LJ12A3-4-Z/BY Proximity Sensor

Inductive metal detection | PNP normally open | Non-flush mounting

1 ELECTRICAL AND SENSING DATA

PARAMETER	VALUE	CONDITIONS
Supply voltage	**6 to 36 V DC**	Nominal 12 to 24 V DC; ripple ≤10% peak-to-peak
Output	**PNP, normally open**	Three-wire DC; sources current when metal is detected
Output current	**300 mA maximum**	Rated output limit; check the connected load
Sensor current consumption	**13 mA maximum**	DC NPN/PNP series specification
Nominal sensing distance	**4 mm ±10%**	Standard iron target: 8 × 8 × 1 mm
Recommended set distance	**0 to 3.6 mm**	Maintain clearance from the sensing face
Response frequency	**500 Hz**	DC series specification
Protection functions	Reverse polarity, surge and short circuit	Use a protected DC supply

2 MECHANICAL

Mounting format	**M12 threaded barrel**
Body length	**56.7 mm nominal**
Housing / sensing face	Nickel-plated brass / ABS
Mounting type	Non-flush, unshielded
Included hardware	2 nuts and 2 lock washers

Body length excludes the cable strain relief. Keep the blue sensing face proud of surrounding metal. Check the supplied part before machining a bracket.

3 ENVIRONMENT

Operating / storage temperature	**-30 to +65 °C**
Relative humidity	35 to 95% RH
Moisture condition	No condensation or freezing
Enclosure rating	**IP67**
Insulation resistance	≥50 MΩ at 500 V DC

Protect exposed cable joints separately. Detection distance reduces with non-magnetic metals and varies with target size, material and temperature.

4 CONNECTION AND FIRST CHECK

CONDUCTOR	STANDARD THREE-WIRE PNP CONNECTION
Brown	Positive DC supply (+V)
Blue	Supply negative (0 V)
Black	Switched PNP output to a compatible input or load, with its return at 0 V

Confirm the wiring diagram on the supplied sensor before connection. With power off, connect a compatible input and a regulated 12 or 24 V DC supply. Apply power, then bring an iron target within the set distance and remove it. The input should turn on near the target and off when it is removed. If it stays on, move surrounding metal away from the sensing face and check the input polarity.

Controller compatibility: the PNP output can approach the sensor supply voltage. Use an appropriate interface for 3.3 V or 5 V logic. Do not connect the black wire directly to an Arduino, ESP32 or Raspberry Pi GPIO. This PNP model requires different input wiring from an NPN sensor.

Revision 1 · 2026-09-24: Initial electrical, sensing, mechanical and connection data.