Fafeicy HW-0516

Fafeicy HW-0516 Programmable Cycle Timer Relay Module Instruction Manual

1. Product Overview

The Fafeicy HW-0516 is a versatile programmable cycle timer relay module designed for controlling various DC electrical devices. It features a digital LED display for easy programming and real-time monitoring of timer settings. This module is suitable for a wide range of automation equipment and DIY projects, offering flexible control over on/off cycles and delay times.

2. Key Features

- **Programmable Flexibility:** Allows for customizable on/off cycles and delay times to automate various DC electrical devices.
- **Clear LED Interface:** Features an intuitive LED display for easy programming and real-time monitoring of timer settings.
- **Wide Voltage Range:** Operates on a broad DC input from 5V to 36V, making it suitable for diverse low-voltage projects.
- **Reliable Switching:** Utilizes a dual MOS design for lower resistance, capable of handling continuous currents up to 15A (up to 30A with enhanced heat dissipation).
- **Versatile Control:** Ideal for managing DC motors, LED lights, solenoid valves, pumps, and other electronic equipment.

3. Specifications

Parameter	Value
Operating Voltage	DC 5V to 36V
Trigger Signal Source	High voltage level (3.0V to 24V)

Parameter	Value
Output Capacity	DC 5V to 36V, 15A continuous (400W), 30A with enhanced heat dissipation
Quiescent Current	20mA
Operating Current	50mA
Working Temperature	-40°C to 85°C
Time Delay Range	0.1 seconds to 999 minutes
Dimensions (L x W x H)	60mm x 34mm x 12mm (2.36" x 1.33" x 0.47")
Material	Metal, Plastic
Item Weight	0.317 ounces

4. Product Components and Layout

The HW-0516 module features a compact design with clearly labeled components for easy integration and operation.

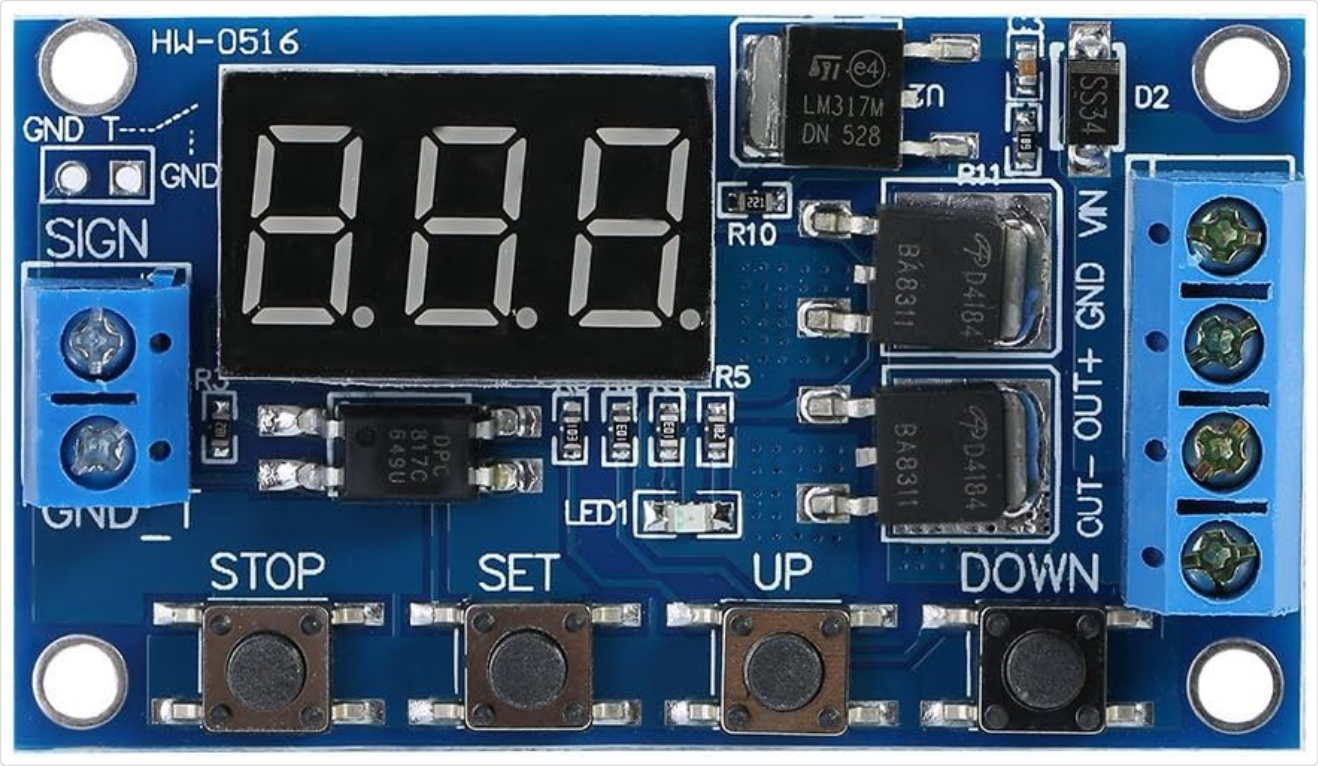


Figure 1: Top view of the Fafeicy HW-0516 module, showing the LED display, control buttons, and terminal blocks.

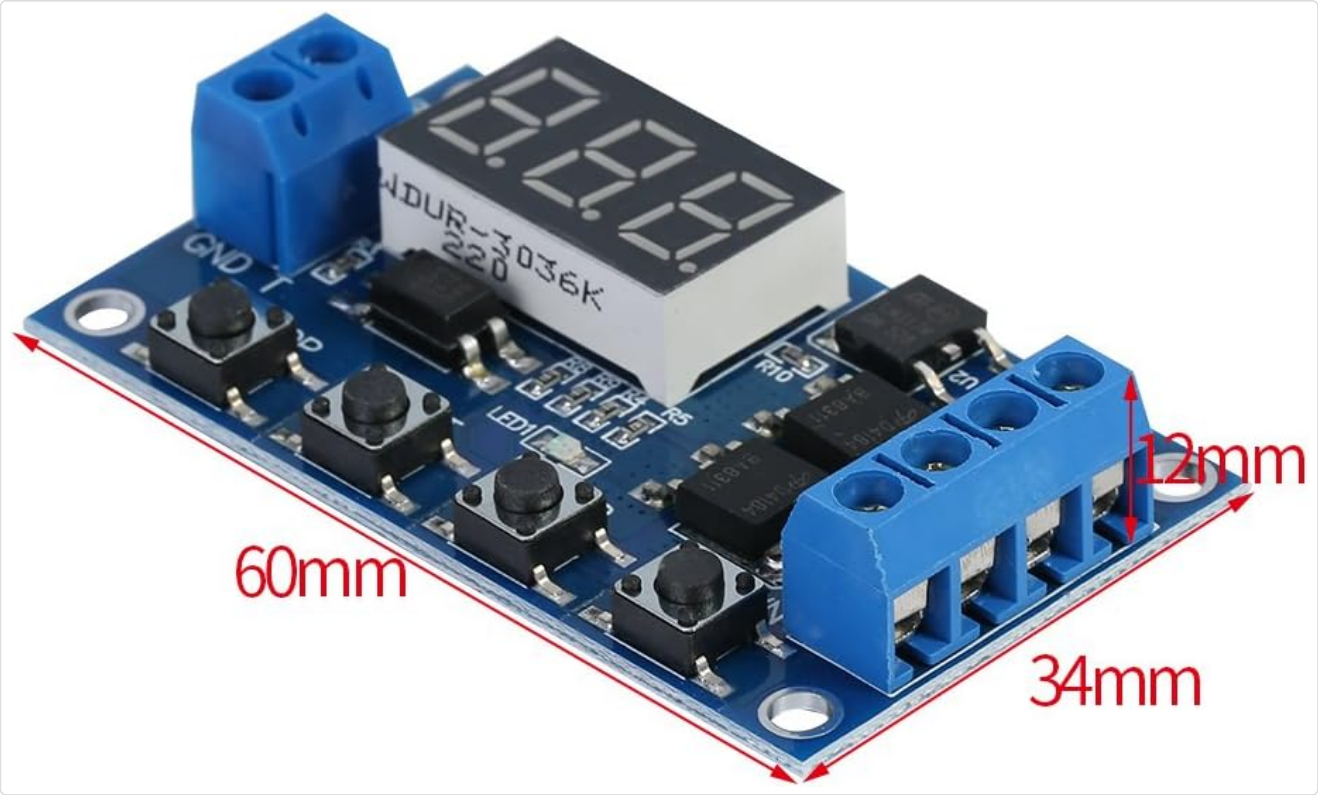


Figure 2: Physical dimensions of the HW-0516 module, indicating its compact size.

Control Buttons:

- **STOP:** Stops or starts the timer function.
- **SET:** Enters/exits programming mode and selects parameters.
- **UP (+):** Increases numerical values or navigates options.
- **DOWN (-):** Decreases numerical values or navigates options.

Terminals:

- **VIN** / **GND:** Power input terminals (DC 5V-36V).
- **OUT+** / **OUT-** / **GND:** Load output terminals (DC 5V-36V).
- **SIGN** / **GND T:** Trigger signal input terminals (DC 3V-24V).

5. Setup and Wiring

Proper wiring is crucial for the safe and correct operation of the module. Refer to the wiring diagram below for connections.

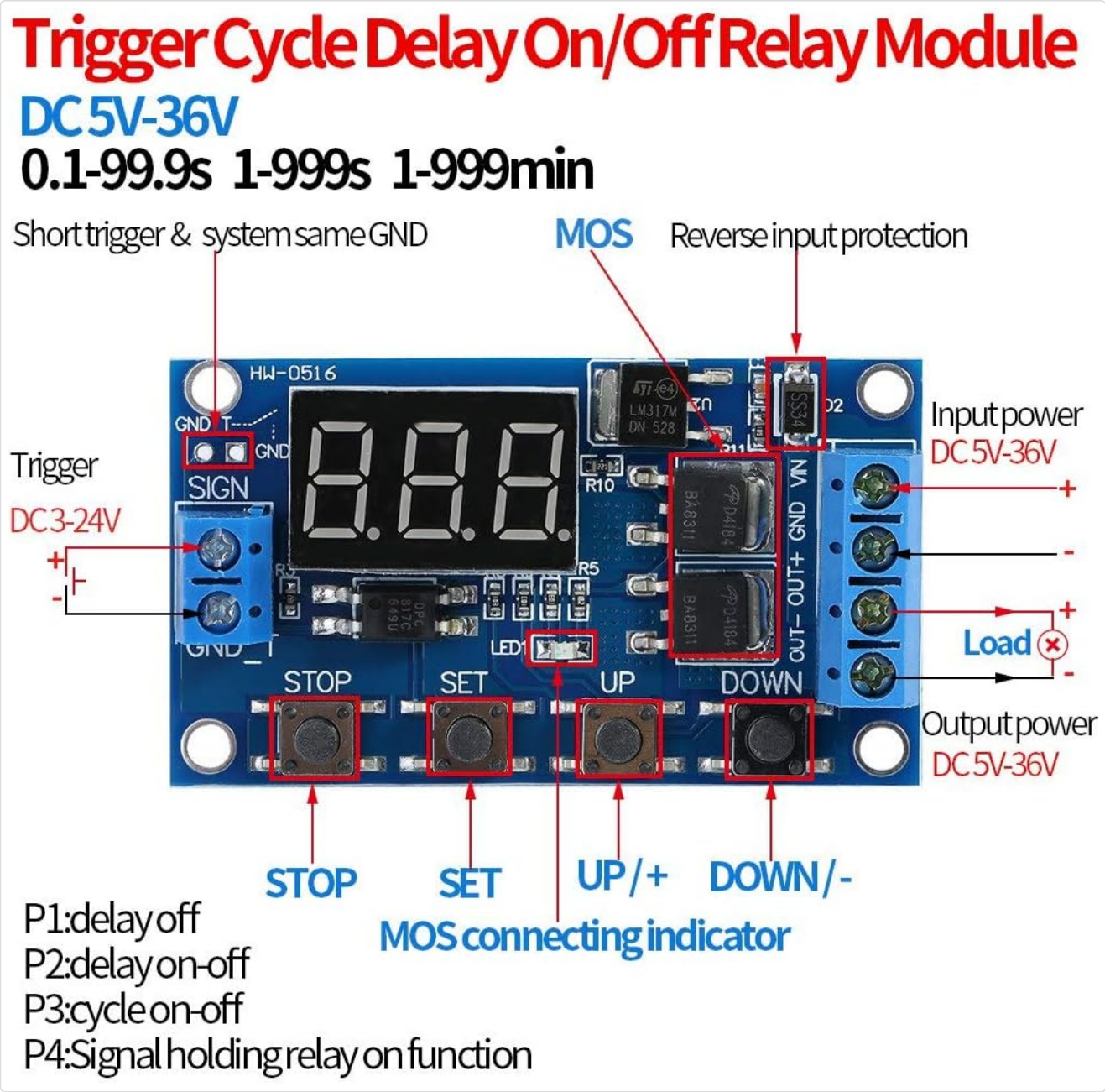


Figure 3: Detailed wiring diagram and button function overview for the HW-0516 module.

Wiring Steps:

1. **Power Input:** Connect your DC 5V-36V power supply to the **VIN** (positive) and **GND** (negative) terminals on the right side of the module. Ensure correct polarity.
2. **Load Connection:** Connect your DC load (e.g., motor, LED strip) to the **OUT+** (positive) and **OUT-** (negative) terminals. The output voltage will be the same as the input voltage.
3. **Trigger Signal:** If using an external trigger, connect the positive trigger signal (DC 3V-24V) to the **SIGN** terminal and the negative/ground of the trigger source to the **GND T** terminal on the left side. Note that the trigger signal ground and system ground are isolated to improve anti-jamming capability, but can be connected to a common ground if desired.
4. **Initial Power-Up:** After wiring, apply power. The LED display should light up, indicating the current operating mode or a default setting.

> **Caution:** Always ensure power is disconnected before making or changing any wiring connections to prevent damage to the module or connected devices.

6. Operating Instructions

The module operates in various modes, each with specific timing logic. Programming involves selecting a mode and setting time parameters.

6.1. Display Modes and Time Units

- In normal operation, the display shows the current time value.
- **Time Unit Selection:** In parameter setting mode, a short press of the **SET** button cycles through time units:
  - **XXX.** (decimal point in the hundred's place): 0.1 seconds to 99.9 seconds
  - **XX.X** (decimal point in the ten's place): 1 second to 999 seconds
  - **X.X.X** (no decimal point): 1 minute to 999 minutes

6.2. Entering and Exiting Programming Mode

1. **Enter Programming Mode:** Long press the **SET** button for approximately 3 seconds. The display will show the current operating mode (e.g., P1.1).
2. **Select Operating Mode:** Use the **UP** and **DOWN** buttons to cycle through the available operating modes (P1.1 to P4).
3. **Enter Parameter Setting:** Once the desired mode is displayed, short press the **SET** button to enter parameter setting for that mode. The display will flash, indicating the parameter can be adjusted.
4. **Adjust Parameters:** Use the **UP** and **DOWN** buttons to change the time value. Short press **SET** to change the time unit (seconds, 0.1 seconds, minutes).
5. **Save and Exit:** After setting all parameters for the chosen mode, long press the **SET** button for approximately 3 seconds to save the settings and exit programming mode. The module will return to its normal operating state.

6.3. Operating Modes (P1-P4)

The module supports four main operating modes, each with distinct timing logic:

- **P1: Delay OFF (Trigger ON, Delay OFF)**
  When a trigger signal is received, the relay turns ON. After a set delay time (OP), the relay turns OFF. If the trigger signal is removed during the delay, the timer resets.
- **P2: Delay ON (Trigger ON, Delay ON, then OFF)**
  When a trigger signal is received, the relay remains OFF for a set delay time (OP), then turns ON. After another set delay time (CL), the relay turns OFF. If the trigger signal is removed during the delay, the timer resets.
- **P3: Cycle ON-OFF (Trigger ON, Cycle Starts, then OFF)**
  When a trigger signal is received, the relay turns ON for a set time (OP), then OFF for a set time (CL). This cycle repeats for a specified number of times (LOP). After all cycles are complete, the relay turns OFF. If the trigger signal is removed during the cycle, the timer resets.
- **P4: Signal Holding Relay ON (Trigger ON, Relay ON, Trigger OFF, Relay OFF after Delay)**
  When a trigger signal is received, the relay turns ON. The relay remains ON as long as the trigger signal is present. When the trigger signal is removed, the relay remains ON for a set delay time (OP), then turns OFF. If the trigger signal is re-applied during the delay, the timer resets and the relay stays ON.

6.4. STOP Button Functionality

- A short press of the **STOP** button in normal operating mode will toggle the relay output ON or OFF.

- When the relay is OFF (indicated by 'OFF' on the display), the module is in a low-power state.
- Pressing **STOP** again will reactivate the module and resume its programmed function.

7. Maintenance

To ensure the longevity and reliable performance of your Fafeicy HW-0516 module, follow these maintenance guidelines:

- **Cleaning:** Keep the module free from dust and debris. Use a soft, dry cloth for cleaning. Avoid using liquids or abrasive cleaners.
- **Environment:** Operate the module within its specified working temperature range (-40°C to 85°C). Avoid exposure to extreme humidity, direct sunlight, or corrosive environments.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion. Loose connections can lead to intermittent operation or damage.
- **Heat Dissipation:** If operating at higher currents (above 15A), ensure adequate heat dissipation is provided, such as a heatsink or proper ventilation, to prevent overheating.

8. Troubleshooting

If you encounter issues with your HW-0516 module, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Module does not power on / Display is blank	No power supply; Incorrect voltage; Reverse polarity; Loose connection.	Check power supply (5V-36V DC). Verify correct polarity. Ensure all power connections are secure.
Relay does not activate/deactivate as expected	Incorrect operating mode selected; Incorrect time parameters; Faulty trigger signal; Load exceeding capacity.	Review and re-program the operating mode (P1-P4) and time settings. Verify the trigger signal is within 3V-24V. Check if the load current exceeds 15A (or 30A with heatsink).
Display shows 'OFF' and module is unresponsive	Module is in STOP mode.	Press the **STOP** button once to reactivate the module.
Module gets excessively hot	Load current is too high; Insufficient ventilation.	Reduce the load current or provide enhanced heat dissipation (e.g., heatsink, fan). Ensure proper airflow around the module.

9. Support

For further assistance or inquiries regarding the Fafeicy HW-0516 Programmable Cycle Timer Relay Module, please visit the official Fafeicy store or contact their customer support.

Fafeicy Store: https://www.amazon.com/stores/Fafeicy/page/474860D8-20D1-45E5-B359-95F73FEDCEA4

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