Acogedor AFR-1

Acogedor AFR-1 Floatless Level Relay Liquid Level Controller User Manual

Introduction

The Acogedor AFR-1 Floatless Level Relay is a liquid level controller designed for automatic control of water supply and drainage systems. It operates on AC 110V and features a 5A output capacity. This device utilizes a conductive liquid input mode and an integrated chip for strong interference resistance, ensuring stable and efficient operation. Its compact design and clear printing make it easy to install and use for various industrial and scientific applications requiring precise liquid level management.

Figure 1: Front view of the Acogedor AFR-1 Floatless Level Relay, showing the model number and basic wiring diagram.

Specifications

Model	AFR-1
Rated Voltage	AC 110V
Input Mode	Conductive liquid
Output Capacity	5A
Ambient Temperature	-10~55°C
Ambient Humidity	45~85%RH
Package Dimensions	4.21 x 3.62 x 2.52 inches
Item Weight	6.3 ounces

Manufacturer	Acogedor

Setup and Wiring

Proper wiring is essential for the correct operation of the AFR-1 Floatless Level Relay. Refer to the wiring diagram below for connections.

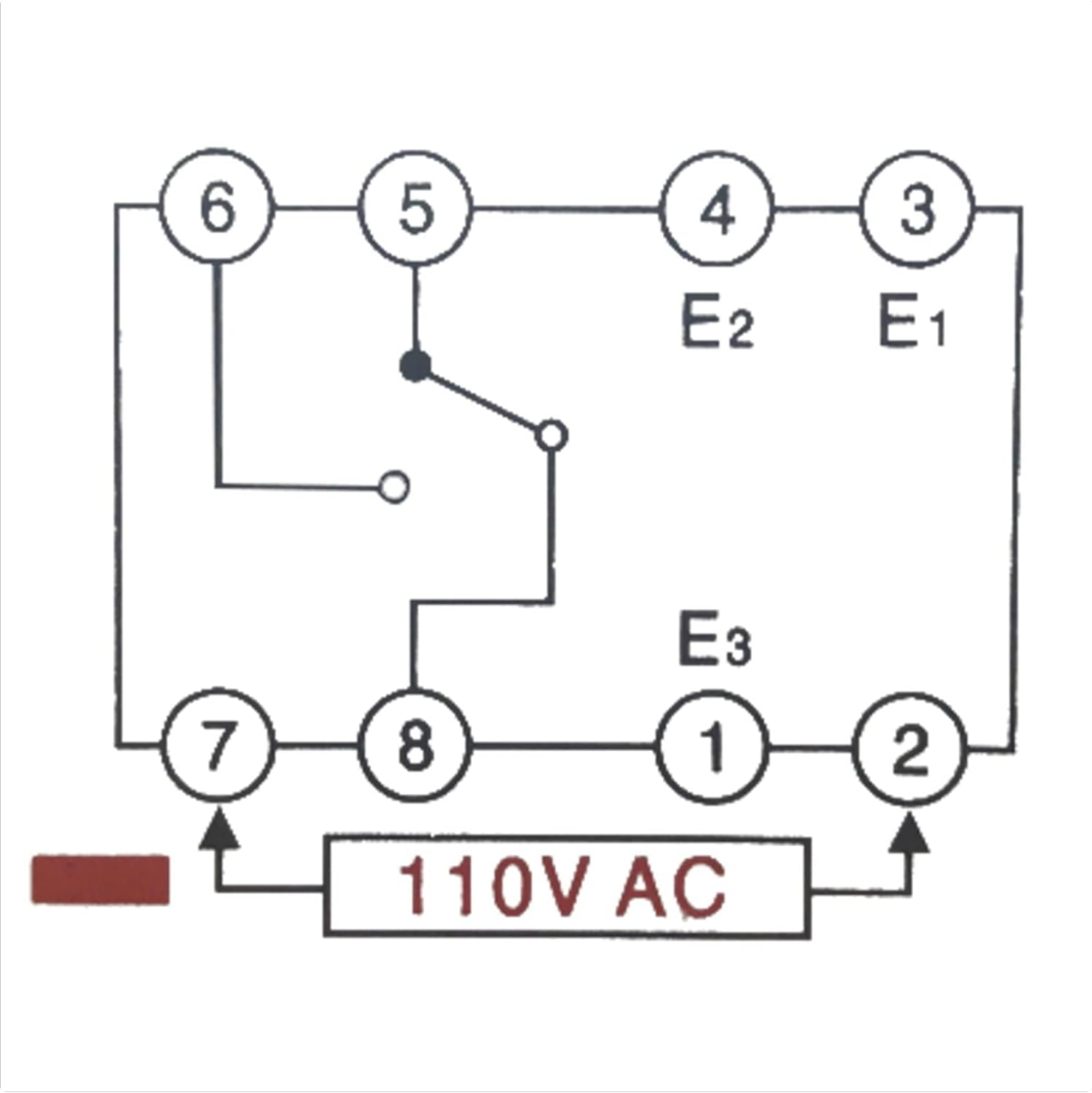

Figure 2: Detailed wiring diagram for the Acogedor AFR-1 Floatless Level Relay.

Wiring Connections:

- **Power Supply (AC 110V):** Connect the AC 110V power source to terminals **1** and **2**.
- **Electrodes:**
  - **E1 (High Level Electrode):** Connect to terminal **3**. This electrode defines the upper limit of the liquid level.
  - **E2 (Low Level Electrode):** Connect to terminal **4**. This electrode defines the lower limit of the liquid level.

    - **E3 (Common Electrode):** Connect to terminal **1** (which is also one of the AC 110V power inputs). This electrode should be placed at the lowest desired liquid level or at the bottom of the tank.

- **Output Control (Relay Contacts):** The relay provides a single-pole double-throw (SPDT) contact for controlling external devices (e.g., pumps, valves).
    - **Common Contact:** Terminal **5**.
    - **Normally Closed (NC) Contact:** Terminal **6**. This contact is closed when the relay is de-energized.
    - **Normally Open (NO) Contact:** Terminal **7**. This contact is open when the relay is de-energized.

Electrode Placement:

Install the electrodes in the liquid tank at the desired levels. Ensure that E3 is always submerged and acts as the common reference. E2 should be placed at the minimum desired liquid level, and E1 at the maximum desired liquid level.

Operating Instructions

Once the AFR-1 Floatless Level Relay is correctly wired and powered, it will automatically monitor and control the liquid level based on the electrode positions and your chosen wiring configuration.

Water Supply (Filling) Mode:

To automatically fill a tank when the liquid level drops:

- Connect your pump or valve control circuit between the**Common (5)** and **Normally Open (7)** contacts.
- When the liquid level falls below electrode E2, the relay will energize, closing the contact between 5 and 7, thereby activating the pump/valve to start filling.
- When the liquid level rises and reaches electrode E1, the relay will de-energize, opening the contact between 5 and 7, thereby deactivating the pump/valve to stop filling.

Drainage (Emptying) Mode:

To automatically empty a tank when the liquid level rises:

- Connect your pump or valve control circuit between the**Common (5)** and **Normally Closed (6)** contacts.
- When the liquid level rises and reaches electrode E1, the relay will energize, opening the contact between 5 and 6, thereby activating the pump/valve to start draining. (*Note: For drainage, you might typically use the NO contact if the pump needs to turn ON when E1 is reached. If using NC, the pump would be ON by default and turn OFF when E1 is reached, which is less common for draining. Please re-evaluate your specific application needs.*)
- When the liquid level falls below electrode E2, the relay will de-energize, closing the contact between 5 and 6, thereby deactivating the pump/valve to stop draining.

Maintenance

To ensure long-term reliable operation of your Acogedor AFR-1 Floatless Level Relay, perform the following maintenance checks:

- **Electrode Inspection:** Regularly inspect the electrodes for any signs of corrosion, mineral buildup, or damage. Clean them as necessary to maintain good conductivity.
- **Wiring Connections:** Periodically check all electrical connections to ensure they are secure and free from loose wires or signs of overheating.

- **Environmental Conditions:** Ensure the device is operating within the specified ambient temperature (-10~55°C) and humidity (45~85%RH) ranges. Protect it from excessive dust, moisture, and direct sunlight.
- **Device Cleaning:** Keep the relay housing clean and free from debris. Use a soft, dry cloth for cleaning. Do not use abrasive cleaners or solvents.

Troubleshooting

If you encounter issues with your AFR-1 Floatless Level Relay, refer to the following troubleshooting guide:

- **Device Not Powering On:**
  - Verify that the AC 110V power supply is connected correctly to terminals 1 and 2.
  - Check the power source for voltage presence.
  - Ensure no fuses or circuit breakers have tripped.
- **Relay Not Switching or Incorrect Switching:**
  - **Electrode Connections:** Confirm that electrodes E1, E2, and E3 are securely connected to their respective terminals (3, 4, and 1).
  - **Electrode Placement:** Ensure electrodes are positioned correctly within the liquid and that E3 is always submerged.
  - **Liquid Conductivity:** The liquid must be sufficiently conductive for the relay to detect levels. Non-conductive liquids (e.g., distilled water, oil) will not work with this device.
  - **Wiring Configuration:** Double-check your output wiring (terminals 5, 6, 7) against the desired operating mode (water supply or drainage).
  - **Electrode Contamination:** Clean electrodes if there is any buildup that might impede conductivity.
- **External Device (Pump/Valve) Not Activating:**
  - Verify the external device is functioning correctly independently of the relay.
  - Check the wiring between the relay's output contacts (5, 6, 7) and the external device.
  - Ensure the external device's power requirements are within the relay's 5A output capacity.

Warranty and Support

For warranty information, technical assistance, or further support regarding your Acogedor AFR-1 Floatless Level Relay, please contact your original retailer or the manufacturer, Acogedor. Please have your purchase details and product model number (AFR-1) available when seeking support.