



Tianjin ZINACA Intelligent Equipment Co., Ltd

Rotary Paddle Level Switch User Manual

1. Basic Specifications

Parameter	Specification
Power Supply	220VAC / 110VAC / 24VDC (B), 50Hz
Power Consumption	4W
Contact Capacity	SPDT, 5A / 250VAC
Paddle Speed	1 R.P.M
Dielectric Strength	AC 1500V for 1 minute
Measuring Torque	1.0 N·m
Suitable Bulk Density	≥ 0.5 g/cm ³
Operating Temperature	-20°C to +80°C (standard), -20°C to +400°C (high-temp type)

2. Working Principle

The paddle of the rotary level switch is connected to the drive shaft and clutch. When there is no material in contact with the paddle, the motor rotates normally.

Once the paddle comes into contact with material, the resistance causes the motor to stop, the power is cut off, and the mechanism sends out a contact signal indicating that the material has reached the preset level.

3. Installation Notes

1. For **horizontal installation**, it is recommended to tilt the switch **15°–20° downward** to reduce material impact on the paddle.
2. The **cable entry** on the junction box must face **downward**, and the **cable gland** must be tightly secured.
3. Confirm that the **power supply voltage** matches the rated voltage before energizing.
4. Ensure that the **load on the controlled circuit** matches the contact capacity of the switch.
5. Avoid installing the switch near **bridge breakers** or **vibration motors**, which may cause malfunction.
6. The switch should be installed **away from the material inlet** to prevent paddle damage or false triggering.
 - If it must be installed near the inlet, install a **2-inch wide protective baffle** about **200mm above** the switch.

7. Choose **horizontal or vertical installation** depending on the model type.
8. For **adjustable shaft models**, if disassembled and reinstalled on site, ensure the **universal joint is firmly secured** to the drive shaft using **threadlocker (anaerobic adhesive)** and tighten the nut with a wrench.
9. During **on-site installation or maintenance**, always **disconnect power before opening the housing** (follow the warning label).
10. The installation environment must be free from **toxic gases** that may corrode **aluminum alloy**.
11. The **measured medium's maximum temperature** must not exceed the **temperature specified on the product label**.

4. Torque Adjustment

1. The torque can be adjusted according to the bulk density of the measured material.
 - When the material has **high bulk density**, adjust the spring to the **strongest torque position**; in this case, the paddle sensitivity is **lower**.
 - When the material has **low bulk density**, adjust the spring to a **weaker torque position**, increasing the **sensitivity** of the paddle.
2. **Adjustment method:**

Open the terminal box and remove the torque spring from the **multi-hole bracket**. Reinsert it into the appropriate hole based on your requirement.

 - The **closer the spring is to the terminal block**, the **weaker** the torque.
 - The **farther** from the terminal block, the **stronger** the torque.

Note:

Do not change the torque spring or its position arbitrarily during operation. Improper adjustment may lead to false operation or failure in material detection.

5. Common Faults and Troubleshooting

No.	Fault Phenomenon	Possible Cause	Solution
1	Paddle continues rotating when material is present	Paddle size does not match material bulk density	Re-evaluate and select appropriate paddle size
2	Paddle or shaft is bent or deformed	Impact force of material is too strong	Add protective measures or guards
3	Paddle does not rotate	1. Power not connected	Check wiring and reconnect properly
		2. Motor failure	Contact manufacturer to replace motor

6. Routine Maintenance

1. Check whether the **drive shaft and paddle are bent, deformed, or damaged**.
2. Ensure the **connection between the paddle and the shaft is secure**.
3. Periodically **clean the paddle and shaft** to remove adhered materials or debris.

7. Wiring Diagram

