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› Wengart TBT7-C1 Delay Time Relay Instruction Manual

WENGART TBT7-C1

Wengart TBT7-C1 Delay Time Relay Instruction Manual

Model: TBT7-C1 | Brand: WENGART

1. INTRODUCTION

The Wengart TBT7-C1 is a single-function time delay relay designed for industrial automation control and building electrical control systems. It utilizes electronic circuits to output a control signal after a preset time, enabling delayed control of loads. This relay's flexible delay control function makes it crucial in various scenarios requiring delayed operations, enhancing system automation and reliability.

This device offers a wide delay setting range from 0.1 seconds to 10 days, adjustable via panel knobs. It features LED indicator lights for clear operational status, simplifying troubleshooting and maintenance. The standard 18mm width design allows for easy installation on industry-standard 35mm DIN rails, saving space. With a universal power supply design, it operates with AC or DC voltages from 12V to 240V, adapting to diverse electrical environments.

2. PRODUCT OVERVIEW

The Wengart TBT7-C1 Delay Time Relay features clearly labeled components for easy identification and operation.

Product introduction

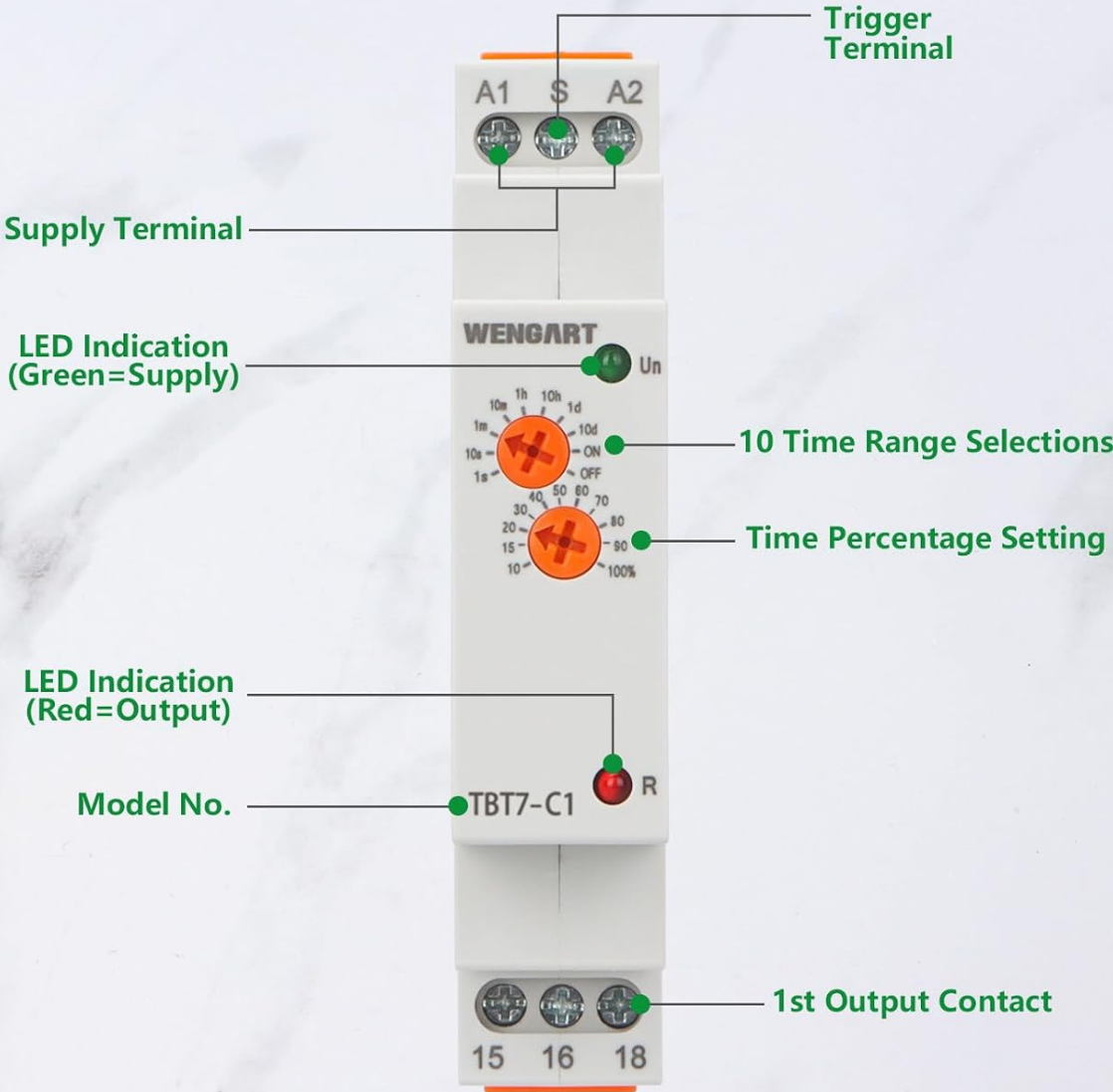


Figure 2.1: Front view of the TBT7-C1 relay with key components labeled. These include the Trigger Terminal (A1, A2), Supply Terminal, Green LED (Supply Indication), Red LED (Output Indication), Time Range Selection knob, Time Percentage Setting knob, Model Number (TBT7-C1), and 1st Output Contact terminals (15, 16, 18).

The relay provides Single Pole Double Throw (SPDT) switching output, including Normally Open (NO), Normally Closed (NC), and Common (COM) terminals, offering flexible use for various circuit switching applications.

3. SPECIFICATIONS

Feature	Specification
Rated Voltage	AC/DC 12-240V
Output Configuration	1 SPDT (Single Pole Double Throw)
Time Setting Range	0.1 seconds to 10 days
Rated Current (AC1)	1 x 16A

Feature	Specification
Mechanical Life	10 million operations
Electrical Life (AC1)	100,000 operations
Connector Type	Compression
Contact Material	Silver Palladium
Mounting Type	35mm DIN Rail Mount
Operation Mode	Automatic
Contact Current Rating	16 Amperes
Minimum Switching Voltage	12V (DC)
Product Weight	77 grams
Product Type	Delay Timer Relay
Model Number	TBT7-C1

Product Size

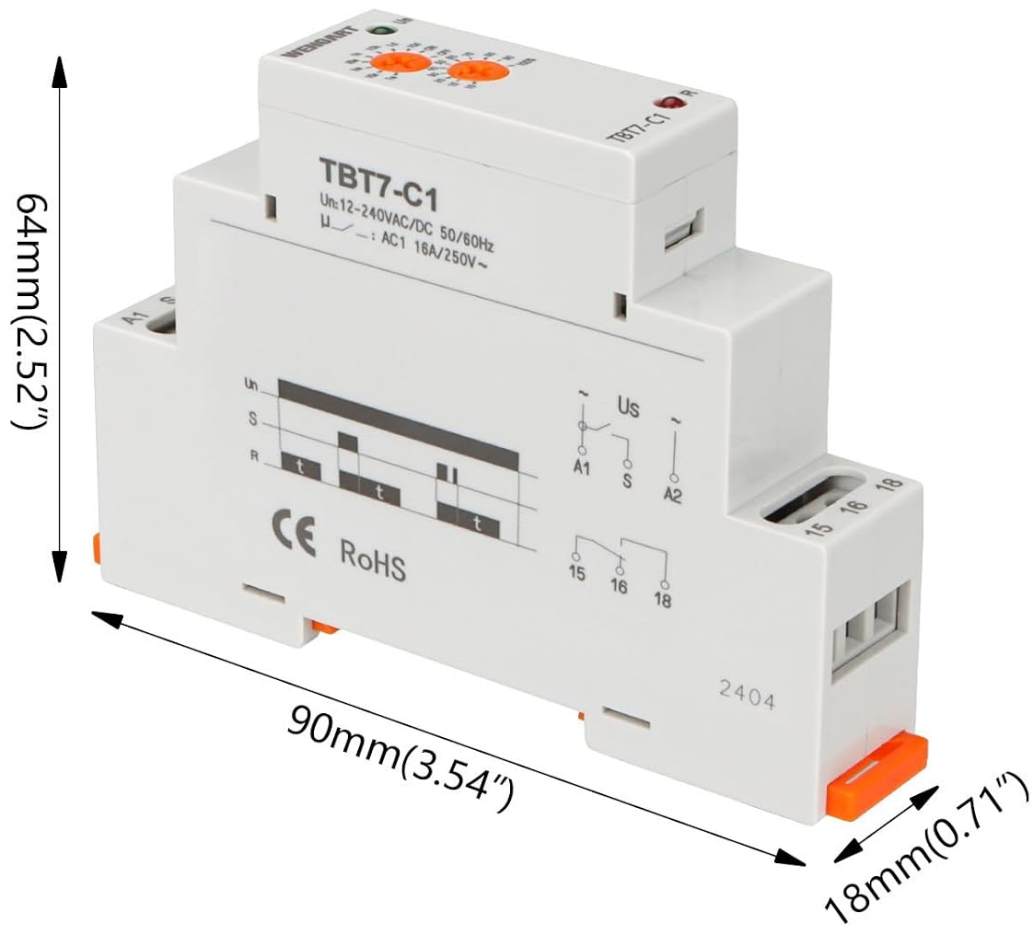


Figure 3.1: Product dimensions of the TBT7-C1 relay, showing measurements of 64mm (height), 90mm (depth), and 18mm (width).

4. SETUP

4.1. Mounting

The TBT7-C1 relay is designed for easy installation on a 35mm DIN rail. Ensure the rail is securely fastened in a suitable enclosure or panel.

Rail mounting

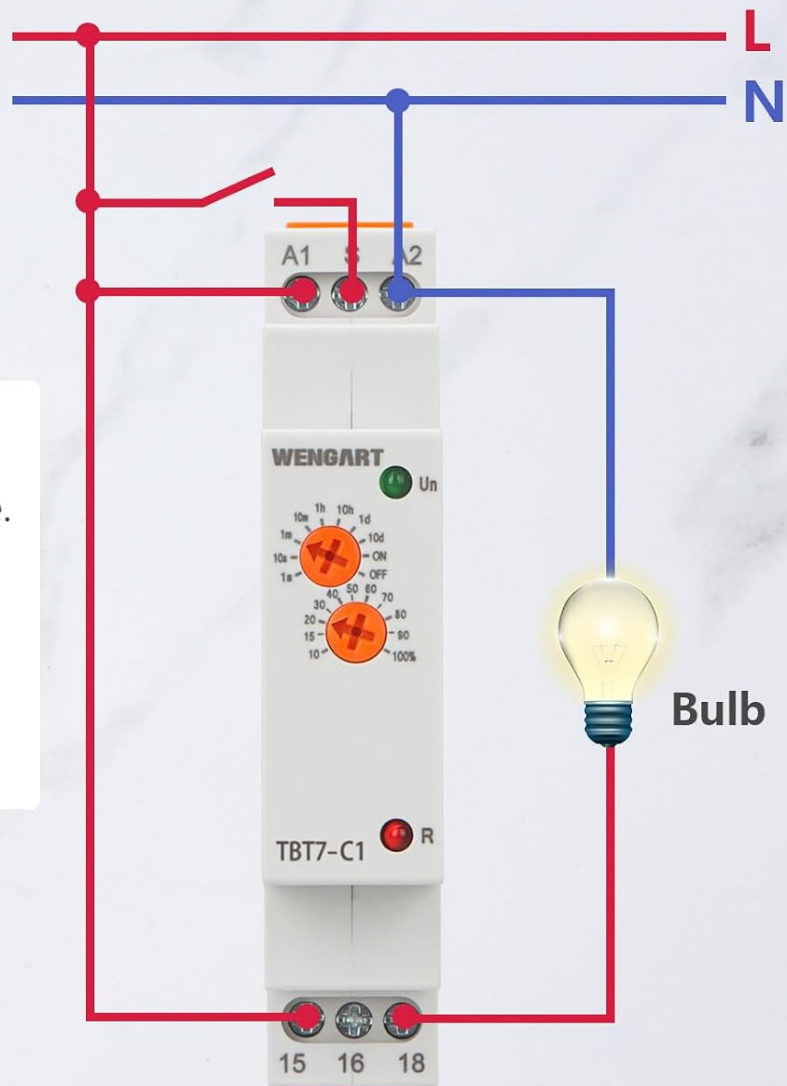


Figure 4.1: The TBT7-C1 relay securely mounted on a standard DIN rail, demonstrating its compact and space-saving design.

4.2. Wiring

Refer to the wiring diagram for correct electrical connections. Ensure all power is disconnected before wiring to prevent electrical shock.

Wiring diagram



Take power supply voltage and load voltage. 220V as an example
S can contact the signal to realize the reset function Reset Bulb.

Figure 4.2: Wiring diagram for the TBT7-C1 relay. L and N represent the live and neutral power supply. A1 and A2 are the control terminals for the relay coil. S is the signal input for the reset function. Terminals 15, 16, and 18 are the SPDT output contacts (15=Common, 16=Normally Closed, 18=Normally Open). The example shows a bulb connected to the output for delayed control.

- Connect the power supply (L and N) to the appropriate terminals.
- Connect the control signal to terminals A1 and A2.
- For the reset function, connect the signal to terminal S.
- Connect the load to the output terminals (15, 16, 18) as required for your application. For a Normally Open (NO) connection, use 15 and 18. For a Normally Closed (NC) connection, use 15 and 16.

5. OPERATING INSTRUCTIONS

5.1. Time Adjustment

The delay time is set using two rotary knobs on the front panel.

Knob adjustment

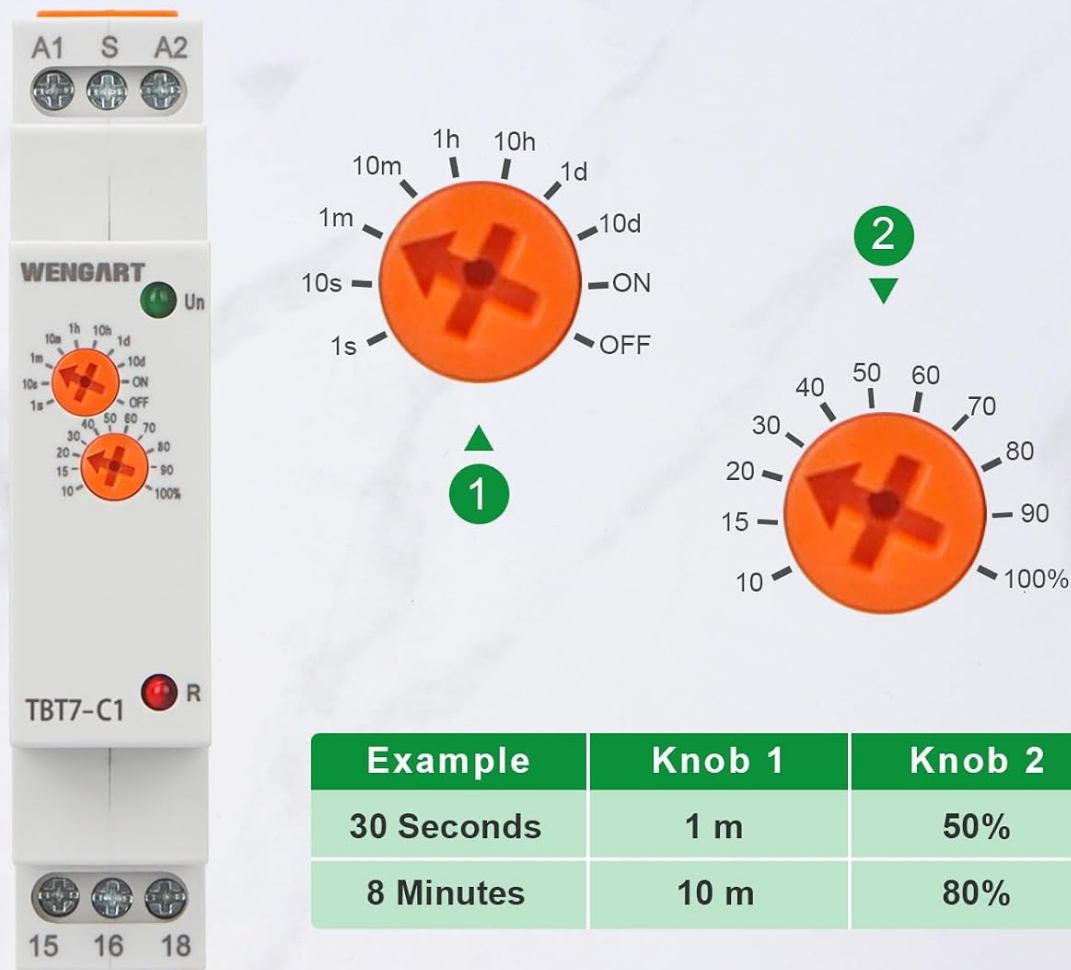


Figure 5.1: The two adjustment knobs on the TBT7-C1 relay. Knob 1 selects the time range (e.g., 1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d, ON, OFF). Knob 2 sets the percentage of that selected time range (10% to 100%).

- **Knob 1 (Time Range Selection):** Select the desired time unit (seconds, minutes, hours, days) and magnitude. Options include 1s, 10s, 1m, 10m, 1h, 10h, 1d, 10d. There are also 'ON' for continuous operation and 'OFF' to disable the relay.
- **Knob 2 (Time Percentage Setting):** Adjust this knob to set the exact delay time as a percentage of the selected time range from Knob 1. For example, if Knob 1 is set to '1m' (1 minute) and Knob 2 is set to '50%', the delay time will be 30 seconds.

5.2. Delay OFF Function (Type C)

The TBT7-C1 model operates as a Delay OFF relay. This means the load turns ON immediately when power is applied, and the relay begins its timing sequence. After the set delay time expires, the load will turn OFF.

B Type & C Type



B DELAY ON

Example(30s): to control a light. after power up. relay begins to delay on. 30 seconds later, light will turn on.

C DELAY OFF

Example(30s): to control a light. after power up. light turns on and relay begins to delay off at the same time. 30 seconds later, light will turn off.



Figure 5.2: Illustration of Delay ON (Type B) and Delay OFF (Type C) functions. The TBT7-C1 is a Type C (Delay OFF) relay. For example, if set to 30 seconds, after power-up, the light turns on, and the relay begins to delay off. 30 seconds later, the light will turn off.

6. APPLICATIONS

The Wengart TBT7-C1 Delay Time Relay is suitable for various applications requiring timed control of electrical equipment.

Application

Automatically turn on and off the power of various electrical equipment



Figure 6.1: Examples of applications for the TBT7-C1 relay, including street lamps, neon lights, factory automation, warehouse lighting, and irrigation systems. It can also be used for home security by simulating presence through timed light switching.

7. MAINTENANCE

- **Regular Inspection:** Periodically check the relay for any signs of physical damage, loose connections, or overheating.
- **Cleaning:** Keep the relay free from dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Environmental Conditions:** Ensure the operating environment is within the specified temperature and humidity ranges to prolong the relay's lifespan.
- **Power Cycle:** If the relay exhibits unusual behavior, try power cycling the device (turn off power, wait a few seconds, then turn back on).

8. TROUBLESHOOTING

- **Relay Not Activating:**

- Check if the power supply (A1, A2) is correctly connected and within the 12-240V AC/DC range.
- Verify that the green 'Supply' LED is illuminated. If not, check the power source.
- Ensure the time setting knobs are not set to 'OFF'.

- **Incorrect Delay Time:**

- Re-check the settings on both time adjustment knobs (Time Range and Percentage).
- Ensure the selected time range is appropriate for the desired delay.

- **Output Not Switching:**

- Verify the load is correctly wired to the output terminals (15, 16, 18).
- Check if the red 'Output' LED illuminates when the relay is expected to switch.
- Ensure the load's current and voltage requirements do not exceed the relay's specifications (16A, 240V).

- **Intermittent Operation:**

- Inspect all wiring connections for looseness or corrosion.
- Check for stable power supply.

9. SAFETY INFORMATION

- Always disconnect power before installing, wiring, or performing maintenance on the relay to prevent electrical shock.
- Installation should be performed by qualified personnel in accordance with local electrical codes and regulations.
- Do not operate the relay beyond its specified voltage and current ratings.
- Ensure proper grounding where required.
- Keep the device away from moisture, extreme temperatures, and corrosive environments.

10. WARRANTY AND SUPPORT

Wengart products are manufactured to high-quality standards. For warranty information, please refer to the product packaging or contact your point of purchase. For technical support or further assistance, please reach out to Wengart customer service through the official channels provided with your product.

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