WENGART WIR-16 2NO

Wengart WIR-16 Low Power Consumption Pulse Relay User Manual

Model: WIR-16 2NO | Brand: WENGART

1. Introduction

The Wengart WIR-16 pulse relay is an electrical device designed for precise circuit control with low power consumption. It functions by receiving a brief electrical pulse signal, which causes it to switch its output state between 'On' and 'Off'. This design allows for quick response and the ability to maintain its state without requiring continuous power. This makes the WIR-16 suitable for various applications requiring rapid switching and energy efficiency.
Common applications include automation systems, security systems, industrial control, and multi-point lighting control in both residential and commercial environments.

2. Product Features

The Wengart WIR-16 pulse relay offers several key features:

- **Rapid Response:** Reacts quickly to short electrical signals for precise circuit control.
- **Energy Efficient:** Designed for low power consumption, reducing standby power usage.
- **Versatile Application:** Suitable for various devices and systems, including electric doors, automatic curtains, lighting control, and motor starting.
- **Durable Construction:** Made from high-quality, flame-retardant PC material, ensuring stable operation in demanding environments.
- **Compact Design:** Space-saving form factor with support for DIN rail mounting.
- **Stable and Silent Operation:** Provides reliable performance with minimal noise.

Figure 2.1: Overview of Wengart WIR-16 pulse relay key features, including small volume, low power consumption, stable operation, silent operation, flame retardant PC material, and DIN-Rail mounting.

3. Product Components and Analysis

Understanding the components of the WIR-16 relay is crucial for proper installation and operation.

Figure 3.1: Detailed view of the Wengart WIR-16 pulse relay components. This image highlights the main contact input and output wires, coil contacts (A1, A2), normally open (NO) and normally closed (NC) points, control voltage, and the manual control switch for power off during maintenance. The model shown is WIR-16/20, 16A, 250V~.

- **Main Contact Input/Output:** Terminals for connecting the main load circuit.
- **Coil Contacts (A1, A2):** Terminals for connecting the control voltage that triggers the relay.
- **Normally Open (NO) Contacts:** Contacts that are open when the relay is de-energized and close when energized.
- **Manual Control Switch:** Allows for manual switching (O-I) and power-off control during maintenance.
- **Mechanical Indication:** Provides visual feedback on the relay's current state.

4. Technical Specifications

The following table outlines the technical specifications for the Wengart WIR-16 2NO pulse relay:

Specification	Value

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Control Voltage	AC 230 V / DC 110 V
Operating Temperature	-5 ℃ ~ +60 ℃
Rated Current	16 A
Output Power	19 VA
Control Command Length	50 ms - 1 s (200 ms recommended)
Response Time	50 ms
Electrical Life (Cycles)	20,000
Max Switching Operations per Minute	5
Max Switching Operations per Day	100
Rated Impulse Withstand Voltage (Uimp)	6 kV
Protection Level	IP20 (Protective Cover)
Contact Material	Platinum
Mounting Type	DIN Rail Mount
Model	WIR-16 2NO

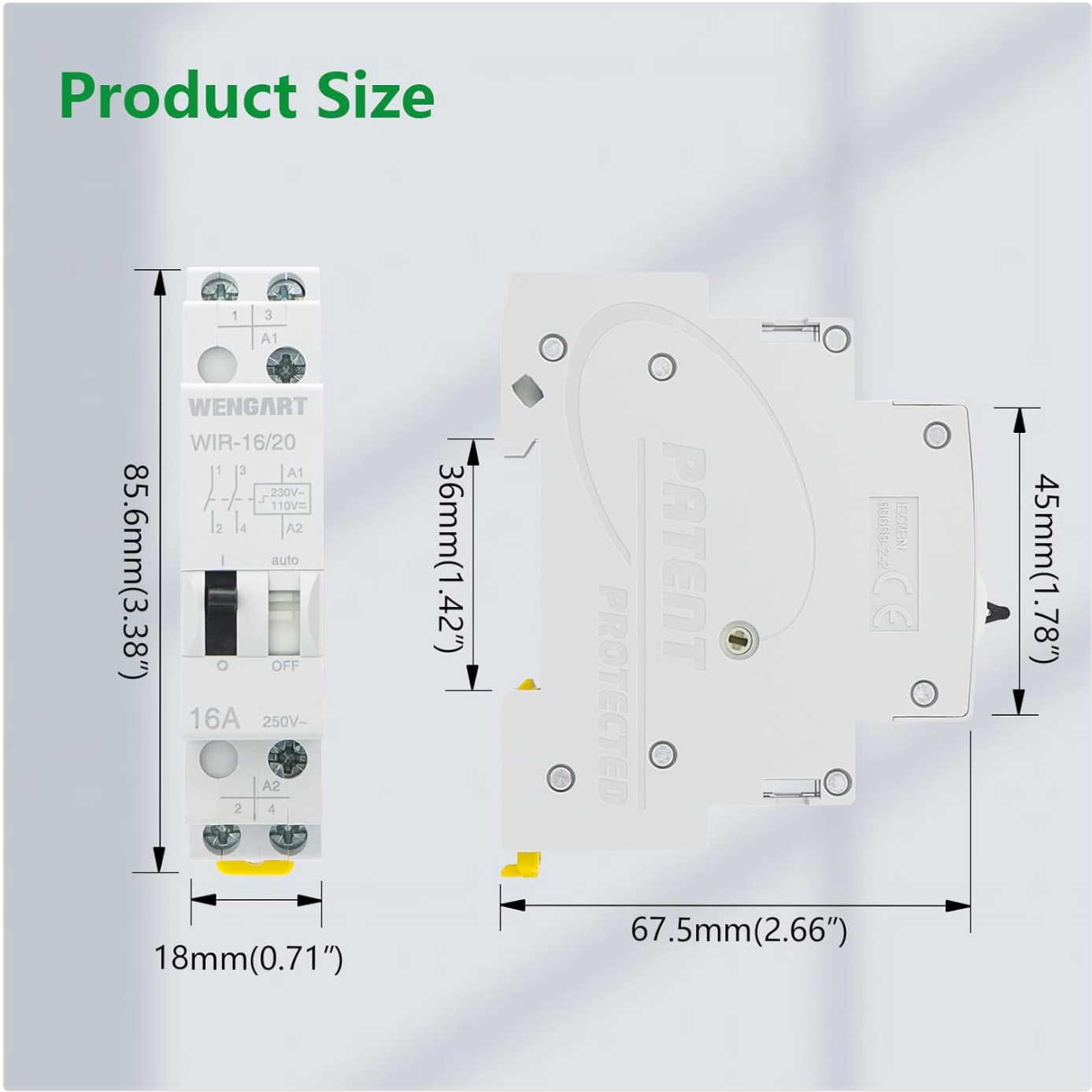

Figure 4.1: Dimensions of the Wengart WIR-16 pulse relay. The relay measures approximately 85.6mm (3.38") in height, 18mm (0.71") in width, and 67.5mm (2.66") in depth, with a top section height of 36mm (1.42") and a front panel height of 45mm (1.78").

5. Setup and Installation

The Wengart WIR-16 pulse relay is designed for quick and easy installation on a DIN rail.

5.1. Mounting

The relay features a DIN rail mounting mechanism for secure placement within electrical enclosures.

Figure 5.1: Installation features of the Wengart WIR-16 pulse relay. This image illustrates the easy-to-operate handle, the tunnel interface for quick wire connection, and the quick installation method for DIN rail mounting.

1. Ensure all power to the circuit is disconnected before installation.
2. Align the relay's mounting clip with the DIN rail.
3. Press the relay firmly onto the DIN rail until it clicks into place.

5.2. Wiring

Refer to the wiring diagram below for proper connection of the control and load circuits. Use appropriate wire gauges for the rated current.

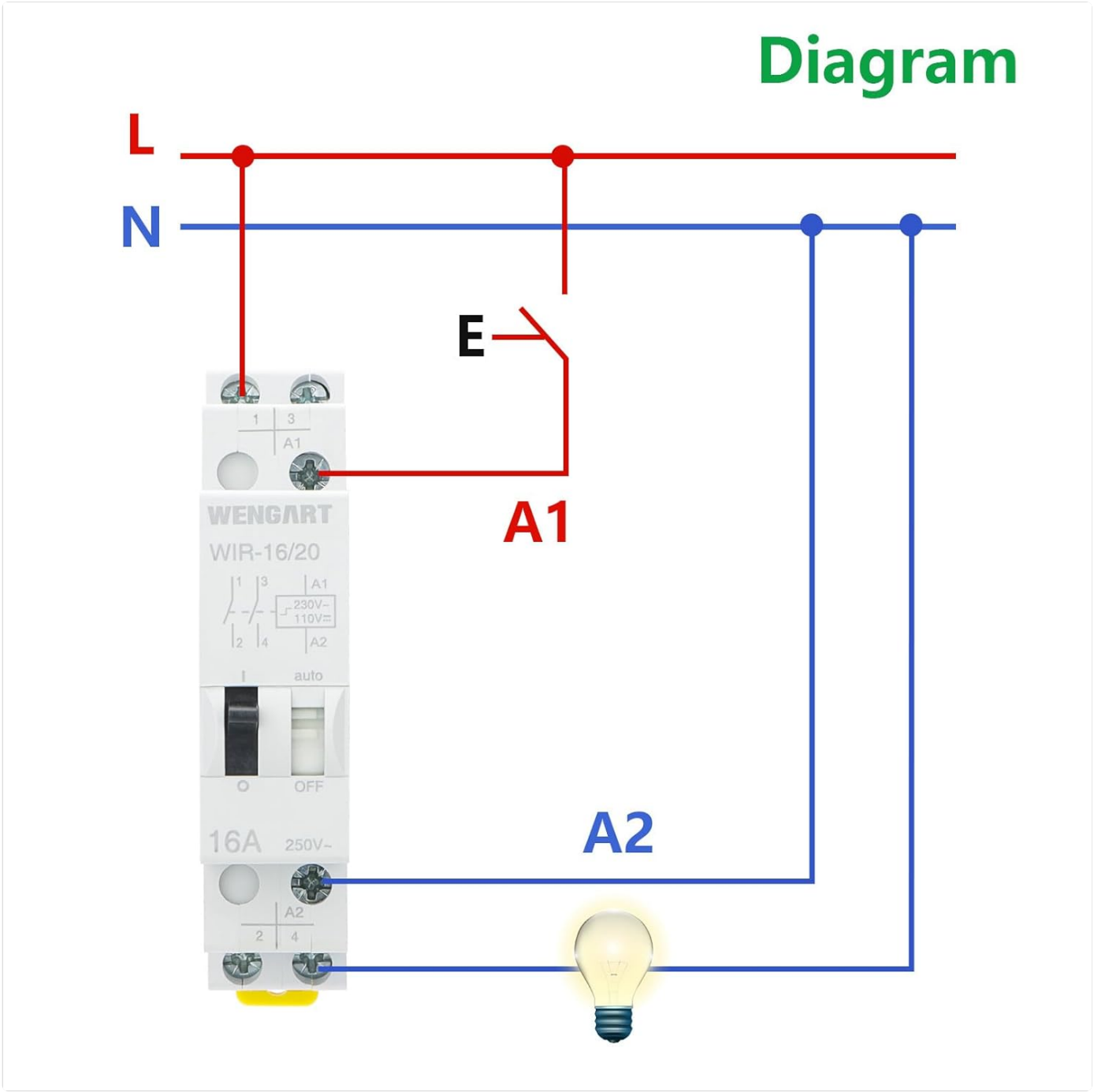

Figure 5.2: Wiring diagram for the Wengart WIR-16 pulse relay. This diagram shows the connection of the Line (L) and Neutral (N) wires, the control input (E) connected to A1, and the load (e.g., a light bulb) connected between the relay's output and Neutral. A2 is also connected to Neutral.

- Connect the control signal (pulse) to terminals A1 and A2.
- Connect the main power supply and load to the main contact terminals (1, 3 for input; 2, 4 for output).
- Ensure all connections are secure and properly insulated.

Warning: Installation should only be performed by a qualified electrician to prevent electrical shock or damage to the device.

6. Operation

The Wengart WIR-16 pulse relay operates based on short electrical pulse signals.

1. **Pulse Activation:** When a short electrical pulse is applied to the control terminals (A1/A2), the relay's output contacts will change state. If they were 'Off', they will switch to 'On'. If they were 'On', they will switch to 'Off'.
2. **State Retention:** The relay maintains its last state (On or Off) even after the control pulse ends, without requiring

continuous power to the coil.

3. **Manual Override:** The manual control switch on the front of the relay allows for manual switching between 'O' (Off) and 'I' (On) positions, and an 'Auto' position for pulse control. This is useful for testing or maintenance.

7. Applications

The Wengart WIR-16 pulse relay is widely used in various settings due to its sensitive contacts and reliable performance.

Figure 7.1: Examples of common applications for the Wengart WIR-16 pulse relay. These include family houses, schools, hospitals, shopping malls, and office buildings, demonstrating its versatility in residential, commercial, and industrial environments.

- **Lighting Control:** Ideal for controlling lights from multiple points using push buttons, such as in hallways, stairwells, or large rooms.
- **Automation Systems:** Integrates into various automation setups for controlling devices based on pulse signals.
- **Security Systems:** Can be used in security circuits for switching alarms or access control components.
- **Industrial Control:** Suitable for controlling machinery or processes in industrial environments where quick, intermittent switching is required.

- **Household Appliances:** Applicable for controlling specific functions in household appliances.

8. Troubleshooting

If you encounter issues with your Wengart WIR-16 pulse relay, consider the following general troubleshooting steps:

- **No Response to Pulse:**
  - Check if the control voltage (AC 230V / DC 110V) is correctly applied to terminals A1 and A2.
  - Verify the control command length is within the recommended 50 ms - 1 s range (200 ms recommended).
  - Ensure all wiring connections are secure and free from damage.
  - Check the manual override switch position; it should be in 'Auto' for pulse control.
- **Relay Does Not Stay Switched:**
  - Confirm that the pulse signal is brief and not a continuous voltage, which is not how a pulse relay operates.
  - Inspect the relay for any visible mechanical damage.
- **Overheating:**
  - Ensure the load current does not exceed the rated current of 16A.
  - Verify proper ventilation around the relay.

For complex issues or if you are unsure, it is recommended to consult a qualified electrician.

9. Maintenance

The Wengart WIR-16 pulse relay is designed for long-term, stable operation with minimal maintenance requirements.

- **Regular Inspection:** Periodically check the relay for any signs of physical damage, loose connections, or discoloration.
- **Cleaning:** Ensure the relay and its terminals are free from dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Power Off for Maintenance:** Always disconnect power to the circuit before performing any inspection or cleaning. The manual control switch can be used to ensure the relay is in the 'Off' position during maintenance.

There are no user-serviceable parts inside the relay. Do not attempt to open or repair the unit yourself.

10. Warranty and Support

For warranty information, technical support, or service inquiries regarding your Wengart WIR-16 pulse relay, please contact your retailer or the manufacturer directly.
Please have your product model number (WIR-16 2NO) and purchase date available when contacting support.