

# PROTECTION RELAY



## INTRODUCTION

A protection relay is an essential device used to monitor and protect electrical systems from abnormal conditions such as overvoltage, undervoltage, overcurrent, phase failure, phase imbalance, and leakage current. When a fault is detected, the relay automatically disconnects the power supply to help protect electrical equipment, motors, and control systems from damage.

iLEC Protection Relays are designed to provide reliable and intelligent protection for electrical systems in residential, commercial, and industrial applications. Featuring multiple protection functions, real-time monitoring, compact DIN-rail design, and WiFi connectivity, iLEC relays help improve system safety, operational stability, and equipment lifespan while enabling convenient remote monitoring and control.



## AUTOMATIC CURRENT & VOLTAGE RELAY

### Model VAP-63/1PN

*iLEC VAP-63A/1PN is a voltage and current protection device for 1P+N 63A systems, designed to monitor and protect against overvoltage, undervoltage, and overcurrent conditions. It features automatic switching and automatic recovery after faults.*



### Feature

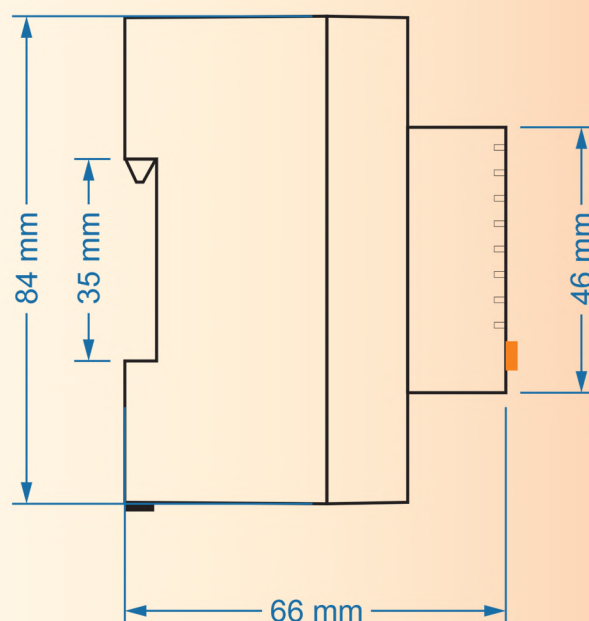
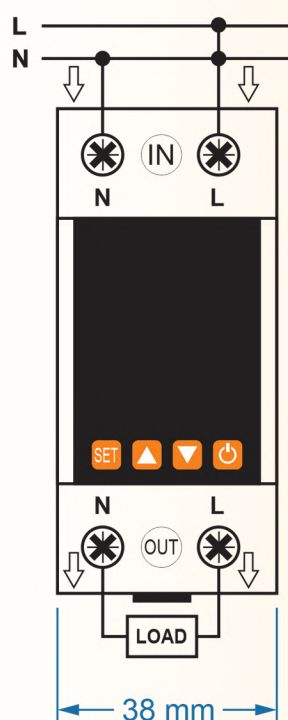
- Overvoltage, undervoltage, and overcurrent protection to help prevent electrical overload.
- Compact design with flame-retardant engineering plastic housing, providing excellent insulation and heat resistance.
- DIN rail mounting module, suitable for residential and industrial electrical panels.
- LED display for clear real-time monitoring of voltage, current, and operating status.
- Adjustable voltage, current protection thresholds, and recovery delay time.
- Parameters can be easily configured via front-panel function buttons.
- Screw-type terminals ensure fast, secure, and safe wiring connections.
- High-durability conductive alloy relay contacts for stable operation.
- Automatic power cut-off and automatic reconnection when voltage returns to normal.
- Effectively protects household appliances, machinery, electrical cabinets, and power systems.
- Suitable for homes, offices, shops, and small industrial workshops.

# Technical Specifications

## Technical Data

|                               |                                      |
|-------------------------------|--------------------------------------|
| Supply terminal               | N, L                                 |
| Rated supply voltage          | AC 220V                              |
| Rated frequency               | 50/60Hz                              |
| > U setting range             | 130 – 300V                           |
| < U setting range             | 80 – 210V                            |
| Voltage hysteresis            | 5V                                   |
| Overvoltage trip delay        | 0.5s                                 |
| Voltage accuracy              | < 1%                                 |
| Max. operating phase voltage  | 350V                                 |
| Max. operating current        | 63A                                  |
| Altitude                      | ≤ 2000m                              |
| Ambient temperature           | -25° ~ 50°C                          |
| Permissible relative humidity | ≤ 50% at 40°C (without condensation) |
| Storage temperature           | -25° ~ 55°C                          |

## Wiring diagram & Dimension Drawing



## Front-face panel



>U : Overvoltage Indicator  
 <U : Underage Voltage  
 >Ie : Overcurrent Indicator  
 R/T : Normal Working Indicator

Menu selection

SET

Digit+



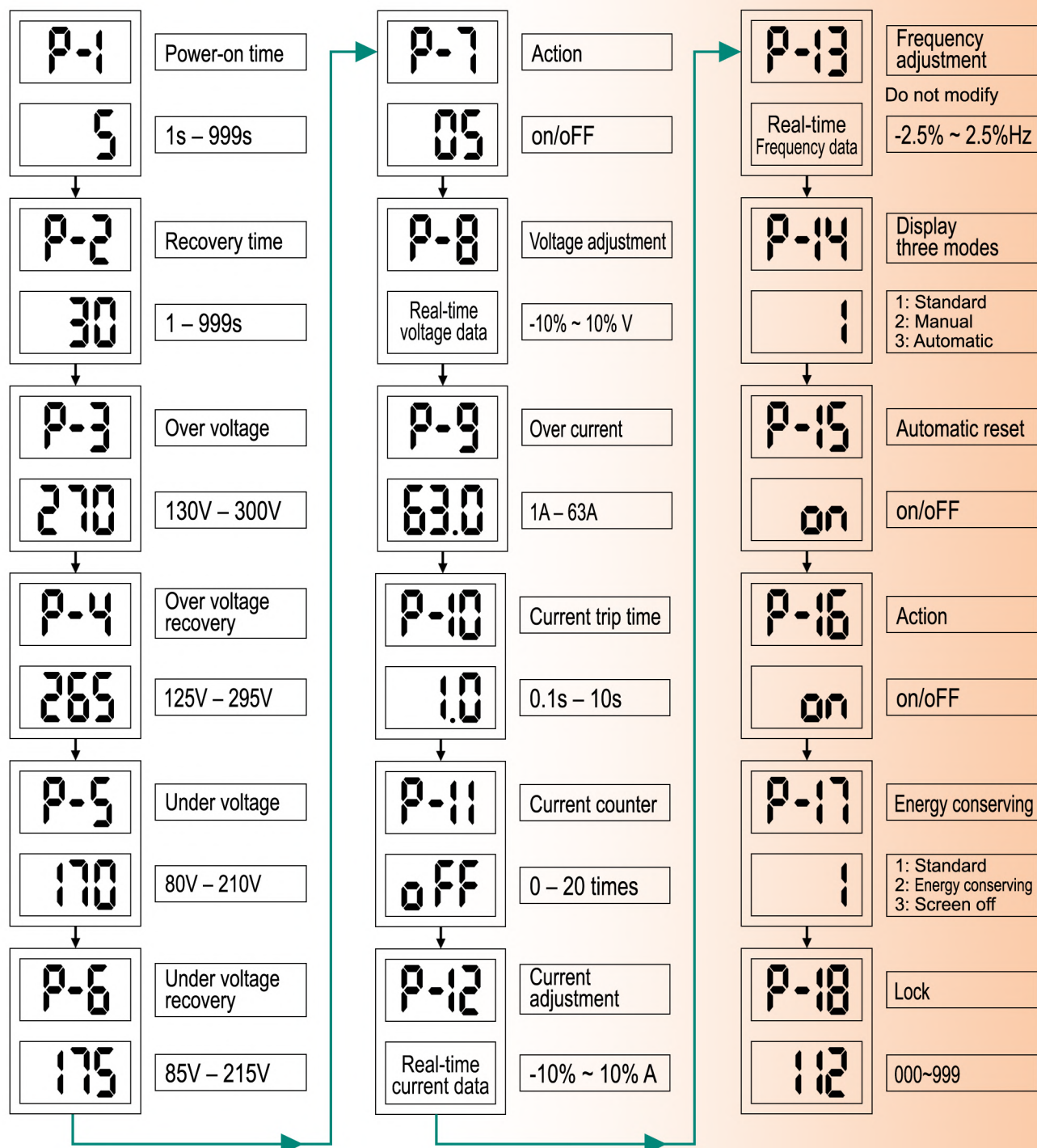
Digit-



ON/OFF



## Seting menu



## Over voltage – Under voltage – Over current Protection operating manual

### Setting

| Option code | Option                          | Max   | Min   | Default | Step    | Unit  | Description                                                                   |
|-------------|---------------------------------|-------|-------|---------|---------|-------|-------------------------------------------------------------------------------|
| P-1         | Power-on delay                  | 999   | 1     | 5       | 1/10    | S     |                                                                               |
| P-2         | Recovery delay                  | 999   | 1     | 30      | 1/10    | S     |                                                                               |
| P-3         | Overvoltage                     | 300   | 130   | 270     | 1/10    | V     | Close overvoltage if greater than 300                                         |
| P-4         | Overvoltage recovery value      | 295   | 125   | 265     | 1/10    | V     | Skip this setting when overvoltage is turned off                              |
| P-5         | Undervoltage                    | 210   | 80    | 170     | 1/10    | V     | Close undervoltage if below 80                                                |
| P-6         | Undervoltage recovery value     | 215   | 85    | 175     | 1/10    | V     | Skip this setting when undervoltage is turned off                             |
| P-7         | Overvoltage action delay        | 10.0  | 0.1   | 0.5     | 0.1/1.0 | S     |                                                                               |
| P-8         | Voltage correction              | +10%  | 10%   | 0       | 0.5%    | V     | Long press setting is not recommended                                         |
| P-9         | Overcurrent                     | 63.0  | 1.0   | 63.0    | 0.1/1.0 | A     | Close overcurrent if greater than 63.0                                        |
| P-10        | Overflow action delay           | 10.0  | 0.1   | 1.0     | 0.1/1.0 | S     |                                                                               |
| P-11        | Continuous overcurrent counting | 20    | 0     | 0       | 1       | Times | 0 : Turn off counting                                                         |
| P-12        | Current correction              | +10%  | -10%  | 0       | 0.5%    | A     | Long press setting is not recommended                                         |
| P-13        | Frequency correction            | +2.5% | -2.5% | 0       | 0.1%    | Hz    | Modifying this value will affect the accuracy of the timer                    |
| P-14        | Display mode                    | 3     | 1     | 1       | 1       |       | 1 : Standards                                                                 |
|             |                                 |       |       |         |         |       | 2 : Manual switch                                                             |
|             |                                 |       |       |         |         |       | 3 : Automatic switch                                                          |
| P-15        | Automatic reset                 | On    | Off   | On      |         |       | on : Self recovery                                                            |
|             |                                 |       |       |         |         |       | off : Manual recovery                                                         |
| P-16        | Action/Knife mode               | On    | Off   |         |         |       | on : Protector working properly                                               |
|             |                                 |       |       |         |         |       | off : Knife mode                                                              |
| P-17        | Energy saving mode              | 3     | 1     | 1       | 1       |       | 1 : Standard                                                                  |
|             |                                 |       |       |         |         |       | 2 : Energy-saving                                                             |
|             |                                 |       |       |         |         |       | 3 : Screen off                                                                |
| P-18        | Setup lock password             | 999   | 000   | 112     | 1/10    |       | When this value is not 112, you can only view the parameter and cannot set it |

## VOLTAGE AND CURRENT PROTECTION RELAY

### Model VAP-63/3PN

*iLEC VAP-63/3PN is a voltage and current protection device for 3P+N 63A system, designed to monitor and protect against overvoltage, undervoltage, overcurrent, phase loss, and phase imbalance conditions. It features automatic switching and automatic recovery after faults.*



## Features

- Overvoltage, undervoltage, overcurrent, phase loss, and phase imbalance protection to help prevent electrical system failures.
- Compact design with flame-retardant engineering plastic housing, providing excellent insulation and heat resistance.
- DIN rail mounting module, suitable for residential, commercial, and industrial electrical panels.
- LED display for clear real-time monitoring of voltage, current, and operating status.
- Adjustable voltage, current protection thresholds, and recovery delay time.
- Parameters can be easily configured via front-panel function buttons.
- Screw-type terminals ensure fast, secure, and safe wiring connections.
- High-durability conductive alloy relay contacts for stable operation.
- Automatic power cut-off and automatic reconnection when voltage and current return to normal conditions.
- Effectively protects electrical equipment, machinery, control cabinets, and power distribution systems.

## Product Characteristics

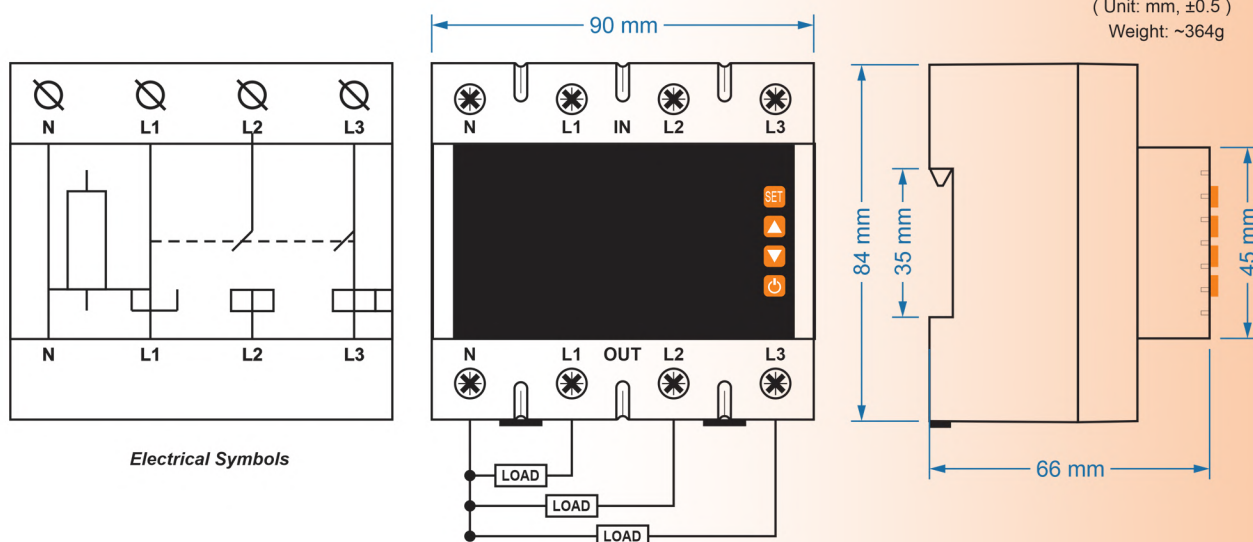
- Microcontroller-based design for stable and reliable operation.
- Synchronous (SYN) and Asynchronous (ASY) operating modes.
- Voltage measurement accuracy:  $\pm 1\%$ .
- 6-module DIN rail mounting design.

# Technical Specifications

## Technical Data

|                              |                                                |
|------------------------------|------------------------------------------------|
| Rated supply voltage         | AC 230V                                        |
| Operation voltage range      | AC 80V–300V                                    |
| Rated frequency              | 50/60Hz                                        |
| Hysteresis                   | Overvoltage & asymmetry: 5V – Undervoltage: 5V |
| Max. operating current       | 63A                                            |
| Asymmetry trip delay         | 10s                                            |
| Voltage measurement accuracy | 1% (over the whole range)                      |
| Rated insulation voltage     | 450V                                           |
| Output contact               | 1NO                                            |
| Electrical life              | 10 <sup>5</sup>                                |
| Mechanical life              | 10 <sup>5</sup>                                |
| 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                                   |

## Wiring diagram & Dimension Drawing



## ■ Front-face panel



>U : Overvoltage Indicator    SET : Setting Indication  
 <U : Undervoltage Indicator    SYN : Synchronous mode  
 >I : Overcurrent Indicator    ASY : Asynchronous mode  
 R/T : Normal Working Indicator

Menu key    Adjustment key    Adjustment key    Manual switch



### Reset/start delay display:

Voltage operating values display on L1-L2-L3 and current. The current is displayed on the second row, they will be normally ON after the display is over and the output relay closes.

### Indication for incorrect phase sequence:

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

### Indication of continuous over current faults

Display for continuous over current faults after reset/start delay is over.

Over current faults times is more than preset times.

Disconnect the overload device. Start the relay after reset manually.

## ■ Operating Instructions

### ▪ Voltage Fault Detection

If a voltage fault is detected during the relay reset/start delay countdown, the output relay will disconnect and the fault indication LED will light up.

### ▪ Normal Operation

During normal operation, the display shows real-time voltage and current values.

If a voltage or current fault is detected, the output relay disconnects and the fault indication LEDs light up.

### ▪ Voltage Fault Recovery

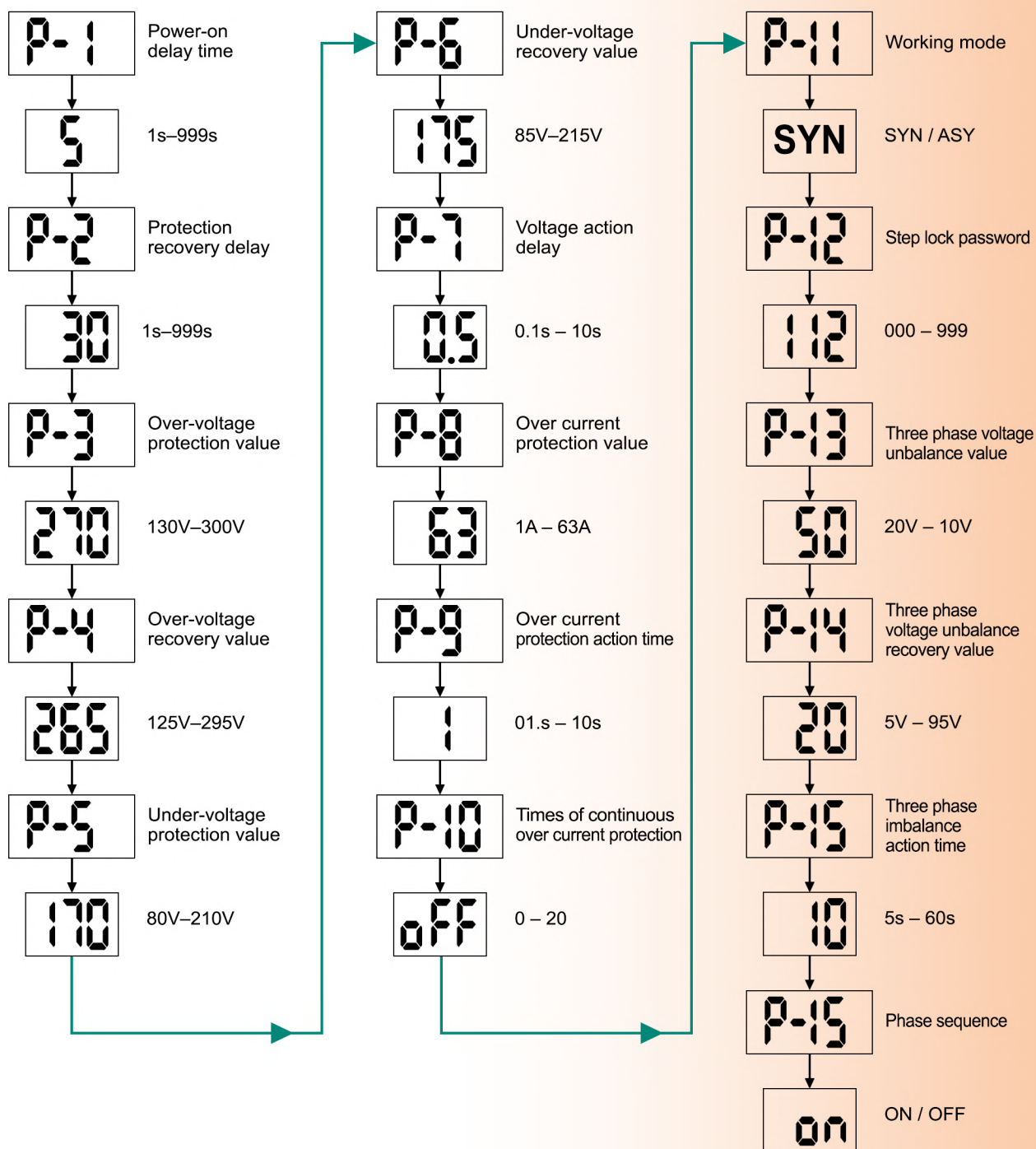
When the input voltage returns to the hysteresis threshold (Hys) after a voltage fault trip, the relay resets automatically. During the reset/start delay countdown, the fault indication LEDs turn off and the operating voltage and current values flash on the display.

### ▪ Current Fault Recovery

After the relay trips due to an overcurrent fault, it resets automatically.

During the reset/start delay countdown, the fault indication LED turns off and the operating voltage and current values flash on the display.

## Setting menu



## SMART ENERGY PROTECTION METER

### Model SEP-63/1PN

The WIFI Smart Circuit Breaker Protector is designed for AC 50Hz/60Hz circuits with a rated voltage of 220V. It enables remote control, multi-user access, and scheduled ON/OFF switching.

It is suitable for use in homes, schools, factories, municipal projects, street lighting, agricultural motors, water pumps, floor heating systems, water heaters, and other remote intelligent power control applications.



### Feature

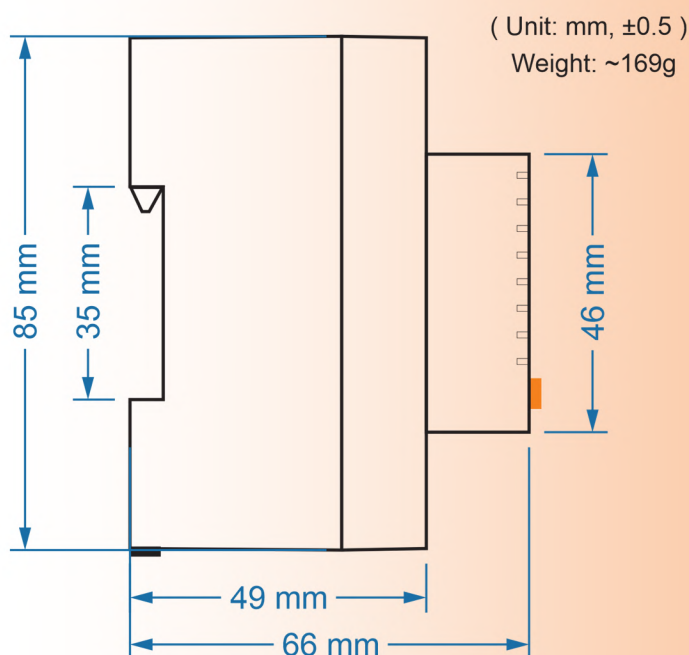
- This product features a backlit LCD display for real-time monitoring of voltage, current, leakage current, and energy consumption.
- It is equipped with a high-precision metering chip 24-bit ADC sampling for accurate measurement.
- It supports adjustable settings for overvoltage, undervoltage, overcurrent, leakage current, and delay time, with cumulative energy monitoring. A one-touch factory reset function is also available.
- When connected to a network, the device supports remote ON/OFF control and real-time monitoring via a mobile app. Parameters such as voltage, current, leakage current, and energy consumption can be monitored in real time.
- Users can configure automatic trip/disconnection functions. Energy statistics can be reset manually or automatically at midnight for daily energy tracking and billing purposes.
- Without requiring additional devices, the unit supports automatic reclosing and provides undervoltage, leakage current, and overcurrent protection.

# Technical Specifications

## Technical Data

|                      |                                      |
|----------------------|--------------------------------------|
| Rated voltage        | AC 220V                              |
| Rated current        | 63A                                  |
| Rated frequency      | 50/60Hz                              |
| Inductive load       | 6kW (Motor type)                     |
| Resistive load       | 13kW (Electric heating and lighting) |
| Power consumption    | < 2W                                 |
| Ambient temperature  | -25°C ~ 65°C                         |
| Humidity             | < 95%                                |
| Installation method  | DIN rail mounting                    |
| Control mode         | Manual / Mobile remote               |
| Device setting       |                                      |
| Overvoltage setting  | 230V–300V, adjustable in 1V steps    |
| Undervoltage setting | 110V–210V, adjustable in 1V steps    |
| Overcurrent setting  | 1A–63A, adjustable in 1A steps       |
| Leakage current      | 10mA–100mA, adjustable in 1mA steps  |
| Delay setting        | 1s–999s, adjustable in 1s steps      |
| Display accuracy     |                                      |
| Voltage              | 1V                                   |
| Current              | 0.1A                                 |
| Leakage              | 1mA                                  |
| Energy               | 0.1 kWh                              |

## Dimension Drawing



## Front-face panel



**iLEC** Brand logo    **CE** Certification supported  
**WiFi** WiFi connectivity supported

**Parameter displayed on the screen**

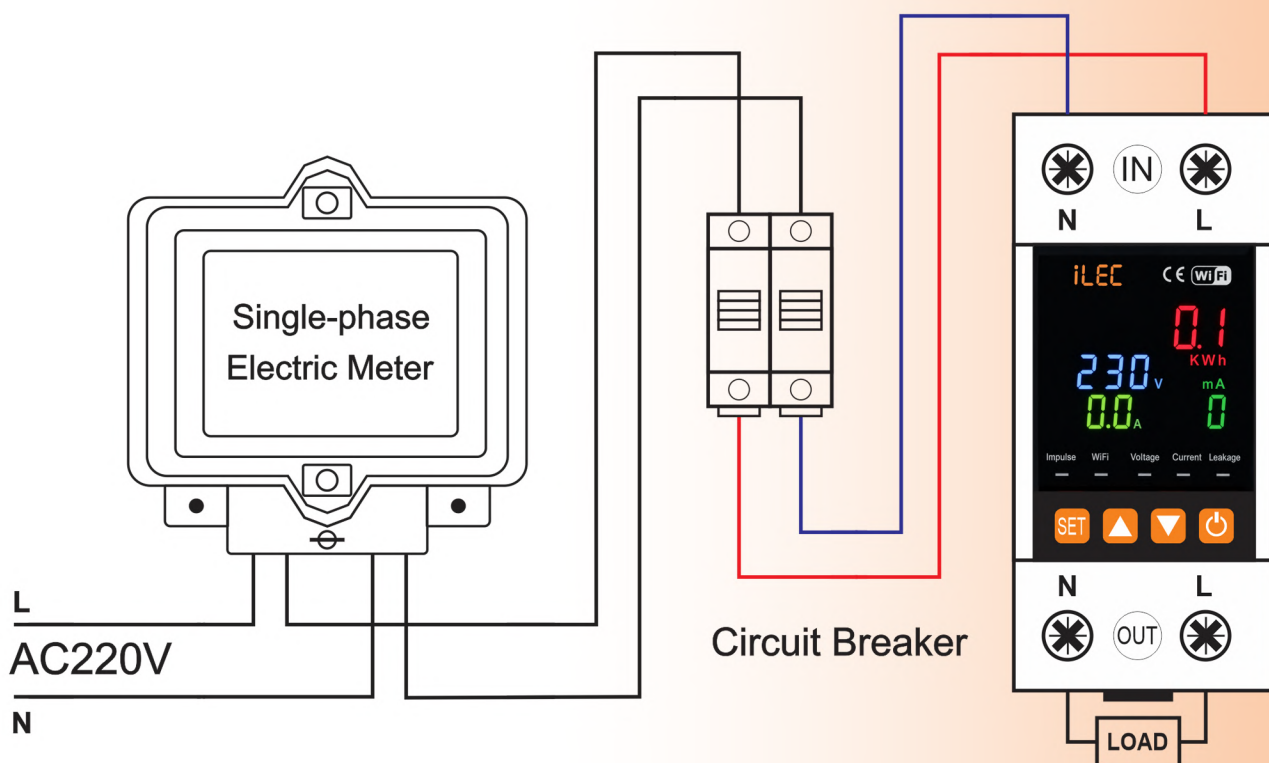
- 230 V : Real-time voltage
- 0.0 A : Real-time load current
- 0.1 kWh : Accumulated energy consumption
- 0 mA : Leakage current value

**Indicator labels**

- Impulse : Energy pulse indicator
- WiFi : WiFi connection status
- Voltage : Voltage display indicator
- Current : Current display indicator
- Leakage : Leakage current indicator

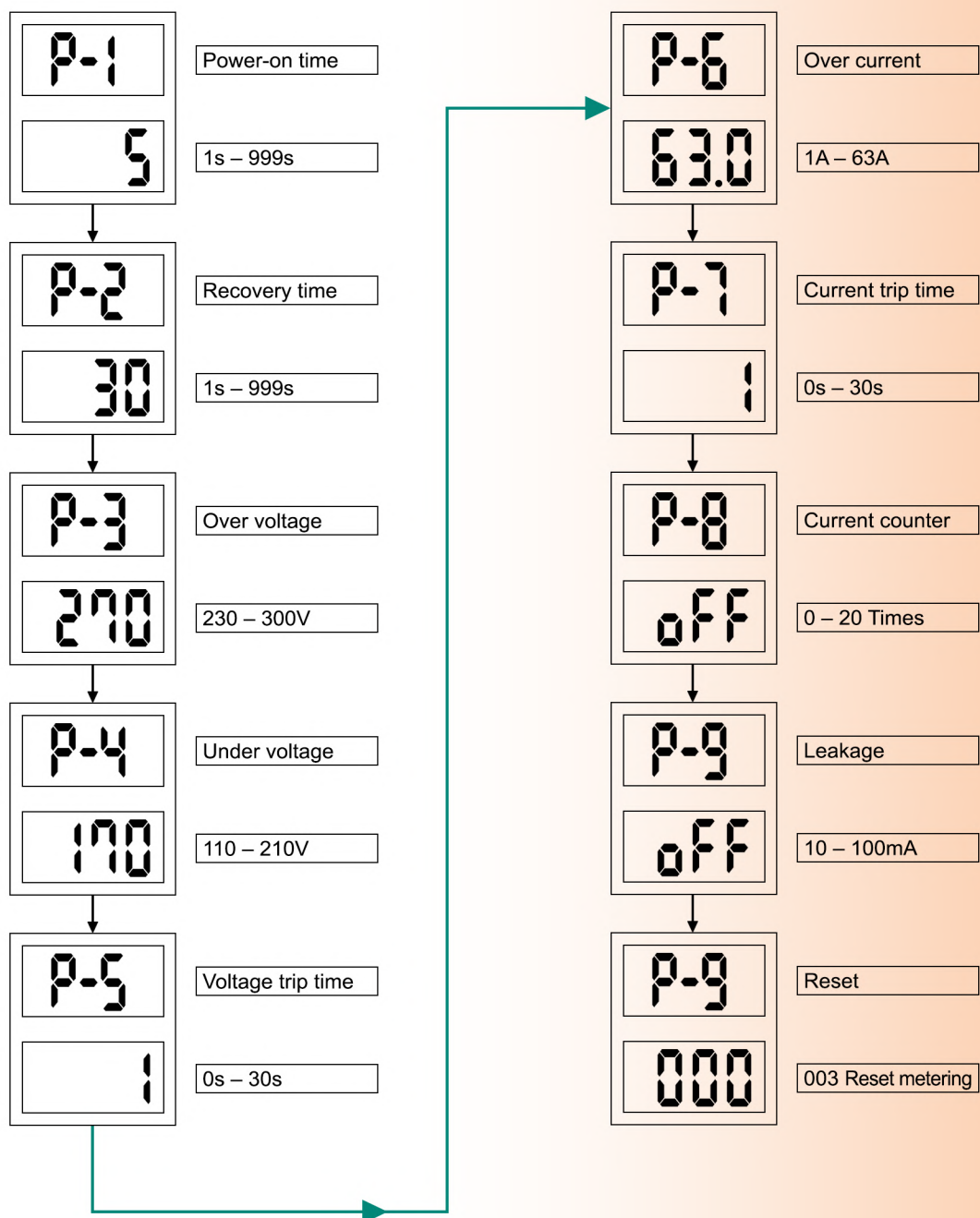
**SET** Parameter setting button    **▲** Up button Adjustment key    **▼** Down button Adjustment key    **⏻** Power ON/OFF Reset button

## Wiring diagram



*This product does not have short-circuit protection.  
 Please use it together with a circuit breaker to prevent fire hazards or unnecessary damage caused by circuit or equipment short circuits.*

## Product Setting



## NETWORK OPERATION

### Mobile Network Operation Instructions



#### 1. Product installation

Connect the device to the power supply and secure it in place.  
Connect the upper terminals to the incoming power supply.  
Connect the lower terminals to the controlled device.  
"N" is the neutral wire, and "L" is the live wire.

Tuya Smart



Scan the QR code to download the app

#### 2. APP/Download the Tuya Smart App

Method 1: Download from major app stores.  
Method 2: Search "Tuya Smart" on Baldu to download the app.  
Method 3: Scan the QR code to download the app.

REGISTER

LOG IN

#### 3. Register and Log In

A. Register an account.  
B. Enter the registered account.  
C. Enter the password.  
D. Tap "Log In".

Add Device

#### 4. APP/Open the Tuya Smart App

Tap the "+" icon on the top-right corner of the app

Select "Add Device".

#### Add Device

Searching for nearby device, please ensure that the devices are in the connected state

MANUAL ADD

#### 5. Enter Network Pairing Mode

Press and hold the device's



button for 5 seconds,

then release to enter pairing mode.

#### Add Device

Searching for nearby device, please ensure that the devices are in the connected state

Device Detection

ADD

#### 6. Device Detection

Tap "Add" on the phone screen.

ADD

#### Enter Wi-Fi Information

Select the working Wi-Fi network for me device and enter the password.



MERCURY\_2422



hn88888888

#### 7. Enter WiFi information

Click on the screen of phone

Enter the account number and password

Click

Tap "Next"

#### Add Device

A device added

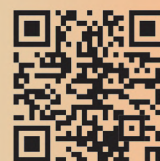


The phone screen will display  
"Smart Recloser Protector  
Added Successfully"

#### 8. Complete Device Addition

Finish

# PROTECTION RELAY



**ILEC ELECTRIC EQUIPMENT CO., LTD**

Address: 76 street No. 20, Tan Binh Industrial Park Expansion, Binh Hung Hoa Ward, HCMC.

Tax code: 0313550072 - Tel: (84-28) 37657746

Email: [admin@ilec.com.vn](mailto:admin@ilec.com.vn) - Website: [ilec.com.vn](http://ilec.com.vn) - Facebook: [ilec.com.vn](http://ilec.com.vn)