CZKE TOVPD1-63-EC

CZKE TOVPD1-63-EC Din Rail Adjustable Over and Under Voltage Protective Device User Manual

Model: TOVPD1-63-EC

1. Introduction

The CZKE TOVPD1-63-EC is an advanced Din Rail mounted protective device designed to safeguard electrical equipment from voltage and current fluctuations. It provides comprehensive protection against over-voltage, under-voltage, and over-current conditions, featuring automatic recovery and real-time voltage and current display. This manual provides detailed instructions for installation, operation, parameter setting, and troubleshooting to ensure safe and effective use of the device.

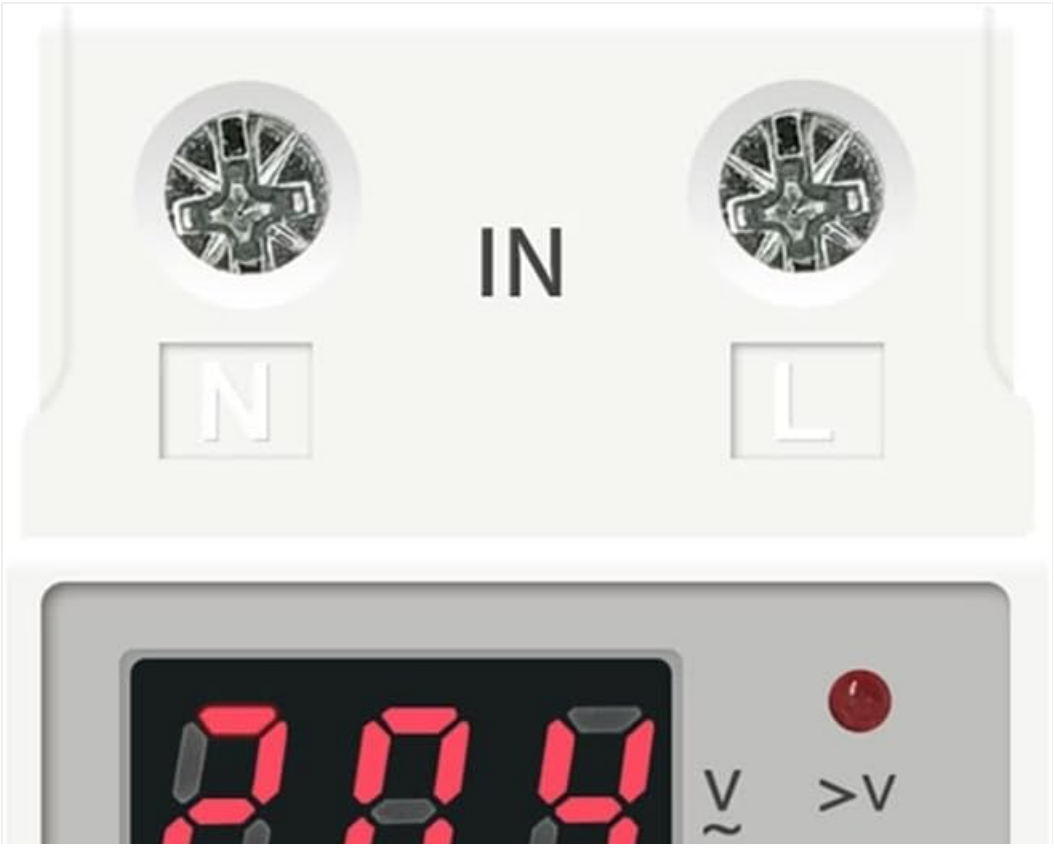

Image 1: Front view of the CZKE TOVPD1-63-EC device. This image displays the digital voltage and current readouts, along with the power indicator and control buttons.

2. Safety Instructions

- **Electrical Hazard:** Installation and maintenance should only be performed by qualified electricians.
- **Power Disconnection:** Always disconnect power to the circuit before installing, wiring, or performing any maintenance on the device.
- **Correct Wiring:** Ensure all wiring connections are secure and follow local electrical codes and the wiring diagram provided. Incorrect wiring can lead to device malfunction, damage, or electrical shock.
- **Operating Environment:** Do not expose the device to moisture, extreme temperatures, or corrosive environments.
- **Rated Parameters:** Do not exceed the maximum rated voltage and current of the device.

3. Product Features

The TOVPD1-63-EC device offers a range of protective and monitoring features:

- **Over-voltage Protection:** Automatically disconnects power when voltage exceeds a set limit.
- **Under-voltage Protection:** Automatically disconnects power when voltage drops below a set limit.
- **Over-current Protection:** Automatically disconnects power when current exceeds a set limit.
- **Automatic Recovery:** Restores power automatically after voltage or current returns to normal range and a set delay time.
- **Voltage Display:** Real-time display of the measured voltage.
- **Current Display:** Real-time display of the measured current.
- **Voltage Calibration:** Allows for fine-tuning of voltage readings (±10% adjustable).
- **Fault Inquiry:** Provides access to recent fault records.
- **Factory Reset:** Option to restore all parameters to default settings.

Image 2: Function button display. This image highlights the Volt Display, Current Display, Over Voltage, Under Voltage, Over Current, Power indicator, Set button, and Adjustment keys.

4. Setup

4.1. Installation

The TOVPD1-63-EC is designed for 35mm DIN rail installation.

1. Ensure the main power supply is OFF before installation.
2. Mount the device securely onto a standard 35mm DIN rail in your electrical panel.

Image 3: Device mounted on a DIN rail. This image shows the device's compatibility with standard DIN rail systems for easy installation in electrical enclosures.

4.2. Wiring

Connect the device according to the following instructions:

- **IN Terminals:** Connect the incoming 230VAC 50/60Hz power supply to the 'IN' terminals (N for Neutral, L for Live).
- **OUT Terminals:** Connect the load (equipment to be protected) to the 'OUT' terminals.
- Ensure all connections are tight and properly insulated.

5. Operating Instructions

5.1. Power On

After successful installation and wiring, turn on the main power supply. The device will perform a self-test, and after the power-on delay time (default 10s), it will display the current voltage and current readings. The 'POWER' indicator will illuminate.

5.2. Display Readings

- The upper digital display shows the real-time voltage (V).
- The lower digital display shows the real-time current (A).

5.3. Button Functions

The device features three control buttons:

- **Power Button ( ):** Toggles the output power ON/OFF manually.
- **SET Button:** Enters parameter setting mode. Press and hold to save settings.
- **Up Button (▲):** Increases parameter values or navigates through settings. Press and hold for more than 12 seconds to initiate Fault Inquiry.
- **Down Button (▼):** Decreases parameter values or navigates through settings. Press and hold for more than 12 seconds to restore Factory Settings.

6. Parameter Settings

To adjust protection parameters, follow these steps:

1. Press the **SET** button briefly to enter the parameter setting mode. The first parameter will flash.
2. Use the **Up (▲)** and **Down (▼)** buttons to adjust the value of the flashing parameter.
3. Press the **SET** button again briefly to move to the next parameter.
4. Once all desired parameters are set, press and hold the**SET** button for approximately 3 seconds to save the settings and exit the setting mode.

Image 4: Adjustable protection values. This image illustrates the concept of adjusting over/under voltage and over current protection values according to specific electricity demands.

6.1. Adjustable Parameters

Parameter	Description	Range	Default (80A Model)
Over-voltage Protection Value	Voltage threshold for over-voltage disconnection.	230V ~ 300V ~ OFF	270V
Over-voltage Recovery Voltage	Voltage at which power is restored after over-voltage.	225V ~ 295V	250V
Over-voltage Action Time	Delay before disconnecting on over-voltage.	0.1s ~ 30s	0.5s
Over-voltage Recovery Delay Time	Delay before restoring power after over-voltage clears.	1s ~ 500s	30s

Parameter	Description	Range	Default (80A Model)
Under-voltage Protection Value	Voltage threshold for under-voltage disconnection.	140V ~ 210V ~ OFF	170V
Under-voltage Recovery Voltage	Voltage at which power is restored after under-voltage.	145V ~ 215V	190V
Under-voltage Action Time	Delay before disconnecting on under-voltage.	0.1s ~ 30s	0.5s
Under-voltage Recovery Delay Time	Delay before restoring power after under-voltage clears.	1s ~ 500s	30s
Over-current Adjustment Range	Current threshold for over-current disconnection.	1A ~ 63A	40A
Over-current Action Time	Delay before disconnecting on over-current.	0.1s ~ 30s	0.5s
Over-current Recovery Delay Time	Delay before restoring power after over-current clears.	1s ~ 500s	30s
Power-on Delay Time	Delay before output power is supplied after device powers on.	1s ~ 500s	10s
Voltage Calibration (A13)	Adjusts voltage reading accuracy.	±9.5%	0%
Current Limit Times (A14)	Number of times over-current protection can trip before locking out.	1 ~ 20 times / OFF	OFF

6.2. Restore Factory Settings

To restore all parameters to their default factory settings, press and hold the**Down (▼)** button for more than 12 seconds.

7. Troubleshooting

- **Device not powering on:** Check the main power supply and wiring connections to the 'IN' terminals.
- **No output power:**
  - Check if the device is in a protection state (e.g., over-voltage, under-voltage, over-current indicators lit).
  - Verify that the power-on delay time has elapsed.
  - Ensure the output is not manually turned off by the power button.
- **Incorrect voltage/current readings:** Consider performing a voltage calibration (A13) if readings are consistently off.
- **Frequent tripping:** Review your set protection parameters (over-voltage, under-voltage, over-current) to ensure they are appropriate for your electrical system and load.

7.1. Fault Inquiry

To inquire about recent fault conditions, press and hold the**Up (▲)** button for more than 12 seconds. The device will display codes or values related to the last triggered protection event.

8. Specifications

Parameter	Value
Model Number	TOVPD1-60-EC (Note: Product variant is 80A)
Power Supply	230VAC 50/60Hz
Max. Loading Power	1~63A Adjustable (Default: 63A for 63A model, 80A for 80A model)
Power Consumption	< 2W
Electric Machinery Life	100,000 times
Installation	35mm DIN rail
Item Weight	1.1 pounds

9. Maintenance

The CZKE TOVPD1-63-EC is designed for minimal maintenance. Periodically inspect the device and its connections for any signs of damage, loose wiring, or overheating. Ensure the ventilation slots (if any) are clear of dust and debris. Cleaning should be done with a dry, soft cloth. Do not use abrasive cleaners or solvents.

10. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase. Do not attempt to repair the device yourself, as this may void the warranty and pose safety risks.