Fafeicy WEL3005

Fafeicy WEL3005 Electronic Load Module Instruction Manual

Model: WEL3005

1. Introduction

This manual provides detailed instructions for the safe and effective operation of the Fafeicy WEL3005 Electronic Load Module. The WEL3005 is a versatile electronic power supply module designed for applications such as power aging tests and battery discharge, featuring adjustable constant current and a color display for clear readings.

2. Safety Information

Please read and understand all safety instructions before operating the device. Failure to follow these instructions may result in electric shock, fire, or damage to the product.

- Ensure the module's supply voltage is within the specified range of 6V-30V.
- Do not exceed the maximum discharge power of 30W. Overpowering can damage the module.
- Verify correct wiring connections before applying power to prevent damage to the module or connected devices.
- Operate the module in a well-ventilated area to prevent overheating. The fan will activate at temperatures above 45°C.
- Avoid contact with live circuits.
- This device is intended for professional use.

3. Product Overview

The Fafeicy WEL3005 Electronic Load Module features a compact design with a color display and intuitive controls. Key components include the display screen, control buttons, rotary encoder, and cooling fan.



Figure 3.1: Labeled diagram of the WEL3005 Electronic Load Module, indicating the P1/P2 interface switch, setting menu button, on/off key and adjustment data rotary encoder, and internal resistance measurement display area.

- **Color Display:** Provides real-time readings of voltage, current, power, capacity, energy, resistance, and temperature.
- **P1/P2 Buttons:** Used to switch between different interfaces or preset functions.
- **SET Button:** Accesses the setting menu for parameter configuration.
- **Rotary Encoder:** Used for adjusting data values and as an on/off key.
- **LOCK Button:** Locks the current settings to prevent accidental changes.
- **Cooling Fan:** Automatically activates to dissipate heat and maintain optimal operating temperature.

4. Specifications

Parameter	Value
Module Supply Voltage	6V-30V
Measuring Voltage	0-30V
Discharge Current	0A-5A (Continuously Adjustable)
Discharge Power	Up to 30W
Working Temperature	-10°C to +75°C

Parameter	Value
Voltage Resolution	0.01V
Current Resolution	0.001A
Voltage Accuracy	1% ± 1 digit
Current Accuracy	1% ± 1 digit
Undervoltage Protection	Yes (Adjustable 1.5-30V)
Over Power Protection	Yes (Adjustable 1-30W)
Overheat Protection	Yes (Fan starts > 45°C, Overheat at 75°C)
Input Anti-Reverse Protection	Yes
Fan Type	4010 Double Roller Fan, 8000 RPM
Module Size	Approx. 79 x 43 x 70mm / 3.1 x 1.7 x 2.8in
Hole Opening Size	Approx. 76 x 39mm / 3 x 1.5in

5. Setup

5.1 Wiring Method

Proper wiring is crucial for the correct operation and safety of the module. Refer to the diagram below for connection points.

- **Small Screen Printing B+B-:** These terminals are for measuring the voltage of the power source or battery under test.
- **Large Screen Printing B+B-:** These terminals are for measuring the discharge current. Connect the load to these terminals.
- Ensure polarity is correct (B+ for positive, B- for negative) to utilize the input anti-reverse protection effectively.



Figure 5.1: Rear view of the WEL3005 module, illustrating the wiring terminals for voltage and current measurement, and the integrated cooling fan.



Figure 5.2: Angled view of the WEL3005 module, providing a clearer perspective of the connection points and the heatsink assembly.

6. Operating Instructions

6.1 Power On/Off

To power on the module, ensure all connections are secure and apply the module supply voltage (6V-30V). The display will illuminate. To power off, disconnect the supply voltage.

6.2 Display Overview

The color display provides comprehensive real-time data during operation.



Figure 6.1: Front view of the WEL3005 module, displaying real-time voltage (U), current (I), power (P), capacity (Ah), energy (Wh), resistance (R), and temperature (T).

- **U:** Measured Voltage (V)
- **I:** Measured Current (A)
- **P:** Calculated Power (W)
- **Ah:** Accumulated Amp-hours (Capacity)
- **Wh:** Accumulated Watt-hours (Energy)
- **R:** Internal Resistance (mΩ) - if applicable
- **T:** Module Temperature (°C)

6.3 Adjusting Discharge Current

The discharge current can be continuously adjusted from 0A to 5A using the rotary encoder. Rotate the knob clockwise to increase the current and counter-clockwise to decrease it. Press the rotary encoder to confirm selections or toggle settings.

6.4 Setting Protection Parameters

Press the **SET** button to enter the parameter setting menu. Use the rotary encoder to navigate through options and adjust values for undervoltage protection (1.5-30V) and overpower protection (1-30W). Press **SET** again or the rotary encoder to save changes and exit the menu.

6.5 Locking Settings

Press the **LOCK** button to prevent accidental changes to the current settings. Press it again to unlock.

7. Features

- **Multifunctional Protection:** Includes undervoltage, overpower, and overheat protection mechanisms to ensure safe operation and longevity of the module and connected devices.
- **High Power & Accuracy:** Capable of handling up to 30W discharge power with a continuously adjustable current from 0A to 5A, offering high accuracy for precise testing.
- **Durable Construction:** Built with quality electronic components and precision manufacturing processes for enhanced durability and reliable performance.
- **Wide Application:** Suitable for various applications including decoration and construction, hydropower engineering, power aging tests, and battery discharge analysis.
- **Clear Color Display:** Equipped with a vibrant color screen that provides clear and easy-to-read measurements and operational status.

8. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the module's exterior. Do not use liquid cleaners or solvents.
- **Ventilation:** Ensure the cooling fan and heatsink fins are free from dust and obstructions to maintain efficient heat dissipation. The fan automatically starts when the module temperature exceeds 45°C.
- **Storage:** Store the module in a cool, dry place away from direct sunlight and extreme temperatures when not in use.



Figure 8.1: Side view of the WEL3005 module, highlighting the cooling fan and heatsink assembly responsible for thermal management.

9. Troubleshooting

Problem	Possible Cause	Solution
Module not powering on	Incorrect supply voltage (outside 6V-30V); faulty wiring; power supply issue.	Verify supply voltage is within range. Check all wiring connections for correctness and security. Test the power supply.
Discharge current not adjustable or unstable	Load not connected properly; rotary encoder issue; internal fault.	Ensure the load is correctly connected to the large screen printing B+B- terminals. Check for any physical damage to the rotary encoder. If problem persists, contact support.
Overpower protection (OPP) triggered	Discharge power exceeds 30W limit or set OPP value.	Reduce the discharge current or voltage to keep power below 30W. Adjust the OPP setting if necessary, but do not exceed 30W.
Undervoltage protection (UVP) triggered	Measured voltage drops below the set UVP value.	Check the power source or battery being discharged. Adjust the UVP setting if a lower voltage threshold is required.
Overheat protection triggered / Fan not working	Module temperature exceeds 75°C; fan obstructed or faulty.	Ensure adequate ventilation around the module. Clean any dust or obstructions from the fan and heatsink. If the fan is not spinning above 45°C, it may be faulty.

10. Package Contents

The package for the Fafeicy WEL3005 Electronic Load Module includes:

- 1 x Electronic Load Module (WEL3005)

11. Warranty and Support

Fafeicy products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please refer to the seller's policy or visit the official Fafeicy brand store.
Official Fafeicy Brand Store: Fafeicy Store on Amazon