SAFETY PRECAUTIONS

1. **The device must be installed by a qualified person,**
2. **Disconnect all power before working on the device. Don't touch any terminal when the power is ON.**
3. **Verify correct terminal connection when wiring.**
4. **Don't dismantle or repair the device whether it operates normally, otherwise no responsibility is assumed by producer and seller.**
5. **Never use the device at the site which can be invaded by corrode gas, strong sunshine light and rain.**
6. **Clean the device with a dry cloth.**
7. **Fail to follow these instructions will result in serious injury or death.**

FEATURES

- Microcontroller based
- Digit display for operating voltage and current value
- Protect electrical device against over/under voltage, overcurrent, three phase asymmetry and incorrect phase sequence.
- Voltage measurement accuracy ≤1%
- Parameters setting by keys
- LEDs indication for over/under voltage and over current faults
- 5 Module, DIN Rail mounting

TECHNICAL DATA

Rated supply voltage	AC 220V
Operation voltage range	AC 50V~400V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Undervoltage(U<) setting range	80~210V
Overcurrent setting range	5A~63A
Phase sequence setting	ON/OFF
Asymmetry setting range	20V~99V-OFF
Reset/start delay	Ts:5s~600s
Overcurrent faults trip delay range	Ta:5s~600s
Continuous overcurrent times setting	OFF-1~20
Auto reset setting	ON-OFF
Hysteresis	Overvoltage and asymmetry: 5V
	Undervoltage:3V
Overvoltage(U>) trip delay	0. 1s; ≤350V:0.02s
Undervoltage(U<) trip delay	≥80V:0.5s ,<80V:0.1s
Overcurrent(I>) trip delay	Iset<Ir<80A:Ta; Ir=80A: ≤0. 1s
Asymmetry trip delay	10s
Voltage measurement accuracy	≤1%(over the whole range)
Rated insulation voltage	450V
Output contact	1NO
Electrical life	10^5
Mechanical life	10^6
Protection degree	IP20
Pollution degree	3
Altitude	≤2000m
Operating temperature	-5°C~40°C
Humidity	≤50% at 40°C(without condensation)
Storage temperature	-25°C~55°C

* Operating current value

Technical parameter	Setting range	Step	Factory setting
Overvoltage trip value	220V~300V	1V	250V
Undervoltage trip value	80V~210V	1V	170V
Reset/start delay	1s~600s	1s	5s
Overcurrent trip value	5A~63A	1A	63A
Overcurrent trip delay	5s~600s	1s	15s
Asymmetry trip value	20V~99V-OFF	1V	50V
Continuous overcurrent faults times	OFF-1~20	1	3
Operation mode	000-0$^{\square}$0		000
Phase sequence protection	ON-OFF		OFF
Auto reset setting	ON-OFF		ON

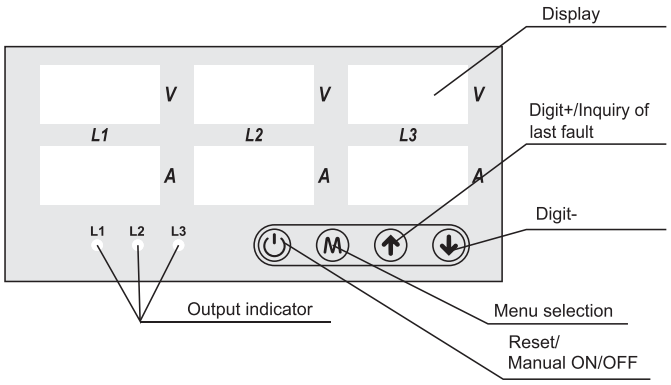
000 : Synchronous mode; 0$^{\square}$0 : Asynchronous mode

RM-FVA

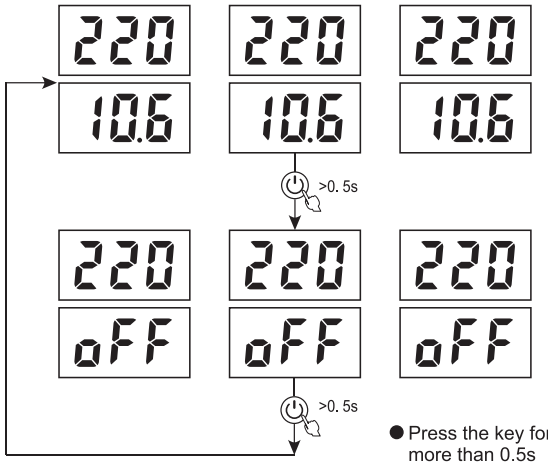
3 PHASE VOLTAGE AND CURRENT PROTECTOR

Please read complete instructions prior to installation and operation of the device.

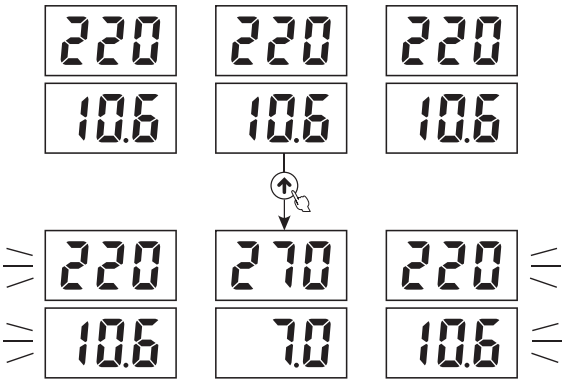
FRONT-FACE PANEL



● Switch on/off manually



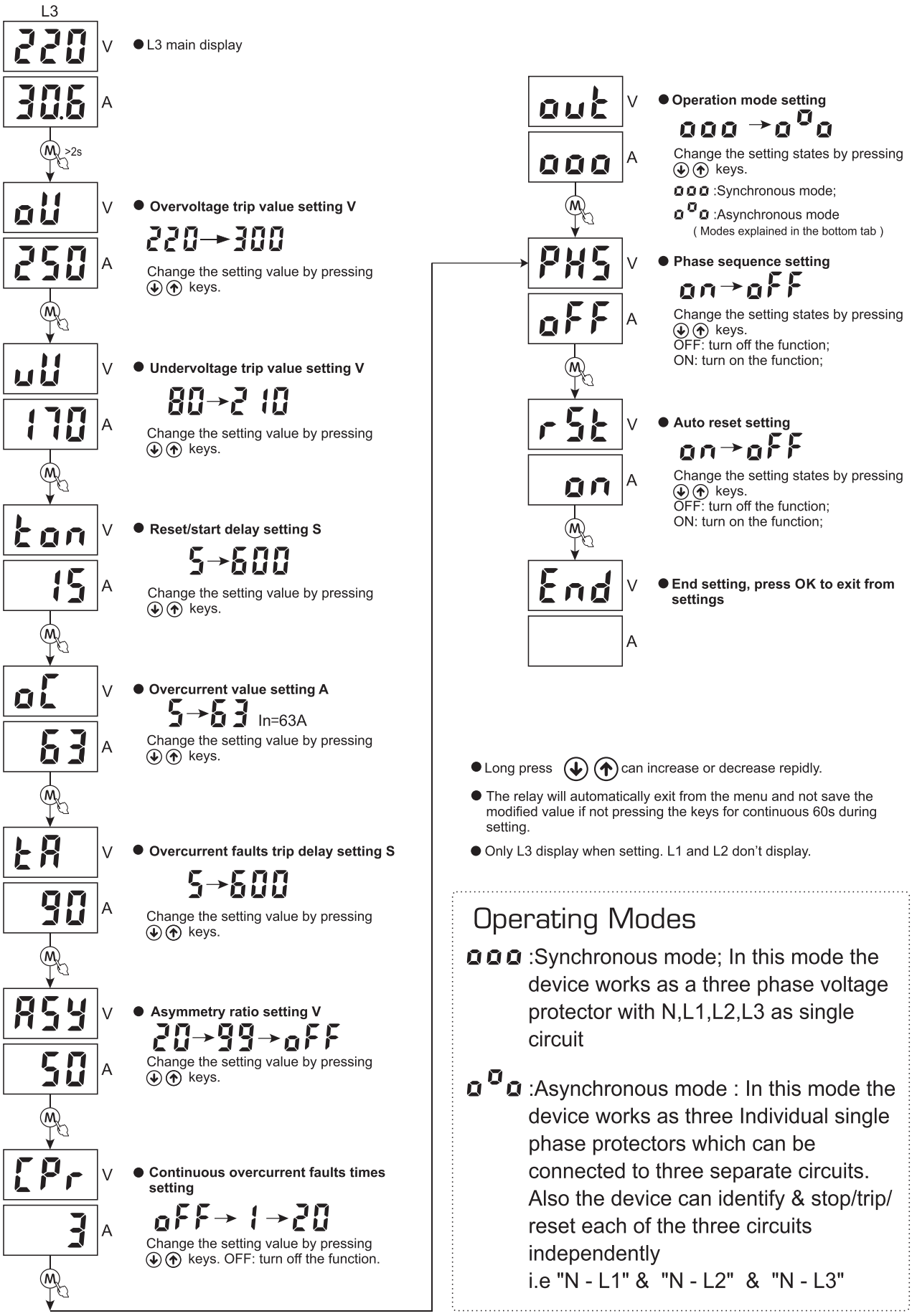
● Inquiry of faults



● Display the last fault value and flash.

● Exit from display after 3s.

● Main menu setting



- Long press ⓓ ⓤ can increase or decrease repidly.
- The relay will automatically exit from the menu and not save the modified value if not pressing the keys for continuous 60s during setting.
- Only L3 display when setting. L1 and L2 don't display.

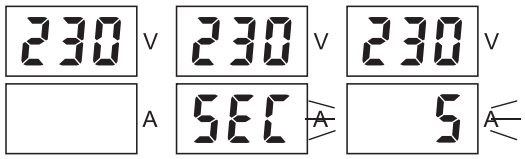
Operating Modes

ooo :Synchronous mode; In this mode the device works as a three phase voltage protector with N,L1,L2,L3 as single circuit

o o :Asynchronous mode : In this mode the device works as three Individual single phase protectors which can be connected to three separate circuits. Also the device can identify & stop/trip/ reset each of the three circuits independently
i.e "N - L1" & "N - L2" & "N - L3"

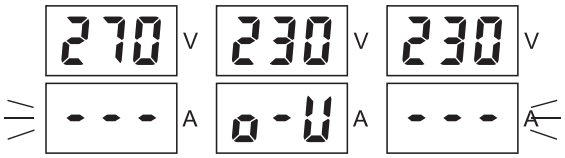
Sychronous Mode

● Reset/start delay display(synchronous)



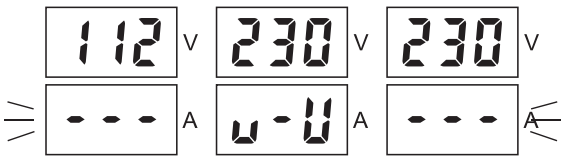
● Voltage operating values display on upper L1-L2-L3 and delay time flashes on the lower L3 during the counting of start delay; After the delay is over, the output relay closes.

● U> faults display(synchronous)



● Voltage operating values display on upper L1-L2-L3 and synchronous over voltage faults code display on the lower L2

● U< faults display(synchronous)



● Voltage operating values display on upper L1-L2-L3 and synchronous under voltage faults code display on the lower L2

● I> faults display(synchronous)

● Voltage operating values display on upper L1-L2-L3 and synchronous over current faults code display on the lower L2

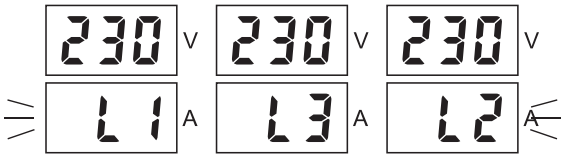
● Display of continuous I> faults (synchronous)

Display for continuous overcurrent faults after reset/start delay is over. overcurrent faults times is more than preset times.

● Disconnect the overload device

● Start the relay after reset manually.

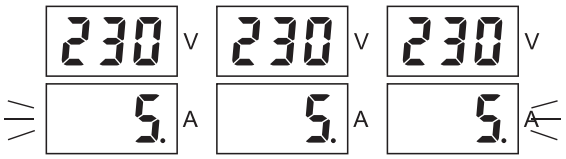
● Display of phase sequence fault



● Display L1-L3-L2 when phase failure fault occurs. User can change the position of L2 and L3 after disconnected supply.

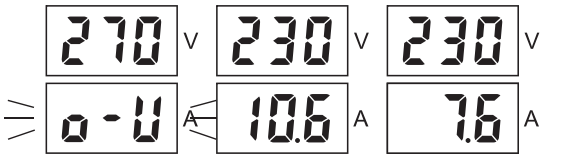
Asychronous Mode

● Reset/start delay display(asynchronous)



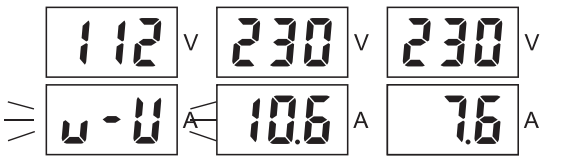
● Voltage operating values display on upper L1-L2-L3 and delay time flashes on the lower L1-L2- L3 during the counting of start delay; After the delay is over, the output relay closes.

● U> faults display(asynchronous)



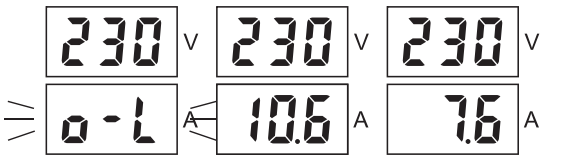
● Voltage operating values display on upper L1-L2-L3 and asynchronous over voltage faults code display on the lower L1-L2- L3

● U< faults display(asynchronous)



● Voltage operating values display on upper L1-L2-L3 and asynchronous under voltage faults code display on the lower L1-L2- L3

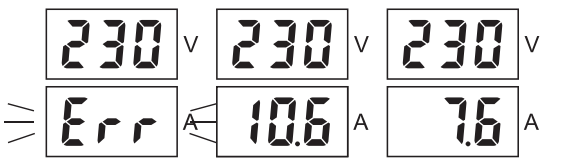
● I> faults display(asynchronous)



● Voltage operating values display on upper L1-L2-L3 and asynchronous over current faults code display on the lower L1-L2- L3

● Display of continuous I> faults (asynchronous)

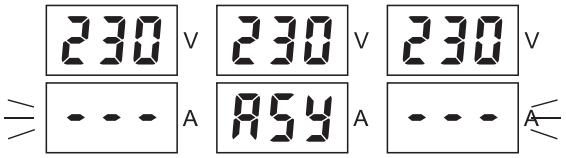
Display for continuous overcurrent faults after reset/start delay is over. overcurrent faults times is more than preset times.



● Disconnect the overload device

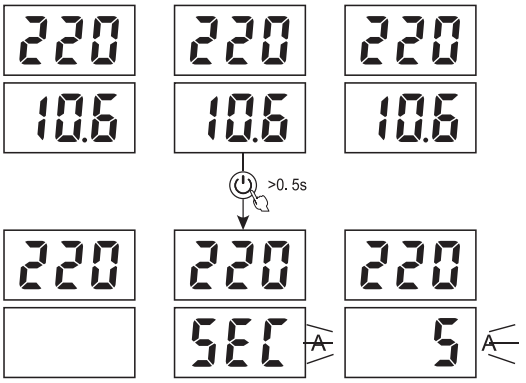
● Start the relay after reset manually.

● Display of asymmetry fault (only synchronous)



● Voltage operating values display on upper L1-L2-L3 and asymmetry fault code display on lower L2 during the counting of start delay; After the delay is over, the output relay closes.

● Manual reset



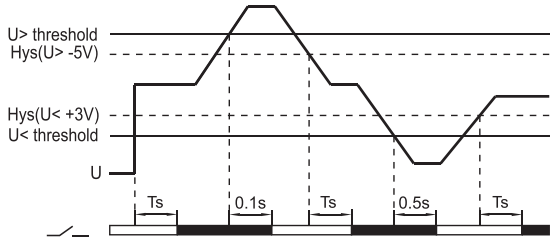
- Auto reset function is off.
- The device will begin counting of reset/start delay after reset for faults.

OPERATING INSTRUCTIONS

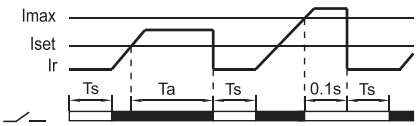
- If a voltage fault was detected when the reset/start delay of relay is counting, the output relay opens and faults indication LED lights up.
- The operating voltage and current values will be displayed on screen when the relay is operating normally. If a voltage or current fault was detected, the output relay opens and faults code display.
- Voltage faults: if input voltage was detected to have returned to **Hys** after tripped for voltage faults, the relay will reset automatically and begin the counting of reset/start delay.
  Current faults: After the relay tripped for current faults, it will reset automatically begin the counting of reset/start delay.

FUNCTION DIAGRAMS

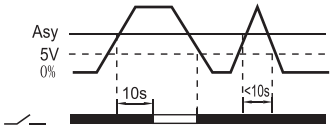
- Overvoltage and undervoltage



- Overcurrent

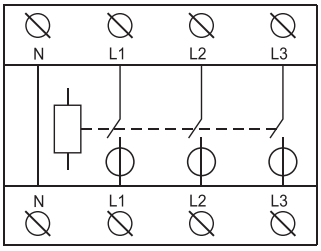


- Asymmetry

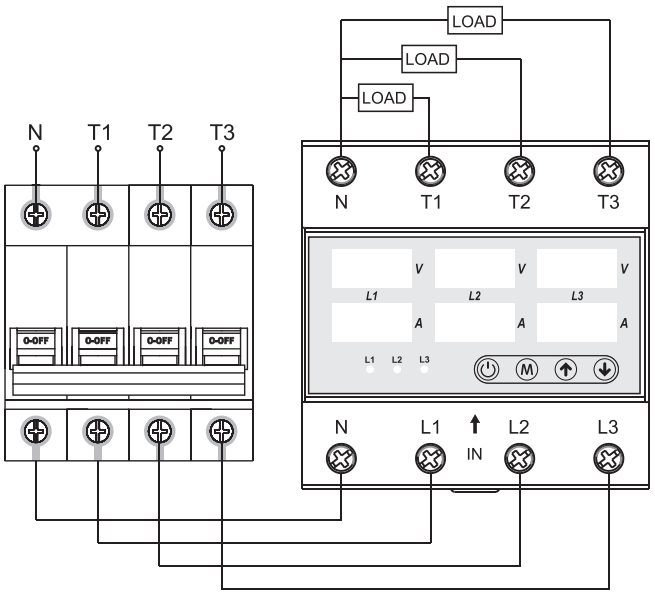


Ts: Reset/start delay
Ta: Overcurrent faults trip delay

SYMBOL



WIRING DIAGRAM



- Rated operating current of circuit breaker is 75% maximum current of the relay Ie=0.75x Imax

DIMENSIONS