



NJYW1 Series  
Liquid Level Relay

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# User Instruction

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## Safety Warning

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- ① Only professional technicians are allowed for installation and maintenance.
- ② Installation in any damp, condensed-phase environment with inflammable and explosive gas is forbidden.
- ③ When the product is being installed or maintained, the power must be switched off.
- ④ You are prohibited from touching the conductive part when the product is operating.
- ⑤ The product shall be stored, installed and used in accordance with the rated control power supply voltage and specified conditions indicated in the user instructions.
- ⑥ The products shall be properly wired in strict accordance with the wiring diagram.

## 1 Use Purpose

NJYW1 series liquid level relay (hereinafter referred to as the relay) is used for liquid level automatic control in civil water towers, elevated water tanks, underground reservoirs, etc. with control circuits of AC frequency of 50Hz/60Hz and rated control voltage up to 380V. The relay can be wired to realize automatic water supply or discharge control upon users' request. This product is not applicable for liquid level control of poorly conductive liquids such as oil, pure water, explosive or inflammable chemical liquids as well as sewage of high density.

## 2 Key Technical Parameters

Table 1 Ambient Conditions

Normal use conditions	Ambient temp.: -5°C~+40°C; average value within 24h not exceeding +35°C; altitude not exceeding 2,000m.
Atmospheric conditions	RH shall not exceed 50% when maximum temperature is +40°C; in case of lower temperature, higher RH is allowed. Measures should be taken against occasional condensation due to temperature change.
Installation category	II
Transport and storage conditions	-25°C~+55°C

Table 2 Product Specifications and Main Technical Parameters

Model	NJYW1-NL1	NJYW1-NL2	NJYW1-BL1	NJYW1-BL2
Function code	N: Water supply, drainage type	B: Water supply, drainage anti empty type		
Electrode lead length	Max length 1km	Max length 2km	Max length 1km	Max length 2km
Operate resistance (kΩ)			≤25	
Release resistance (kΩ)			≥2	
Reaction time (ms)		Operate: ≤80; release: ≤160		
Level detection electrode output voltage (V)			AC24V	
Installation method		Rail mounting, Equipment type		
Number of contacts	1 group of change-over sets		1 group of normally open, 1 group of normally closed	

**Table 3 Main Circuit and Auxiliary Circuit Technical Parameters**

No.	Product Model	NJYW1 -NL1	NJYW1 -NL2	NJYW1 -BL1	NJYW1 -BL2
1	Rated control supply voltage $U_s$ (V), frequency (Hz)	AC36V, AC110/220V, AC220V/380V, 50Hz/60Hz	AC36V, AC110V, AC220V, AC380V, 50Hz/60Hz		
2	Allowable fluctuation range of rated control power supply voltage	85% $U_s$ ~110% $U_s$			
3	Agreed free air heating current $I_{th}$ (A)		5		
4	Rated operating voltage $U_e$ (V)	AC240V	AC415V		
5	Use type under rated operating voltage and rated operating current $I_e$ (A)	AC-15			
		0.75A	0.47A		
6	Rated insulation voltage $U_i$ (V)	415			
7	Rated impulse withstand voltage $U_{imp}$ (kV)	4			
8	Enclosure protection class (if applicable)	IP20			
9	Pollution class	Class 3			
10	Type and maximum value of short circuit protection	RT36-00/6A			
11	Terminal tightening screw (or nut) size	M3			
12	Torque of terminal tightening screw (N·m)	0.5			
13	Electrical life / mechanical life (10,000 times)	10/100			

**Table 4 Immunity to Interference**

No.	Test type	Test level
1	Electrostatic discharge immunity test	8kV (air discharge)
2	RF electromagnetic field immunity test	10V/m
3	Electrical fast transient/burst immunity test	2kV/5kHz on the power supply side
4	Surge immunity test	1kV (wire to wire)

NJYW1 series liquid level relay consists of a liquid level detecting electrode (wire), a signal processing circuit and an output execution relay. When it is powered on, the signal processing circuit judges the position of the current liquid level according to the level signal provided by the three

electrodes, and drives the output execution relay to turn on or off the water supply or drainage circuit to achieve the purpose of automatic control of water level.

NJYW1-N □ type is a conventional type, when the liquid level reaches E1, the water pump stops working; when the liquid level is below E2, the water pump pumps water. NJYW1-B □ type has the function to control the upper and lower pools. E1, E2 and E3 are the level detection electrodes of the upper pool, while E3, E4 and E5 are the level detection electrodes of the lower pool.

### 3 Installation

3.1 Outline and installation size: see Figure 1, unit: mm.

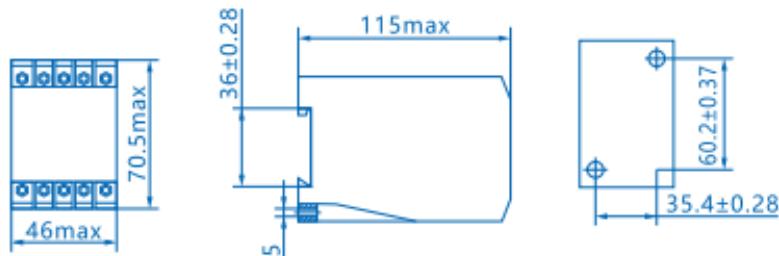


Figure 1 Outline and Installation Size

3.2 Wiring diagram: see Figure 2~ Figure 9.

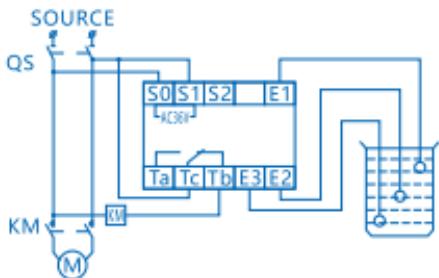


Figure 2 Wiring Diagram of  
NJYW1-NL1, NJYW1-NL2  
AC36V Water Supply Mode

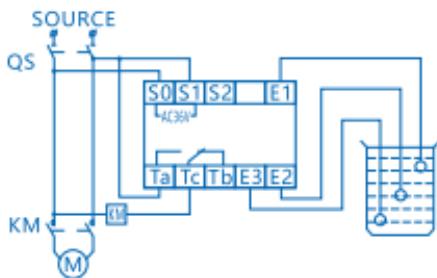
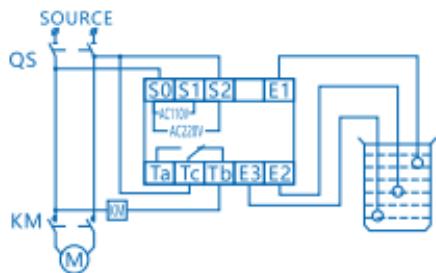
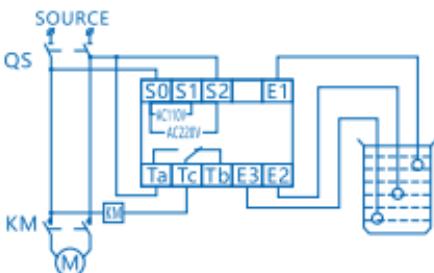


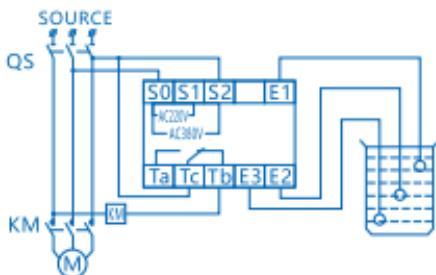
Figure 3 Wiring Diagram of  
NJYW1-NL1, NJYW1-NL2  
AC36V Drainage Method



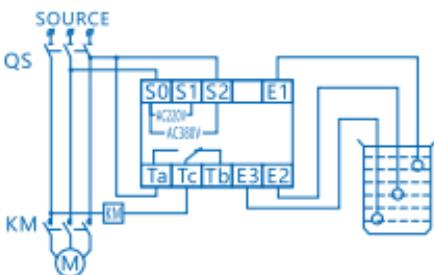
**Figure 4** Wiring Diagram of NJYW1-NL1, NJYW1-NL2 AC110V/220V Water Supply Mode



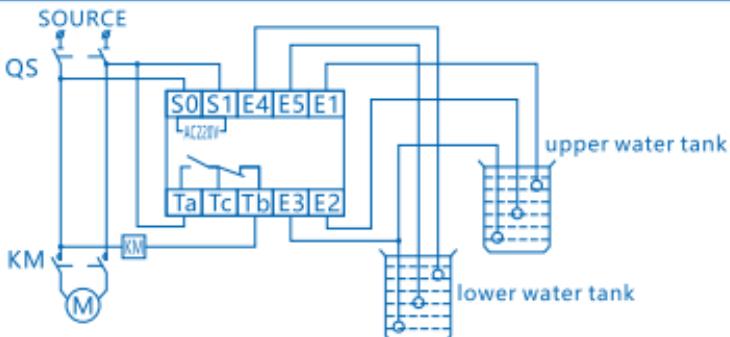
**Figure 5** Wiring Diagram of NJYW1-NL1, NJYW1-NL2 AC110V/220V Drainage Method



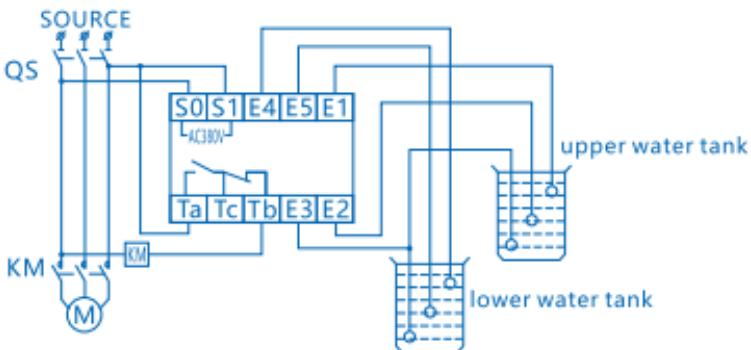
**Figure 6** Wiring Diagram of NJYW1-NL1, NJYW1-NL2 AC220V/380V Water Supply Mode



**Figure 7** Wiring Diagram of NJYW1-NL1, NJYW1-NL2 AC220V/380V Drainage Method



**Figure 8** Wiring Diagram of NJYW1-BL1, NJYW1-BL2 AC220V Upper and Lower Water Level Control



**Figure 9 Wiring Diagram of NJYW1-BL1, NJYW1-BL2 AC380V Upper and Lower Water Level Control**

Notes:

- 1) Three copper wires with good conductivity should be used for the relay, and the exposed metal part with a length of not less than 5cm should be stripped at the end of the wire as the detection electrode. The distance between the three electrodes shall not be greater than 5cm. If the controlled level tank is a metal container, the enclosure must be grounded.
- 2) Contacts Ta and Tc of NJYW1-BL□ are normally open points, Tc and Tb are normally closed points, which are controlled by two small relays inside the product respectively. Users should pay attention to this.

## 4 Maintenance

- 4.1 The terminal of the relay should be tightened on a regular basis.
- 4.2 Avoid squeezing the product; the product should be stored in a well-ventilated place.
- 4.3 For equipment that may cause material economic losses or personal safety, safety measures such as secondary circuit protection should be taken.

**Table 5 Fault Analysis and Troubleshooting**

Symptoms	Cause analysis	Troubleshooting method
The indicator light is not on	Whether the wire and the terminal are in reliable contact, and the power terminal is wired correctly.	Connect wires reliably according to the user instructions.
Control is unreliable	The end of the copper wire is rusty, resulting in poor signal transmission.	Check the three liquid level detection copper wires, and timely remove the rust for the exposed metal part of the end of the wires, or re-strip the wires.

## **5 Environmental Protection**

In order to protect the environment, the product or product parts should be disposed of according to the industrial waste treatment process, or be sent to the recycling station for assortment, dismantling and recycling according to local regulations.



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**CHiNT**

# **QC PASS**

NJYW1 Series  
Liquid Level Relay  
IEC/EN 60947-5-1

**JDQ Check 10**

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Test date: Please see the packing

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**ZHEJIANG CHINT ELECTRICS CO., LTD.**

NJYW1 Series  
Liquid Level Relay  
User Instruction

**Zhejiang Chint Electrics Co., Ltd.**

Add: No.1, CHINT Road, CHINT Industrial Zone, North Baixiang,  
Yueqing, Zhejiang 325603, P.R.China

E-mail: [global-sales@chint.com](mailto:global-sales@chint.com)

Website: <http://en.chint.com>

