Industrial Shields®

KNOW-HOW · CHECKLIST

Relay or transistor output: choose it and check it

Relay for AC loads, loads with their own supply or when you need isolation. Transistor for DC loads that switch often or need PWM. When an output fails, check in this order.

Check	What to do	Good result
1. Output LED	Activate the output from the program	LED on. If not, check program or output configuration
2. Output supply	Transistor outputs: measure the supply on the output common	Present and within range
3. Voltage at the load	Measure across the load with the output on	Close to the supply voltage
4. Load current	Compare it with the output rating	Below the rating of the output and of the group
5. Inductive loads	Check protection on coils and valves	Diode on DC loads, RC or varistor on AC loads

What the readings tell you

- **LED on, no voltage at the output:** no supply on the common (transistor), or open load circuit (relay).
- **Works and then stops:** overload or short circuit protection: measure the load current.
- **Relay stays closed:** contact welded by inrush current: use an interface relay or contactor.
- **Transistor output, AC load, nothing happens:** transistor outputs switch DC only.

Relay or transistor?

- Relay: AC or DC, isolated contact, slow, wears out with operations.
- Transistor: DC only, one polarity, fast and PWM, no wear, needs supply on its common.
- Check the switches that select the output mode, where your PLC range has them.

Details for your PLC range: industrialshields.com/slides/slide/relay-or-transistor-output-which-one-and-how-to-check-it-938