LW-C5 Rail-Mounted Water Level Controller/Transmitter

河南仁泰电气设备有限公司

Henan Rentai Electrical Equipment Co.,LTD

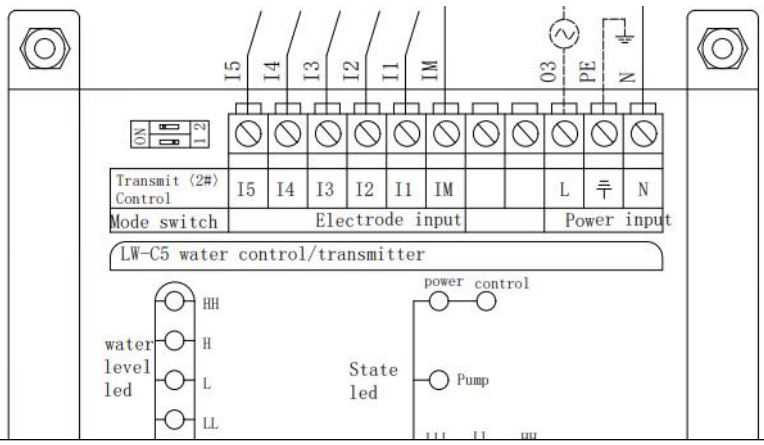
Product Functions and Features

- The controller is equipped with the capability to detect and transmit water level electrode signals, converting these signals into switch signals.
- It provides alarm functions for extremely high water levels, extremely low water levels, dangerously low water levels, and errors in water level electrode detection.
- The controller supports water level position control, enabling the pump to start and stop based on preset water levels.
- It can be configured as either a water supply controller or a drainage controller, depending on requirements.
- The controller utilizes AC operation for water level detection, ensuring minimal average operating current and preventing any pollution to water quality.

Technical Specifications

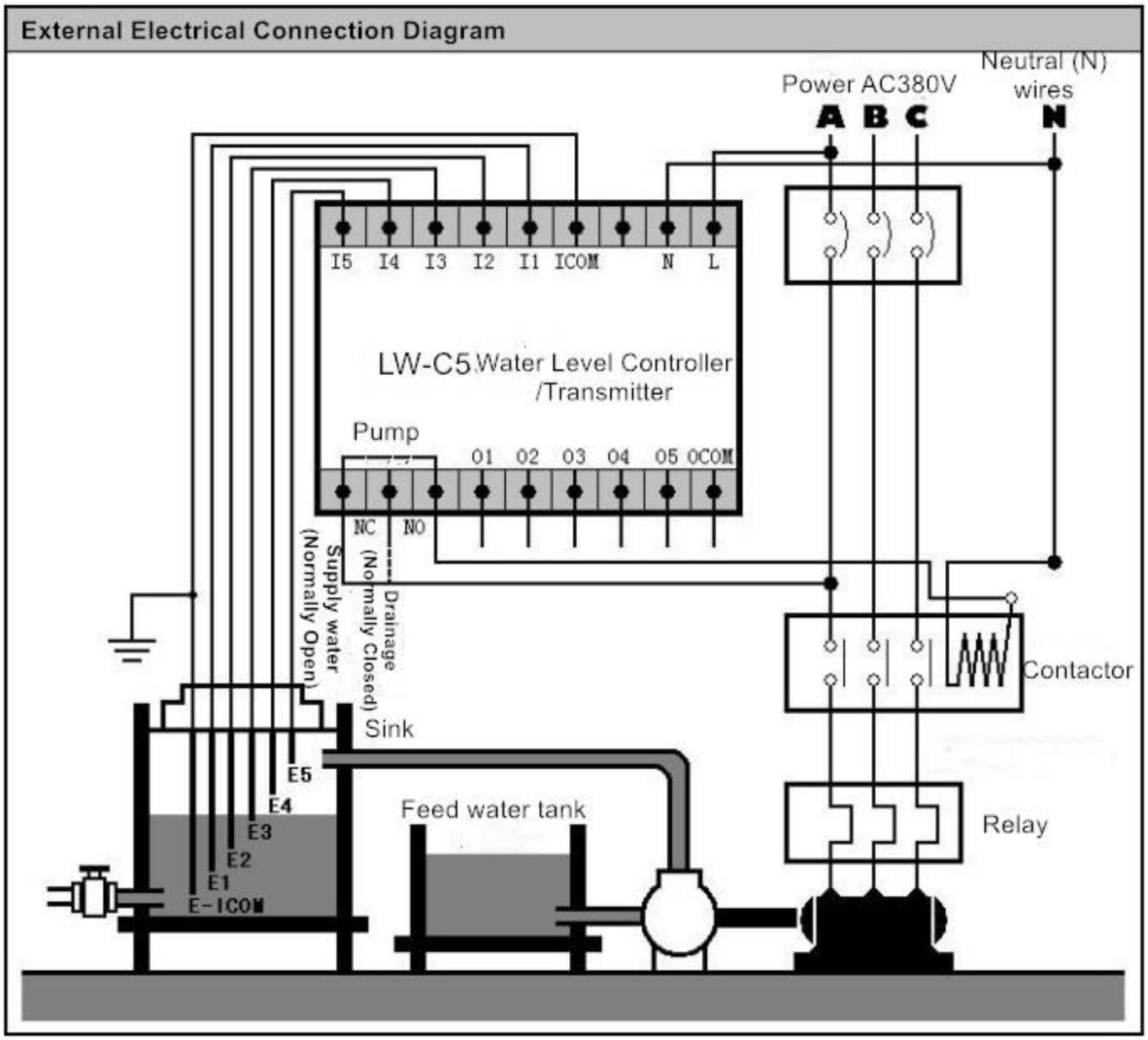
- **Operating Voltage**: 220V
- **Control Output Current**: 3A
- **Power Consumption**: 3.5VA
- **Electrode Action Resistance**: 0–4kΩ (recommended value)
- **Response Time**: Less than 100ms
- **Operating Environment Temperature**: -10°C to +55°C
- **Dimensions**: 115 × 90 × 72 (mm)
- **Weight**: 0.5kg
- **Installation Method**: Rail-mounted installation for various control cabinets.

Panel Description



- Extremely High(HH): Alarm and Interlock Pump Shutdown
- High (H): Stop pump(feed water)/Start pump(drainage)
- Low: Stop pump(drainage)/Start pump(feed water)
- Extremely Low(LL): Alarm
- Critical low(LLL) ： Alarm and

	interlock pump shutdown
	■ LLL/LL/HH Alarm: Alarm Indicator Light
	■ Water pump： Water Pump Operation Indicator
	■ Power：Power operation indicator
	■ Control ： Mode indicator, Control Mode Indicator Light



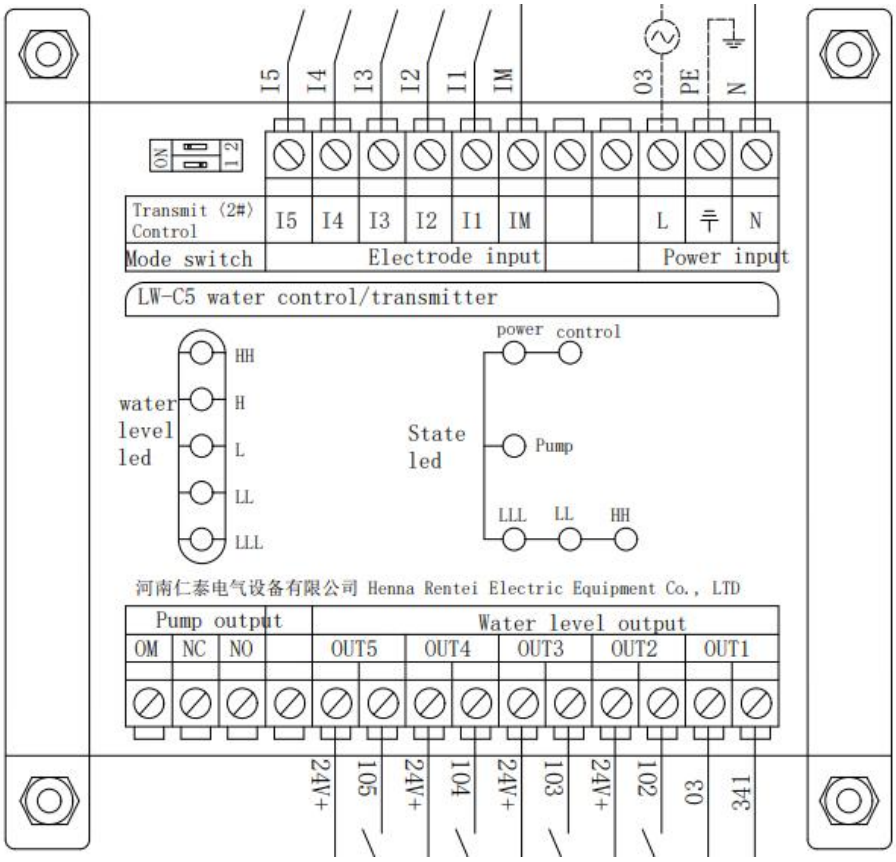
The wiring method shown in the diagram is for illustration purposes only. Please follow the wiring instructions provided in the controller's wiring diagram for proper connection.

External Electrical Connection Instructions

- I1、I2、I3、I4、I5 are water level electrode input, from LLL level to HH level, total is five point water level;
- ICOM service as the common terminal for water level inputs. It is essential to ensure this electrode functions properly during operation; otherwise, all other electrodes will fail to operate.
- N、L is power input,，220VAC、50HZ；
- In transmission mode, OUT1, OUT2, OUT3, OUT4, and OUT5 serve as water level status output terminals, corresponding sequentially to the five water level input points.
- 06 is the water pump control output terminal, offering two contact options: Normally Open (OM+NO) and Normally Closed (OM+NC). Connect them as required for your application:

For controlling a water supply pump:
Connect the **Normally Open (OM+NO)** contact to the low water level electrode.
Connect the **Normally Closed (OM+NC)** contact to the high water level electrode.
For controlling a drainage pump:
Connect the **Normally Open (OM+NO)** contact to the high water level electrode.
Connect the **Normally Closed (OM+NC)** contact to the low water level electrode.
This setup ensures the pump operates correctly based on water level signals, whether filling or draining the system.

Transmission/Control Mode Switching Instructions



- As indicated in the upper-left corner of the controller, to switch the operating mode, simply toggle the switch.
- When switch #1 or #2 is toggled to the ON position, the controller operates in transmission mode; otherwise, it operates in control mode.

Functions in Transmission Mode

■ Water Level Signal Transmission:

In this mode, the controller functions solely as a transmitter for water level electrode signals.
It collects water level states from inputs I1 to I5 and sequentially outputs these states to OUT1 to OUT5.

■ No Alarm or Interlock Protection:

The controller does not provide alarms or interlock protection for extremely low, extremely high, or dangerously low water levels.

■ No Fault Protection for Water Level Electrodes:

The controller does not offer fault protection for errors in water level electrode signals.

Functions in Control Mode

Water Level-Based Pump Control:

- The controller collects water level signals from inputs I1 to I5 and operates pumps based on these inputs:
  - **Water Supply Pump Control**:
    - When the water level drops below I3, the pump turns ON to refill water.
    - When the water level rises above I4, the pump turns OFF to stop refilling.
  - **Drainage Pump Control**:
    - When the water level drops below I3, the pump turns OFF to stop drainage.
      When the water level rises above I4, the pump turns ON to drain excess water.

Alarm Outputs and Indicators:

The controller provides alarm outputs and blinks the alarm indicator for the following water level states:

- **Extremely Low Level (I1)**: Output to OUT1.
- **Dangerously Low Level (I2)**: Output to OUT2.
  Extremely High Level (I5): Output to OUT5.

Interlock Pump Shutdown:

When the water level reaches either the extremely low (I1) or extremely high (I5) state, the controller interlocks and shuts down the pump to prevent further operation.

Water Level Electrode Error Protection:

If a fault is detected in the water level electrodes, the controller disables all control outputs, and all water level indicators blink to signal the error.

Note: If fewer than five electrodes are used, adjacent electrodes can be connected in parallel to prevent false electrode fault alarms.

This mode is designed to provide comprehensive water level control, alarm signaling, and system protection, ensuring safe and efficient operation in automated water management systems.

Precautions

Water Level Detection Signal Input:

The controller's water level detection input terminal shares a common terminal (IM) inside the device, which must be connected to the common electrode of the water tank or boiler. Without this connection, the controller will lose the common reference and be unable to detect other water level signals.

Pump Control Output Wiring:

The pump control output terminals provide only one normally open (NO) and one normally closed (NC) switch contact.
These terminals do not supply power and must not have both live (L) and neutral (N) wires connected simultaneously.

Transmission Mode Outputs:

In transmission mode, all output points provide only switch outputs, which can only be used as discrete signal switches.
These outputs cannot directly drive load devices.

Alarm and Fault Handling:

If the controller triggers an alarm or fault, investigate and address the root cause promptly.
Ensure the issue is fully resolved before resuming operation.

Installation Environment:

The controller must be installed in a well-ventilated, dry location and should not be placed directly in a damp pump room.

Controlling Large Pump Motors:

When controlling large water pump motor loads, an AC contactor must be used as an intermediary.
Directly controlling large motors with the controller will result in overloading and potential damage to the controller.

Mode Switching:

Switching between transmission and control modes must be performed under the guidance of trained professionals to avoid improper operation.