

To adjust the protection parameters go to “Edition mode” by pressing

MENU/ESC key  for 3 sec until the screen shows:

```
->DC Settings
   EL Settings
```

Using  and  keys you can select between different parameters like DC settings, Earth leakage and Reset settings.


To set DC settings Press  then appear

```
->DC under active
   DC under value
```


To activate DC under press Enter  in the previous screen.

Then appear

```
-> DC under Enable
   DC under Disable*
```

Press Enter  to activate DC under , your selection will be marked by (*)




```
-> DC under Enable*
   DC under Disable
```

To set the other values of DC under press Menu/ESC  in the previous screen then appear

DC under active
-> DC under value

To set DC under Value press Enter  then

DC under value
DC under = 90 V

- To increase the DC under value press up arrow key .
- To decrease the DC under value press down arrow key .
- To store settings press ENTER  key the display will show




DC under value
Save ok

Then appear

DC under value
-> DC under hys

- Press Enter  to set DC under hysteresis value


DC under hys
DC under hys.=5 V

- To increase the DC under hys value press up arrow key .
- To decrease the DC under hys value press down arrow key .
- To store settings press ENTER  key the display will show




DC under hys
Save ok

Then appear

DC under hys
-> DC under delay

- Press Enter  to set DC under delay value


DC under delay
DC under del.= 6 S

- To increase the DC under delay value press up arrow key 
- To decrease the DC under delay value press down arrow key 
- To store settings press ENTER  key the display will show

DC under delay
Save ok

Then appear

DC under delay
-> Escape

Press Menu/Escape  to get back to main screen in Edition Mode.

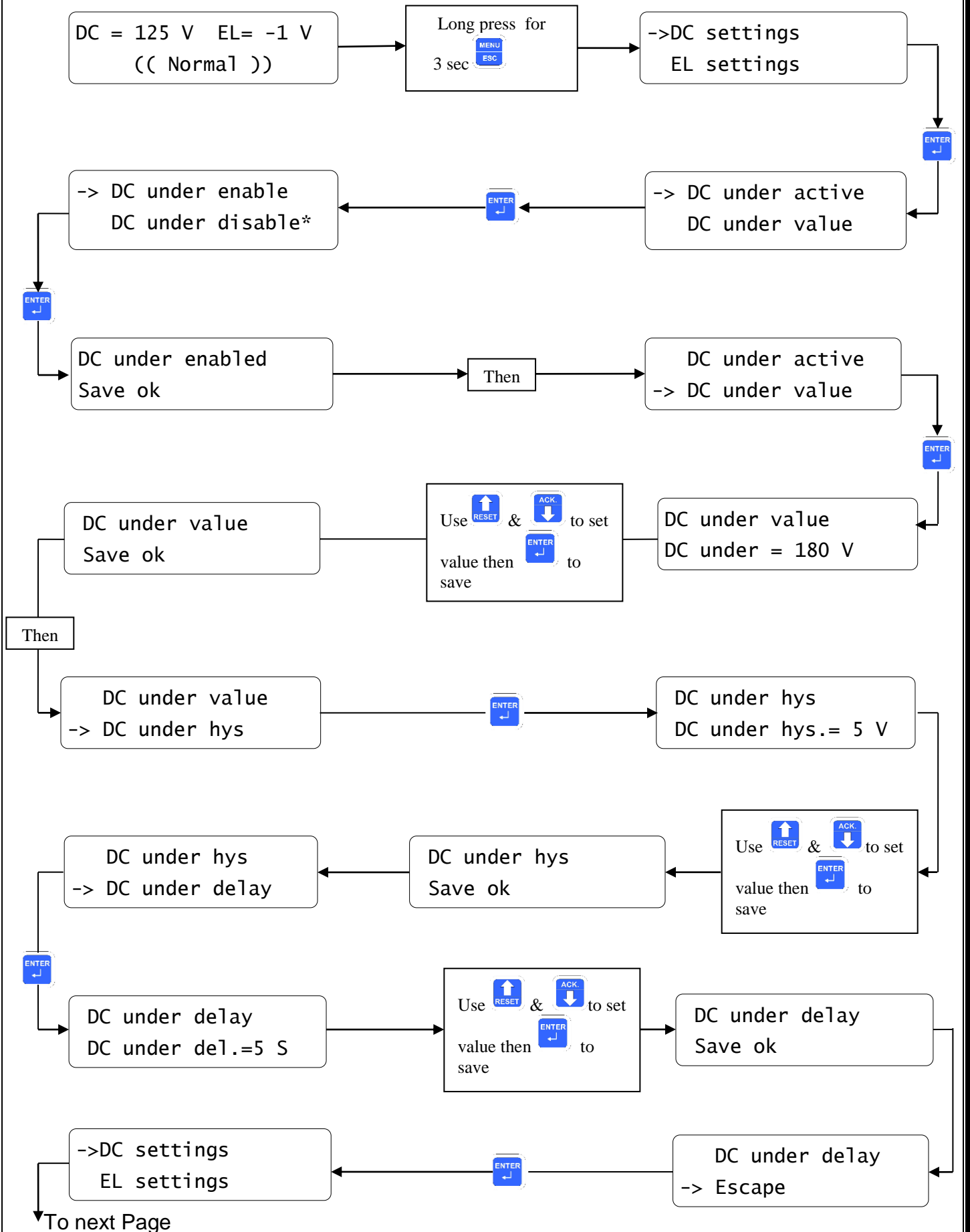
->DC settings
EL settings

Press Menu/Escape  again to get back to Main screen

DC = 125 V E1= -1 V
((Normal))

*Do the previous steps for all parameters

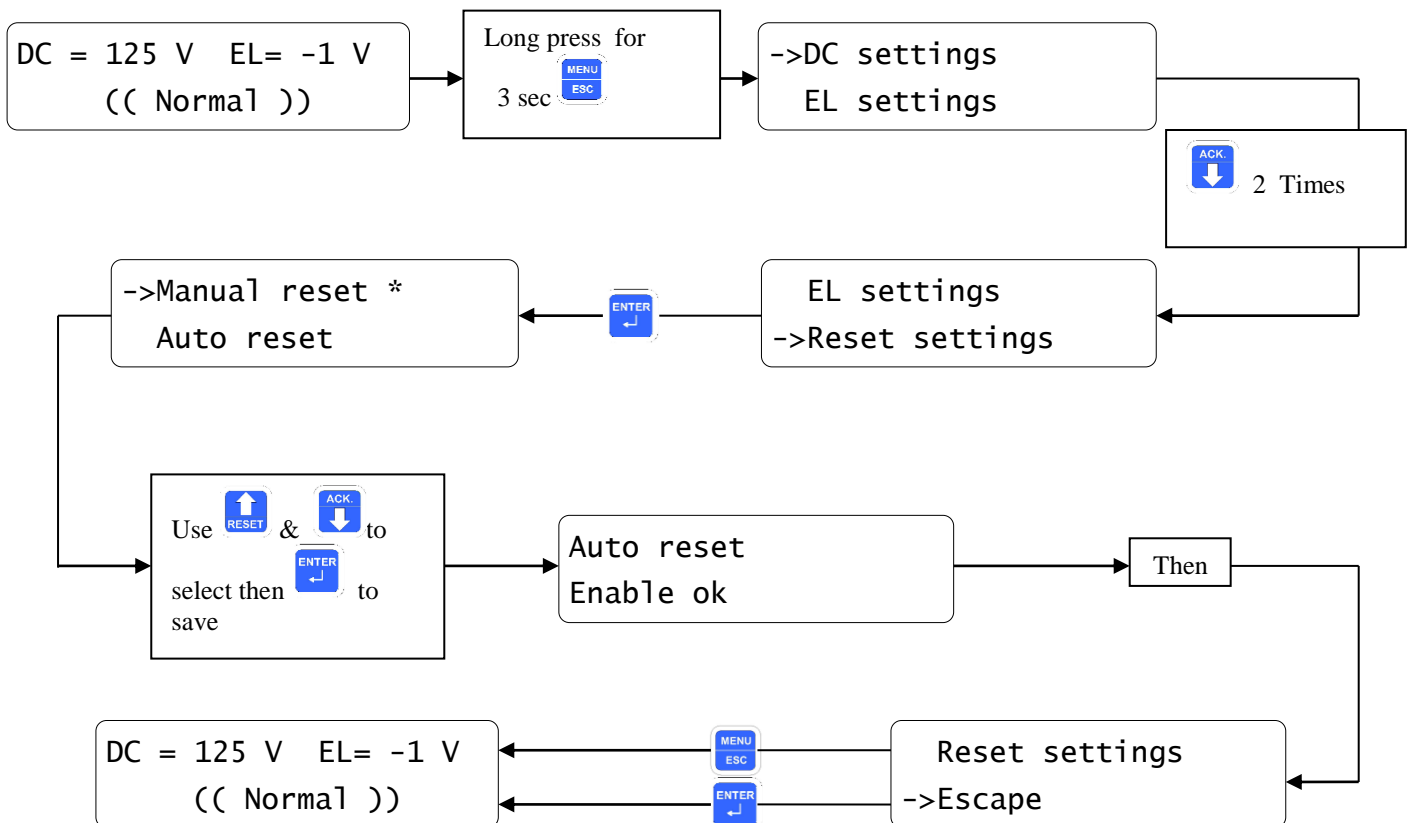
4.2.1 Flow Chart To set DC under options :





- Do the previous steps for all parameters

4.2.2 Reset settings options:




Your selection will be marked by (*).

4.2.3 Parameters list:



Parameter	ANSI	Default	Min	Max	Unit
DC under voltage active	-	Enable	-	-	-
DC under voltage value (U<)	27	180	50	250	V
DC under hysteresis		5	0	30	V
DC under delay		5	0	30	sec
Earth leakage voltage active	-	Enable	-	-	-
Earth leakage voltage value		100	0	125	V
Earth leakage hysteresis		5	0	30	V
Earth leakage delay		5	0	30	sec
Reset settings	-	Auto	Auto/Manual	-	-

4.3 Faults :

When any fault occurs:

- The LCD will show the fault.
- The Aux relay for the function will be active (NO & COM closed).
- The fault red/yellow led related to the function will be on.
- The 12 VDC Serina output will be active.
- In case of faults in Auto reset mode the related relay for each protection function will reset automatically only if the reason of fault disappeared like under voltageetc.
- In case of faults in manual mode resetting the related relay for each protection function is done by pressing  key
- In case of DC under, the LCD will show the following:

DC is under
DC input= 70 V

- The related relay will be activated and the DC Serina will be activated.
- The related led will be lit.
- To mute the Serina , press  key.
- To reset the fault in manual reset mode, press  key.
- If the DC value returned back to the user's set value the LCD will show the following:



DC is normal <U>
Delay time= 4 S

- In case of returning from the user's under set value **DC is normal** will be quoted by <U>.
- After delay time is up screen goes back to main screen.
- In case of Earth leakage, the LCD will show any of the following:



EL is Over
Earth 1kg,=+ 46V

EL is over
Earth 1kg,=- 46V

- In case of **Positive or Negative Earth Leakage** the related relay will be activated and the DC Serina will be activated.

- The related led for each function will be lit.
- To mute the Serina , press  key.
- To reset the fault in manual reset mode, press  key.
- If the Earth Leakage value returned back to the user's set value the LCD will show the following:

E.L is normal
Delay time= 4 S

- After delay time is up screen goes back to main screen.
- If manual reset mode is enabled the fault will be locked even if the fault reason disappeared until pressing  to reset the related relay of the fault.
- If manual reset mode is enabled the fault can be cleared by pressing  key even if the fault reason is not disappeared.
- If Auto reset mode is enabled the fault will disappear automatically if the fault reason disappeared.

5. Technical Specifications:

5.1 Electrical Specifications:

Inputs:

Aux Power supply : 50 to 270 VDC / VAC

DC Voltage range : 50 -250 VDC

Accuracy: ± 2.5 V at full scale.

Response Time : ≤ 500 ms in the event of a fault

Outputs:

- **For UEL – XX-1-X**

General Alarm: 1 Form C relay + Serina 12 VDC – 500 mA.

- **For UEL – XX-2-X**

Aux relay: 2 Free contact (NO, COM & NC) 2A @ 250VAC.

General Alarm: Serina 12 VDC – 500 mA

Stauts Led:

- Green Led for Power ON.
- Yellow Led for under voltage.
- Red Led for positive earth leakage.
- Red Led for negative earth leakage.

5.2 Mechanical Specifications:

Dimension : 144 mm * 90 mm * 57mm.

5.3 Protection Specifications

Temperature : -5°C to $+60^{\circ}\text{C}$

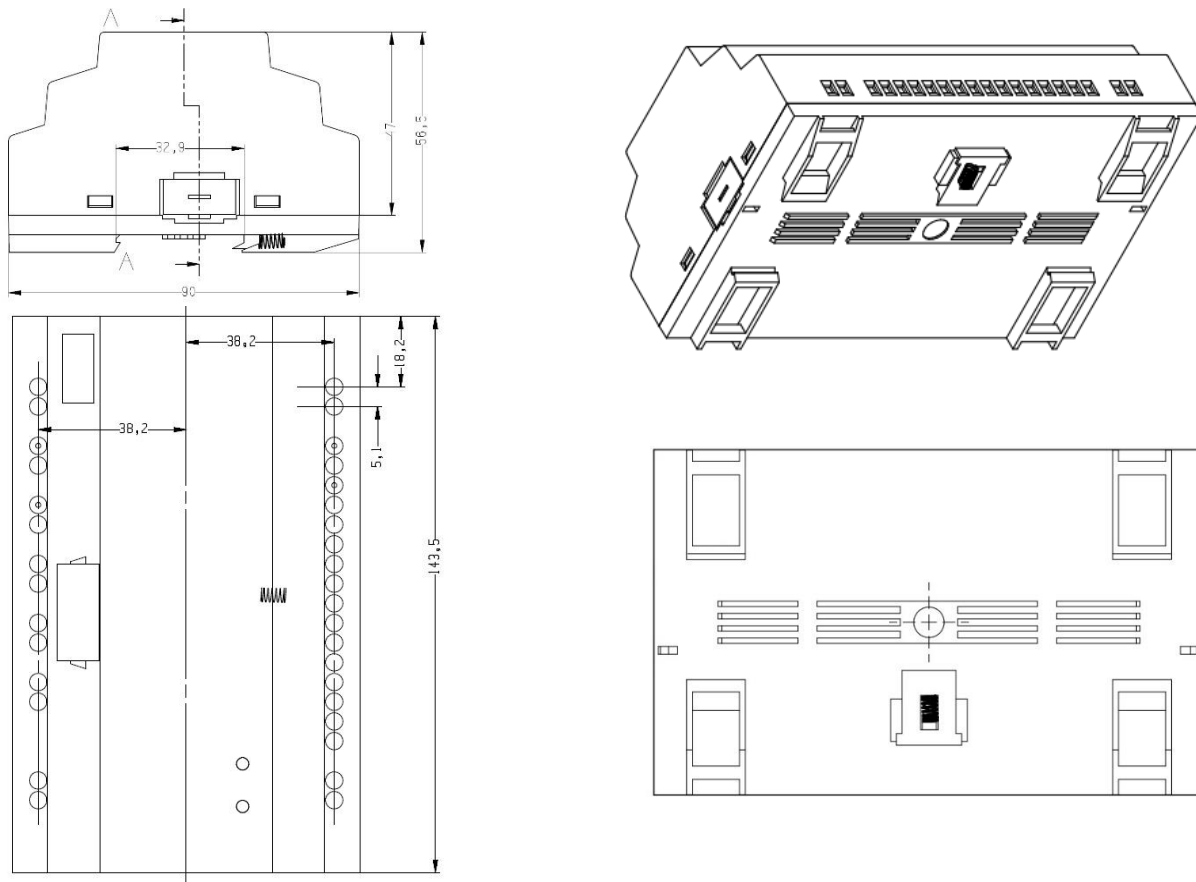
Enclosure IP : IP 20

- The enclosure is isolated according to standard EN 60439-1 specification.
- The enclosure is protected against external mechanical shocks.

5.4 Electrical Protection:

- Under DC output voltage which can be adjusted.
- Positive and Negative earth leakage which can be adjusted.

6. External Dimension



7. Ordering information

UEL - X X -X- X

UEL				Under DC Voltage and Earth Leakage protection relay Sires.
Functions	0			DC Under protection deactivated.
	1			DC Under protection activated.
Outputs		0		Earth Leakage protection deactivated.
		1		Earth Leakage protection activated.
DC range			1	1 Form C relay + Serina 12 VDC - 500 mA.
			2	2 Form C relay + Serina 12 VDC - 500 mA
DC range			A	110 DC voltage.
			B	220 DC voltage.
			C	110 and 220 DC voltage.

Notes

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