

WENGART WG5015

Wengart WG5015 AC230V M30x1.5 Normally Closed Electrothermal Actuator User Manual

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Wengart WG5015 AC230V M30x1.5 Normally Closed Electrothermal Actuator. This device is designed to regulate the flow of heating medium in underfloor heating systems and radiators, ensuring precise temperature control and energy efficiency. Please read this manual thoroughly before installation and use to ensure safe and correct operation.



Figure 1: Wengart WG5015 Electrothermal Actuator. This image shows the main product unit, a white cylindrical device with a red top cap and a threaded metal base, connected to a white electrical cable. The brand 'WENGART' and specifications 'M30x1.5mm AC230V IP54 CE' are printed on its side.

2. SAFETY INFORMATION

Adherence to the following safety guidelines is crucial for preventing damage to the product and ensuring user safety:

- **Electrical Safety:** Installation and wiring must be performed by a qualified electrician in accordance with local electrical codes and regulations. Ensure the power supply is disconnected before any installation or maintenance work.
- **Voltage Compatibility:** Verify that the power supply voltage matches the actuator's specified voltage (AC230V).
- **Environmental Conditions:** Do not expose the actuator to extreme temperatures, direct sunlight, or excessive moisture. The device has an IP54 rating, indicating protection against dust and splashing water, but it is not waterproof.
- **Intended Use:** Use the actuator only for its intended purpose in heating systems. Any other use may result in damage or malfunction.
- **Children and Pets:** Keep the device out of reach of children and pets to prevent accidental damage or injury.

3. PRODUCT FEATURES

The Wengart WG5015 Electrothermal Actuator incorporates several features designed for efficient and reliable heating control:

- **PTC Ceramic Heating Elements:** Utilizes advanced PTC ceramic heating elements for high thermal efficiency and low energy consumption, contributing to energy savings.
- **Thermostatic Control:** Designed for use with a thermostat to precisely regulate the heat output of the heating system, maintaining a consistent and comfortable indoor temperature.
- **Nut Connection Installation:** Features a simple nut connection method for easy installation and direct replacement of manual valves without requiring modifications to existing piping.
- **Versatile Compatibility:** Suitable for various heating systems, including underfloor heating and radiators, and compatible with most thermostat brands on the market.
- **Durable Construction:** Manufactured from high-quality, flame-retardant PC material, ensuring durability and a long operational lifespan.
- **Silent Operation:** Engineered for quiet performance, minimizing operational noise.
- **Automatic Reset:** Equipped with a spring reset function, ensuring the valve returns to its normally closed (NC) position when power is off.

Product Feature



Thermostatic Control



Energy Saving



Stable Operation



Silent Operation



Flame Retardant PC Material



Easy Installation

Figure 2: Product Feature Overview. This graphic displays the Wengart WG5015 actuator alongside six icons representing its key features: Thermostatic Control, Energy Saving, Stable Operation, Silent Operation, Flame Retardant PC Material, and Easy Installation.

4. SPECIFICATIONS

Refer to the table below for the technical specifications of the Wengart WG5015 Electrothermal Actuator:

Specification	Value
Model Number	WG5015
Manufacturer	WENGART ELECTRIC CO.,LTD
Voltage	AC230V
Wattage	2 watts
Thread Interface	M30x1.5mm
Product Dimensions	3.81 x 3.81 x 5.84 cm

Specification	Value
Weight	110 grams
Color	White
Protection Rating	IP54
Included Components	Electric Thermal Actuator
Batteries Required	No

Product Size



The interface of the thread is M30x1.5mm,
Please make sure your valve is the same model

Figure 3: Product Dimensions. This diagram illustrates the physical dimensions of the Wengart WG5015 actuator, showing a diameter of 37mm (1.46") and a length of 55.5mm (2.30") for the main body, with an overall length of 75mm (2.95") including the cable. The thread interface is M30x1.5mm.

5. INSTALLATION

5.1 Pre-installation Checks

- Ensure the power supply to the heating system is completely turned off.
- Verify that the valve on which the actuator will be installed has an M30x1.5mm thread, matching the

actuator's interface.

- Confirm that the thermostat is compatible with a 230V normally closed electrothermal actuator.

5.2 Mounting the Actuator

The actuator is designed for simple installation using a nut connection:

1. If replacing an existing manual valve, remove it from the manifold.
2. Ensure the valve body is clean and free of debris.
3. Align the actuator with the M30x1.5mm threaded connection on the heating manifold or radiator valve.
4. Hand-tighten the nut connection until secure. Do not overtighten.
5. For optimal performance, ensure the actuator is installed in a position that allows for proper stroke movement (greater than 3mm).

Installation

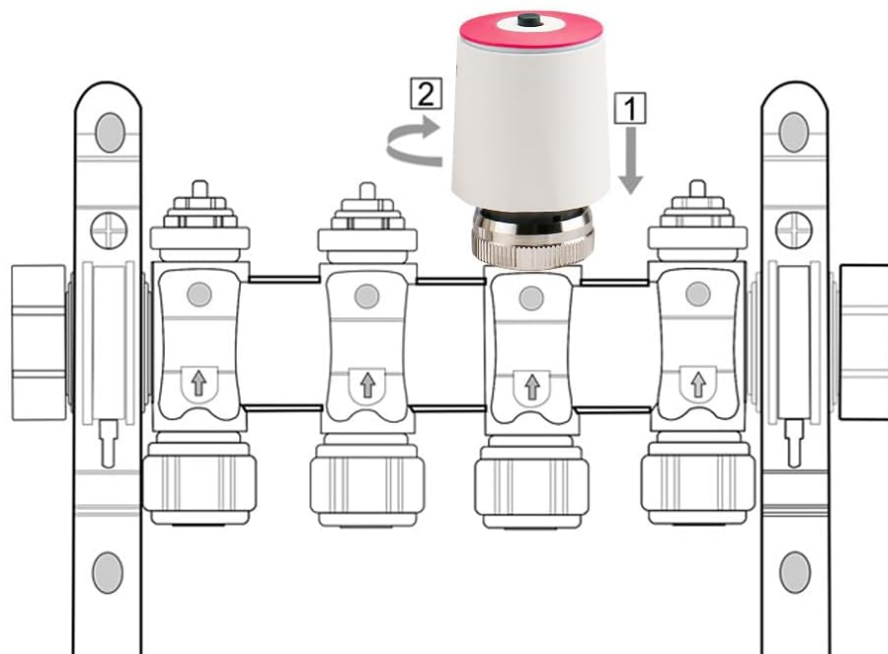
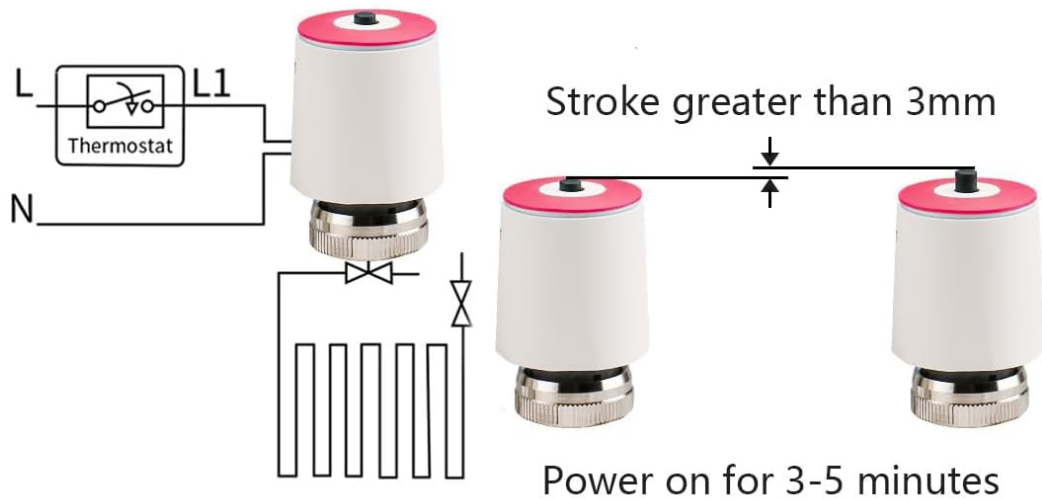


Figure 4: Installation Diagram. This image shows the Wengart WG5015 actuator being installed on a heating manifold. It also illustrates the electrical connection to a thermostat (L and N lines) and the required stroke movement of the actuator.

5.3 Wiring

Connect the actuator to the thermostat and power supply as per the wiring diagram below. It is crucial to follow the correct wiring sequence to prevent damage and ensure proper functionality.

- Connect the Live (L) wire from the AC230V supply to the thermostat's Live input.
- Connect the Neutral (N) wire from the AC230V supply to the thermostat's Neutral input and also to the actuator's Neutral terminal (N1).
- Connect the switched Live output from the thermostat (L1) to the actuator's Live terminal.
- If an external sensor is used with the thermostat, connect it according to the thermostat's instructions.

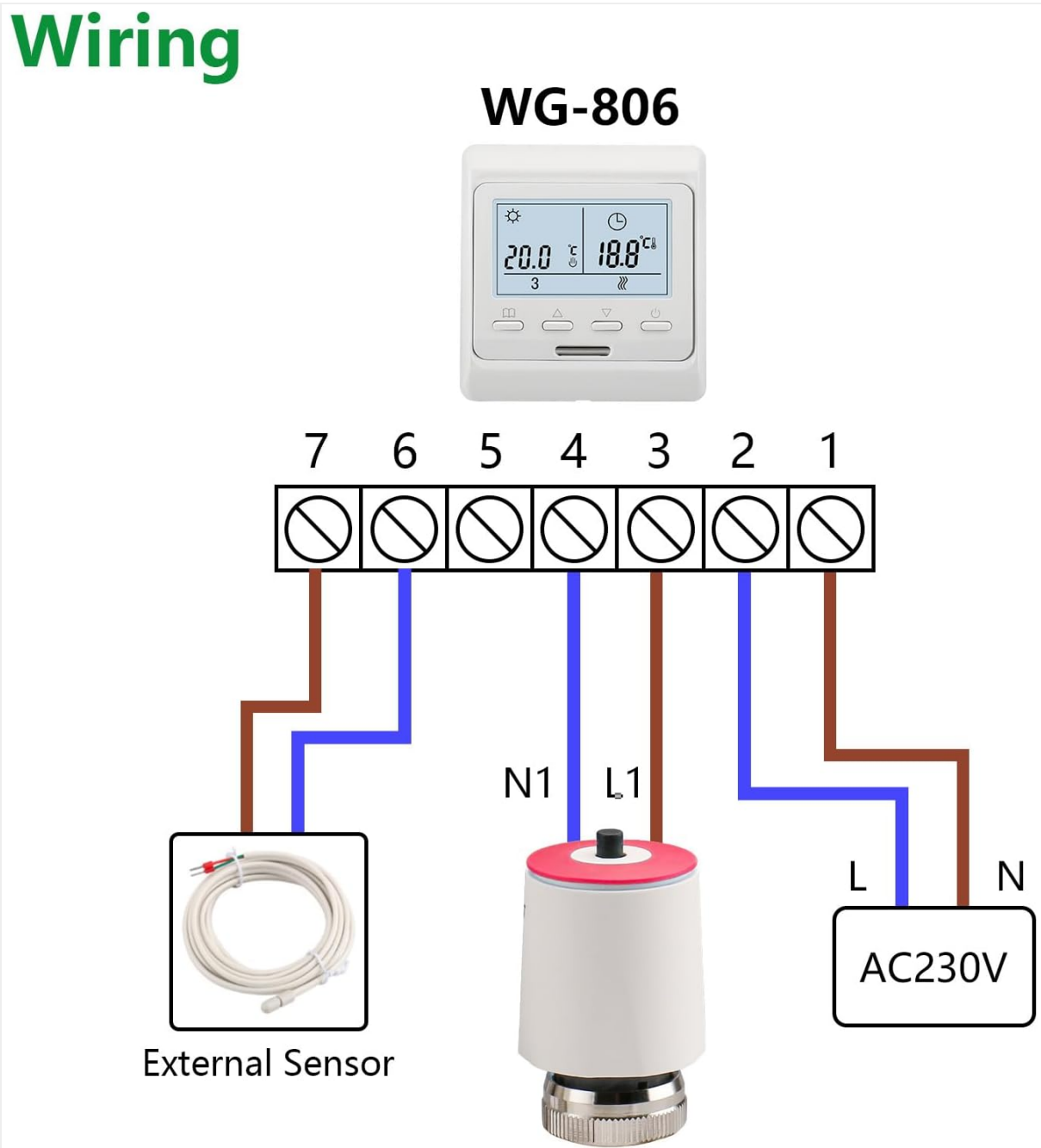


Figure 5: Wiring Diagram. This diagram illustrates the electrical connections for the Wengart WG5015 actuator, an external sensor, and a WG-806 thermostat. It shows the AC230V power input and the specific terminals for Live (L), Neutral (N), and switched Live (L1) connections.

6. OPERATION

The Wengart WG5015 actuator operates in conjunction with a compatible thermostat to control the flow of heating medium. As a normally closed (NC) actuator, it remains closed when no power is applied and opens when power is supplied by the thermostat.

6.1 Basic Functionality

- When the thermostat detects that the room temperature is below the set point and calls for heat, it sends a 230V AC signal to the actuator.
- Upon receiving power, the PTC heating element inside the actuator heats up, causing the paraffin element to expand.
- The expanding paraffin pushes a pin, which in turn opens the valve, allowing the heating medium to flow through the system. This process typically takes 3-5 minutes.
- When the thermostat reaches the set temperature and no longer calls for heat, it cuts off the power supply to the actuator.
- Without power, the PTC element cools, the paraffin contracts, and a spring mechanism automatically closes the valve, stopping the flow of heating medium.

6.2 Status Indication

The actuator features a visible indicator on its top surface to show its current status:

- **Closed:** When the actuator is closed (no power, no heat call), the indicator pin is retracted.
- **Open:** When the actuator is open (power supplied, heat call), the indicator pin extends upwards.

Status



Electrothermal actuators opens when the thermostat is heated



Electrothermal actuators is closed when the thermostat is not heated

Figure 6: Actuator Status. This image displays two scenarios: the top shows the actuator in an 'Open' state when the thermostat is heating (e.g., set to 23.0°C, current 20.2°C), with the red indicator pin extended. The bottom shows the actuator in a 'Closed' state when the thermostat is not heating (e.g., set to 18.0°C, current 20.2°C), with the red indicator pin retracted.

7. MAINTENANCE

The Wengart WG5015 Electrothermal Actuator is designed for minimal maintenance. Regular checks can help ensure its longevity and optimal performance:

- **Visual Inspection:** Periodically inspect the actuator for any signs of physical damage, loose connections, or leaks around the valve area.
- **Cleaning:** If necessary, gently wipe the exterior of the actuator with a dry, soft cloth. Do not use abrasive cleaners or solvents.
- **Functional Check:** Observe the status indicator during heating cycles to confirm that the actuator is opening and closing correctly in response to the thermostat's commands.
- **Professional Inspection:** For any complex issues or concerns, it is recommended to consult a qualified heating technician.

8. TROUBLESHOOTING

If you encounter issues with your Wengart WG5015 actuator, refer to the following table for common problems and their potential solutions:

Problem	Possible Cause	Solution
Actuator does not open (no heat)	No power to the actuator; Thermostat not calling for heat; Faulty wiring; Actuator malfunction.	Check power supply; Verify thermostat settings; Inspect wiring for loose connections; Replace actuator if faulty.
Actuator does not close (constant heat)	Actuator stuck open; Thermostat continuously calling for heat; Power constantly supplied to actuator.	Check if actuator is physically stuck; Verify thermostat settings; Check wiring for constant power supply; Replace actuator if faulty.
Slow response time	Normal operation (actuators have a delay); Low voltage.	Allow 3-5 minutes for opening/closing; Ensure stable 230V AC supply.
Indicator pin not moving	No power; Actuator malfunction.	Check power and wiring; Replace actuator.
Leakage around valve	Improper installation; Damaged valve or actuator.	Re-tighten connection (do not overtighten); Inspect valve and actuator for damage; Consult a professional.

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries regarding your Wengart WG5015 Electrothermal Actuator, please refer to the product packaging or contact your retailer. Keep your purchase receipt as proof of purchase for warranty claims.