EDGELEC PW-DIP LED

EDGELEC 3mm Blinking White LED Lights (1.5Hz Single Color Flashing) Pre Wired 7.9 inch DC 12V LED Light Clear Lens Small LED Lamps - Instruction Manual

Model: PW-DIP LED

1. Introduction

This manual provides essential information for the safe and effective use of your EDGELEC 3mm Blinking White LED Lights. These pre-wired LEDs are designed for 12V DC applications and feature a 1.5Hz single-color flashing rate. Please read this manual thoroughly before installation and operation.

2. Safety Information

- **Electrical Safety:** Ensure the power source is a stable DC 12V. Connecting to an incorrect voltage may damage the LEDs.
- **Polarity:** Observe correct polarity during connection. The white wire is the anode (+), and the black wire is the cathode (-). Incorrect polarity will prevent the LED from lighting.
- **Heat:** While LEDs generate low heat, ensure adequate ventilation if used in enclosed spaces.
- **Eye Protection:** Avoid direct prolonged exposure to the LED light, as it can be bright.
- **Installation:** Do not bend the LED leads excessively or apply undue force, which could damage the internal components.

3. Product Overview

The EDGELEC 3mm Blinking White LED Lights are a convenient solution for various electronic projects, decorations, and instructional applications. Each LED is pre-wired with a built-in 1/4W metal film resistor, making them ready for direct connection to a 12V DC power supply. They feature a clear lens and blink at a rate of 1.5Hz (approximately 90 blinks per minute).

Figure 3.1: A bundle of 30 pre-wired 3mm blinking white LEDs, showcasing their clear lenses and attached wires.

Key Features:

- **Pre-wired Design:** Each LED comes with a built-in resistor and 7.9-inch (20cm) wire leads for easy integration.
- **Flashing Function:** Provides a 1.5Hz single-color blinking effect.
- **Voltage Compatibility:** Designed for DC 12V operation.
- **Long Lifespan:** Rated for over 20,000 hours of operation.
- **Clear Lens:** Ensures maximum light output.

Figure 3.2: Various pre-wired LEDs with different colored wires. The white wire indicates the anode (+), and the black wire indicates the cathode (-).

Figure 3.3: Detail of the preloaded 0.25W metal film resistor, ensuring stable operation at 12V.

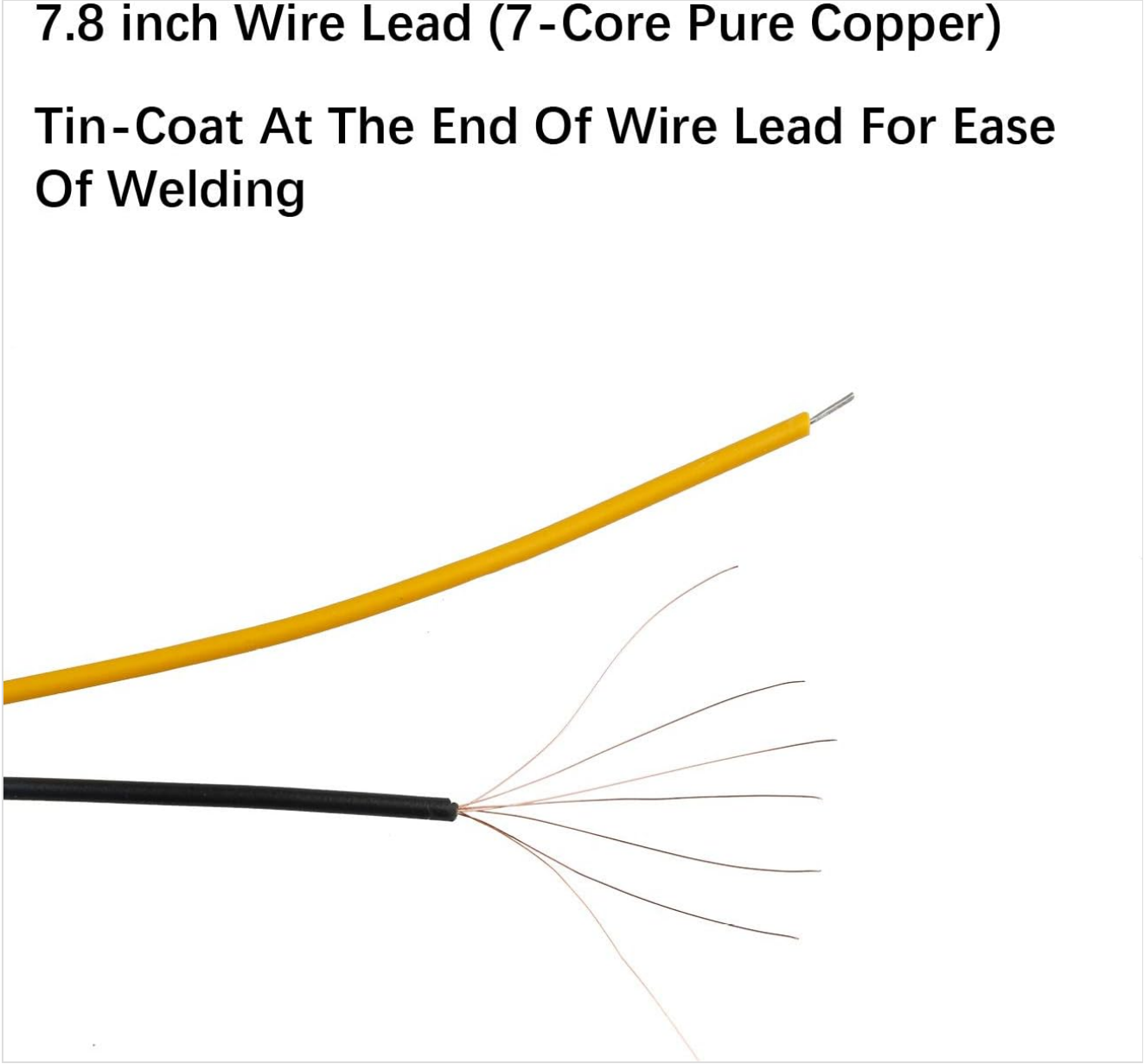

Figure 3.4: The 7.9-inch wire lead, featuring 7-core pure copper and a tin-coat at the end for simplified welding.

4. Setup and Installation

These LEDs are designed for straightforward installation due to their pre-wired nature. Follow these steps for proper setup:

1. **Prepare Power Source:** Ensure your power source provides a stable DC 12V.
2. **Identify Wires:** Each LED has two wires: a white wire (anode, positive +) and a black wire (cathode, negative -).
3. **Connect to Power:** Connect the white wire of the LED to the positive (+) terminal of your 12V DC power source. Connect the black wire of the LED to the negative (-) terminal of your 12V DC power source.
4. **Multiple LEDs:** For connecting multiple LEDs, they can be wired in parallel to the same 12V DC power source, ensuring correct polarity for each LED.
5. **Secure Installation:** Use appropriate methods (e.g., adhesive, clips, or soldering) to secure the LEDs in your desired application. The tin-coated ends of the wires facilitate soldering if needed.

5. Operating Instructions

Once properly connected to a 12V DC power source, the LEDs will automatically begin to blink at their specified rate of 1.5Hz. No additional controls or programming are required for the blinking function.

- **Power On:** Apply 12V DC power to the connected LEDs.
- **Blinking Effect:** The LEDs will flash approximately 90 times per minute.
- **Power Off:** Disconnect the 12V DC power source to turn off the LEDs.

6. Maintenance

The EDGELEC 3mm Blinking White LED Lights require minimal maintenance due to their robust design and long lifespan.

- **Cleaning:** If necessary, gently wipe the LED lens with a soft, dry cloth to remove dust or debris. Avoid using abrasive cleaners or excessive moisture.
- **Inspection:** Periodically inspect the wiring for any signs of damage, fraying, or loose connections. Address any issues promptly to ensure continued safe operation.
- **Storage:** When not in use, store the LEDs in a cool, dry place away from direct sunlight and extreme temperatures.

7. Troubleshooting

If your EDGELEC 3mm Blinking White LED Lights are not functioning as expected, consider the following:

- **LED Not Lighting:**
  - Check the power source to ensure it is supplying 12V DC.
  - Verify that the white wire (anode +) is connected to the positive terminal and the black wire (cathode -) is connected to the negative terminal.
  - Inspect the wiring for any breaks or loose connections.
- **Irregular Blinking:**
  - Ensure the power supply is stable and not fluctuating.
  - Check for any short circuits in the wiring.
- **Dim Light Output:**
  - Confirm the power source is providing sufficient current (20mA per LED).
  - Clean the LED lens if it appears dirty.

8. Specifications

Feature	Detail
Model Number	PW-DIP LED
LED Type	3mm Blinking LED
Light Color	White
Flashing Rate	1.5Hz (approx. 90 blinks/minute)

Feature	Detail
Forward Voltage	DC 12V
Forward Current	20mA
Resistor	Built-in 1/4W Metal Film Resistor
Wire Lead Length	7.9 inches (20cm)
Wire Type	7-Core Pure Copper, Tin-Coated Ends
LED Viewing Angle	30°
Lifespan	20,000+ hours
Material Type	Copper
Quantity	30 Pcs

Lens			Color	Forward Voltage Min. (DC V)	Forward Voltage Max. (DC V)	IF (Forward Current) = 20mA		Viewing Angle
Size	Style	Type				Luminous Intensity (mcd)	Wavelength	
3mm	Round	Clear Lens	White	9	13	6000-8000	6000K-9000K	30°
			Warm White			6000-7000	2900K-3100K	
			Red			1000-1200	620-625nm	
			Yellow			800-1000	588-592nm	
			Green			7000-9000	515-525nm	
			Blue			4500-5500	450-455nm	
			Orange			1000-1500	602-610nm	
			UV			200-300	395-400nm	

Figure 8.1: Detailed specifications table for various LED types, including the 3mm white blinking LED.

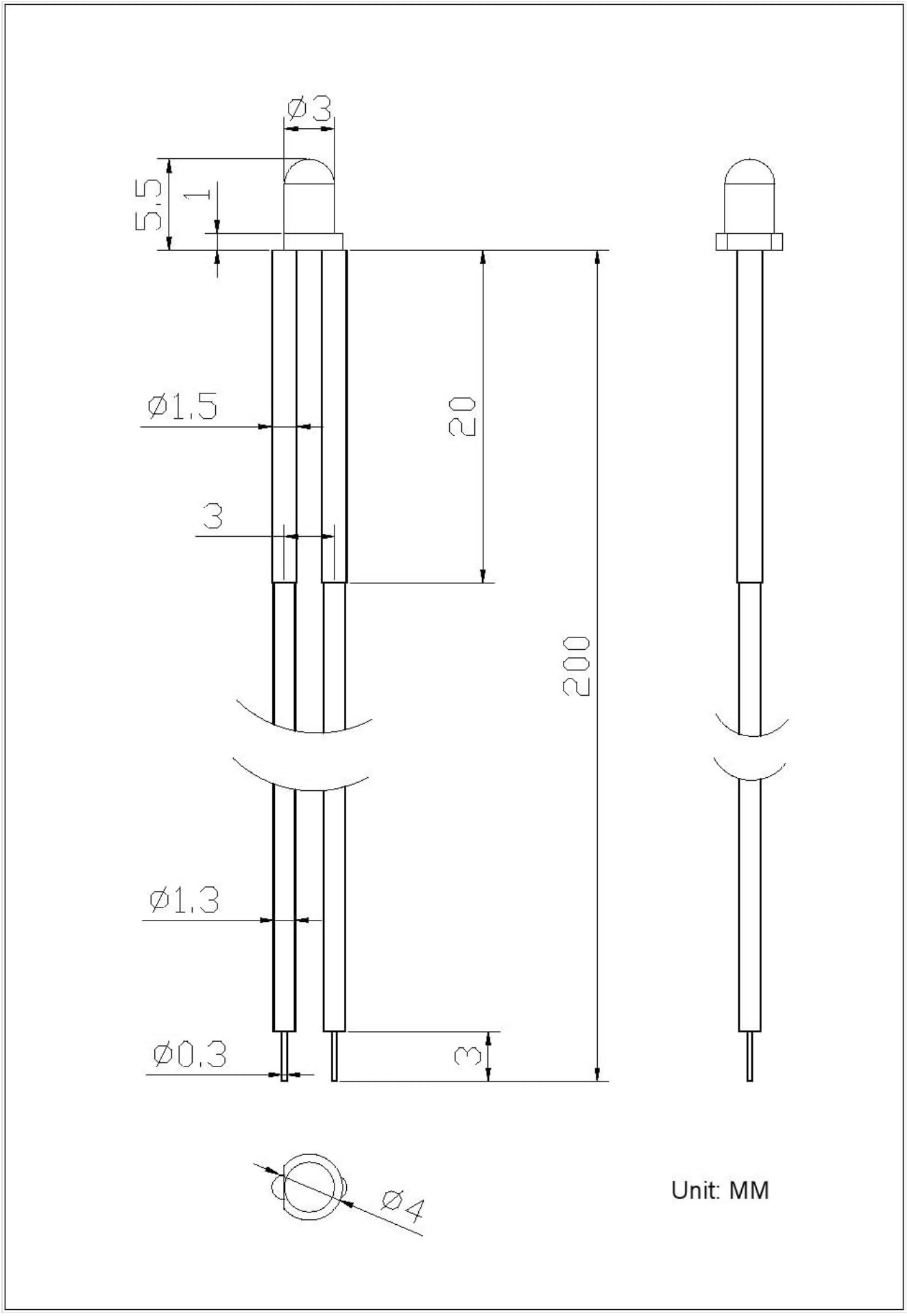

Figure 8.2: Dimensional drawing of the 3mm pre-wired LED, with measurements in millimeters.

9. Warranty & Support

For warranty information and customer support, please refer to the product packaging or contact EDGELEC directly through their official channels. Keep your purchase receipt for any warranty claims.

10. Applications

These versatile pre-wired LEDs are suitable for a wide range of applications, including:

- DIY hobby projects
- Electronic circuit prototyping
- Decorative lighting
- Model making
- Educational demonstrations

Figure 10.1: Examples of LED applications in science experiments, industrial segments, and decorative lighting.