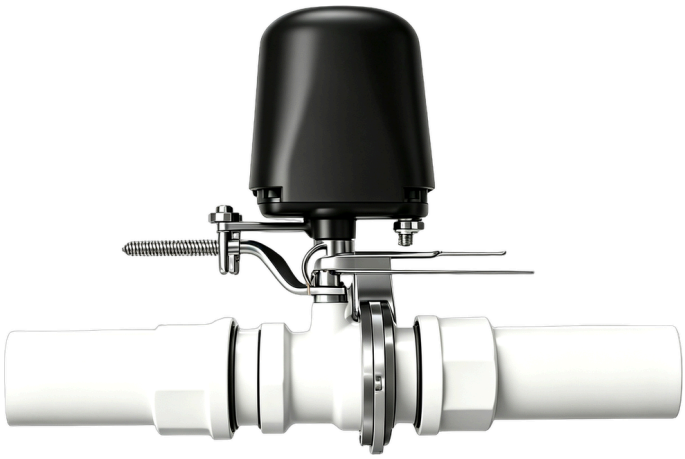
Product Manual

ZIGBEE Smart Control Robotic Arm

Model · JXS01

Product version · V1.0



1. Product Overview

JXS01 is a Zigbee smart control robotic arm (valve controller). It adopts the international standard Zigbee protocol, featuring low power consumption and high stability, and supports wireless remote and timed control. It can be seamlessly integrated into the Home Assistant (HA) system, suitable for scenarios such as home water/gas valve security and agricultural/forestry irrigation automation.

2. Features

- Compatible with various ball valve specifications: Supports 4-point, 6-point, 1-inch, and 1.25-inch handle ball valves. Fixed with mounting brackets and pipe clamps. The output shaft and valve main shaft are designed to be coaxial to ensure accurate switching positions.
- Manual Clutch · No Worry About Power Outage: In the event of a power outage, pull down the clutch ring to manually operate the handle, ensuring the valve can still be safely operated in emergencies.
- Low Power Zigbee Communication: International standard Zigbee protocol, outdoor transmission distance of 30 meters, flexible networking, strong anti-interference, compatible with various Zigbee gateways and coordinators.
- Native HA Integration: Integrated via Zigbee Home Automation (ZHA), HA automatically discovers the device, easily enabling scenarios such as remote control, timed switching, and leak-linked valve closing.

3. Application Scenarios

1. Automatic Gas Valve Closure: Works with gas alarms to automatically cut off the gas source in emergencies.

2. Remote Control of Water Valve: Remotely control the main water valve at home via mobile phone when away.

3. Centralized Management of Pipeline Valves: Centralized control of pipeline valves in buildings or industrial sites.

4. Leak-Linked Valve Closure: Works with water immersion sensors to automatically close the valve when a leak occurs.

4. Structural Interfaces

- External dimensions: Width 70mm, Height 110mm, Overall length (including bracket) 118mm.
- Structural components: Main unit (with buttons and indicator lights), mounting bracket, stainless steel pipe clamp, clutch pull ring.

- Power interface: DC 12V power input interface.
- Communication interface: Zigbee wireless communication.

5. Technical Parameters

Parameter Item	Specification Description
Product Name	zigbee smart control robotic arm
Product Model	JXS01
Supply Voltage	DC 12V / 1A
Dimensions	70mm × 110mm × 118mm (including bracket)
Weight	[To be supplemented later]
Communication Protocol	Zigbee (IEEE 802.15.4)
Wireless Transmission Distance	Outdoor 30 meters
Valve Pressure Rating	1.6 MPa
Compatible Valve Specifications	4-point, 6-point, 1-inch, 1.25-inch handle ball valves
Valve Switching Time	5~10 seconds
Output Torque	30~60 kg·cm
Compatible Mobile Systems	iOS / Android (via HA or Zigbee gateway)
Manual Clutch	Supported (manual operation possible during power outage)

6. Installation and Wiring

Installation Note: Ensure that the controller main shaft and the valve main shaft are coaxial; otherwise, the valve may fail to fully open/close, or the motor may burn out.

1. Fix one end of the mounting bracket to the actuator mounting ear; do not tighten the screws yet;

2. Fix the other side of the bracket or the pipe clamp to the water/gas pipe;

3. Adjust the actuator position so that the output shaft is coaxial with the valve handle shaft, then tighten the screws;

4. Pull down the clutch pull ring, manually move the swing arm, check if the switch is in position, and after confirmation, tighten the swing arm fixing screws;

5. Connect the DC 12V 1A power adapter.

7. Configuration and Usage (HA Integration)

1. Connect the Zigbee coordinator: Insert the Zigbee coordinator (such as Sonoff Zigbee Bridge, etc.) into the HA host, and add the Zigbee Home Automation integration in HA "Settings" -> "Devices & Services".

2. Add hub: In the ZHA integration, click "Add Hub", and select the corresponding serial port to add the coordinator.

3. Valve enters pairing mode: Long press the button on the valve body for about 5 seconds, the indicator light flashes rapidly, entering pairing mode.

4. Auto-discovery: In the ZHA integration of HA, click "Add Device", the system will automatically search for and discover the valve.

5. Start control: After successful addition, the valve entity appears on the dashboard, you can click open/close, or create automation linkage.

Physical operation: Pressing the device button can directly control open/close; when power is off, pull down the clutch pull ring to operate manually.

8. Communication Protocol

This product uses the Zigbee (IEEE 802.15.4) wireless communication protocol, not the Modbus RTU protocol.

The device interacts with the gateway (such as the Zigbee coordinator of HA) via the Zigbee wireless network to achieve switch status reporting and control command delivery.

9. Applicable Conditions and Limitations

- Pressure limit: The valve pressure must not exceed 1.6 MPa.
- Coaxiality limit: Coaxiality of the main shaft must be ensured during installation; otherwise, it may lead to motor burnout.
- Usage environment: Suitable for handle ball valves, not suitable for other types of valves.

10. Troubleshooting

- Valve does not open or close fully: Check whether the main shaft of the controller and the main shaft of the valve are coaxial. Non-coaxiality will prevent full opening and closing and may even burn out the motor.
- Valve operation is stiff: Pull down the clutch pull ring and manually operate the valve handle back and forth by 90 degrees until it moves smoothly; if the valve itself is too tight, it is recommended to replace the valve.
- Device cannot join the network: Check whether the Zigbee gateway is online normally; try to keep the device close to the gateway during network joining.

11. Safety and Maintenance

- Please use the standard DC 12V/1A power adapter and avoid using low-quality power supplies.
- It is strictly prohibited to use under overpressure (>1.6 MPa) to avoid valve damage or water/air leakage.
- Pay attention to electrical safety during installation and maintenance, and keep the equipment dry.

12. Others

- Disclaimer: If this product undergoes a functional upgrade, no prior notice will be given.

13. Packing List

- Main unit x 1
- User manual x 1
- Power adapter x 1
- Tube clamp x 1