



## M12 Inductive Proximity Sensor with 8mm / 10mm Non-flush Detection and NPN Normally Open (N.O) Output for IP67 Protection

### Basic Information

- Place of Origin: Guangdong, China
- Brand Name: KRONZ
- Certification: CE
- Model Number: IN8-M12NO68-M0A/D, IN8-M12NO50-M0A/D, IN10-M12NO68-M0A/D, IN10-M12NO50-M0A/D
- Minimum Order Quantity: 10 pieces
- Price: Negotiable
- Packaging Details: Paper box packing
- Delivery Time: 5-8 working days
- Payment Terms: T/T
- Supply Ability: 100000 pieces per month

KRONZ



### Product Specification

- Voltage Drop:  $\leq 2.0V$
- Operating Current: 200mA
- Leakage Current:  $\leq 0.01mA$
- Indication: Permanently On: Switching Output Active
- Switching Frequency: 500Hz- 400Hz
- Sensing Range: 8mm non-flush / 10mm non-flush
- Highlight: **8mm / 10mm non-flush detection Inductive Proximity Sensor**  
**, NPN Normally Open (N.O) M12 Sensor,**  
**IP67 protection NPN Proximity Sensor**

## Product Description

# M12 Inductive Proximity Sensor NPN N.O — 8mm / 10mm Non-flush | KRONZ

## M12 Inductive Proximity Sensor -- NPN Normally Open (N.O) Series

8 mm / 10 mm non-flush detection \* 10-30 V DC \* IP67 \* 4-pin M12 connector

*Built for Japanese PLCs and current-sinking input modules. When metal enters the detection range, the output pulls down to 0 V -- directly compatible with sink-type inputs on Mitsubishi, Omron and other Japanese PLCs without any level shifter.*

**Models on this page:** IN8-M12NO68-M0A/D, IN8-M12NO50-M0A/D, IN10-M12NO68-M0A/D, IN10-M12NO50-M0A/D

## Product Overview

### What this series solves

On any production line there are three questions the operator keeps asking: is the part here, has the mechanism reached its end-stop, has the gripper closed? All three reduce to one detection: is a metal object in a specific position. An NPN normally-open proximity sensor gives a direct answer -- no metal = output open, metal present = output closed.

### How NPN N.O works

NPN output is also called current sinking. Inside the sensor is an NPN transistor whose emitter is tied to 0 V (L-):

No metal target → transistor off → output pin is high-impedance → no current through the load → PLC input reads "0"

Metal enters the range → transistor on → output pin is pulled to ~0 V, current flows from L+ through the load into the output pin → PLC input reads "1"

The load is wired between L+ (brown, Pin 1) and OUT (black, Pin 4). Current flows into the output pin -- that is the sink behavior.

### When to choose NPN N.O

| Your situation                                              | Choose it?   |
|-------------------------------------------------------------|--------------|
| PLC input module is sink / common-plus (COM tied to 24 V+)  |              |
| You use Mitsubishi, Omron, Keyence or similar Japanese PLCs |              |
| You want a logic that reads "target arrived = ON"           |              |
| PLC is source / common-minus                                | pick PNP N.O |
| You need fail-safe -- broken wire must trigger an alarm     | pick NPN N.C |

### IN8 vs IN10 -- how to pick between the two distances

**IN8 series** -- 8 mm detection range, 500 Hz switching -- faster response, ideal for high-speed counting and small-part detection

**IN10 series** -- 10 mm detection range, 400 Hz switching -- more installation margin when the target vibrates or the mounting surface is uneven

Both share the M12 × 1 mm cylindrical thread and non-flush (unshielded) installation. Same datasheet, same mounting logic -- only the detection range and switching frequency differ.

## Key Features

### 1. NPN current-sinking output, direct to Japanese PLCs

Wire the output straight into the sink input of a Mitsubishi FX/Q, Omron CP/CJ, or Keyence module. No interposing relay, no level shifter. You save the cost of one relay and one wiring failure point.

### 2. Normally-open logic, easy to read on the floor

No metal → LEDs off, output open. Metal present → 4 × LEDs light and output closes. During commissioning you don't need to check the manual -- just look at the LEDs.

### 3. Two detection ranges on one page

Choose 8 mm at 500 Hz for high-speed applications, or 10 mm at 400 Hz when the target has more play.

### 4. Non-flush (unshielded) -- longer range from the same M12 footprint

The unshielded structure lets the magnetic field spread sideways, giving a longer rated range than the flush variant in the same M12 body. The trade-off is that you must keep free metal space around the sensing face.

### 5. IP67 + -25...70 °C -- survives the shop floor

IP67 per IEC 60529: dust-tight and protected against temporary immersion. Cutting fluid, coolant splash, and metal dust are all in spec. The -25...70 °C operating range covers cold storage to cabinet-side mounting.

### 6. Nickel-plated brass body + PBT sensing face

The housing is nickel-plated brass for impact and corrosion resistance. The sensing face is blue PBT -- wear-resistant and insensitive to metal swarf. Two hex nuts (17 mm across flats) clamp the sensor and resist long-term vibration loosening.

### 7. Field-replaceable M12 connector

The 4-pin M12 A-coded male connector (IEC 61076-2-101) is not a fixed cable. If the cable gets damaged, just swap the cordset -- no need to disassemble the sensor or re-wire it.

### 8. Triple electrical protection -- hard to kill during commissioning

Built-in short-circuit, reverse-polarity and power-up pulse protection. If you accidentally reverse the 24 V supply or short the output to ground, the sensor protects itself and resumes operation once the fault is cleared.

## Technical Specifications

### Common electrical parameters (all 4 models)

| Parameter                  | Specification                                     | Standard        |
|----------------------------|---------------------------------------------------|-----------------|
| Output function            | NPN, Normally Open (N.O)                          | IEC 60947-5-2   |
| Output configuration       | DC 3-wire                                         | IEC 60947-5-2   |
| Thread / form factor       | M12 × 1 mm cylindrical                            | --              |
| Installation type          | Non-flush (unshielded)                            | IEC 60947-5-2   |
| Operating voltage          | 10...30 V DC (±10%)                               | IEC 60947-5-2   |
| Voltage drop               | ≤ 2.0 V                                           | IEC 60947-5-2   |
| Rated operating current    | 200 mA                                            | IEC 60947-5-2   |
| Leakage current            | ≤ 0.01 mA                                         | IEC 60947-5-2   |
| No-load current            | ≤ 10 mA (at 24 V DC)                              | IEC 60947-5-2   |
| Switching hysteresis       | < 15% of Sr                                       | IEC 60947-5-2   |
| Repeat accuracy            | < 1.0% of Sr                                      | IEC 60947-5-2   |
| Electrical protection      | Short-circuit / reverse-polarity / power-up pulse | IEC 60947-5-2   |
| Switching-state indication | 4 × LEDs, on while output is active               | --              |
| Connection                 | 4-pin M12 connector, A-coded                      | IEC 61076-2-101 |

### Per-model differences (key selection parameters)

| Model             | Sensing range Sn | Switching freq. | Body length | Thread length | Total length (straight) | 90° height |
|-------------------|------------------|-----------------|-------------|---------------|-------------------------|------------|
| IN8-M12NO68-M0A/D | 8 mm (non-flush) | 500 Hz          | 68 mm       | 42 mm         | 68 mm                   | 34 mm      |
| IN8-M12NO50-M0A/D | 8 mm (non-flush) | 500 Hz          | 50 mm       | 28 mm         | 50 mm                   | 20 mm      |

|                    |                   |        |       |       |       |       |
|--------------------|-------------------|--------|-------|-------|-------|-------|
| IN10-M12NO68-M0A/D | 10 mm (non-flush) | 400 Hz | 68 mm | 42 mm | 68 mm | 34 mm |
| IN10-M12NO50-M0A/D | 10 mm (non-flush) | 400 Hz | 50 mm | 28 mm | 50 mm | 20 mm |

Shared across all four: M12 × 1 mm thread, Ø7 mm sensing face, 67 mm barrel length (68-body) or 49 mm (50-body), 17 mm nut across flats.

Mechanical and environmental parameters

| Parameter                     | Specification                                            | Standard        |
|-------------------------------|----------------------------------------------------------|-----------------|
| Ambient operating temperature | −25 ... +70 °C                                           | IEC 60068-2-14  |
| Ingress protection            | IP67 (dust-tight, protected against temporary immersion) | IEC 60529       |
| Housing material              | Brass, nickel-plated                                     | --              |
| Sensing face material         | PBT (polybutylene terephthalate)                         | --              |
| Connector thread              | M12 × 1 mm male                                          | IEC 61076-2-101 |
| Mounting hardware             | Two hex nuts, 17 mm across flats                         | --              |

NPN N.O output truth table

| Metal target | Output transistor | Output pin level | LEDs | PLC input |
|--------------|-------------------|------------------|------|-----------|
| Not in range | Off (high-Z)      | Pulled up to L+  | Off  | 0         |
| Enters range | On                | ≈ 0 V            | Lit  | 1         |

Configuration Details

Model selection

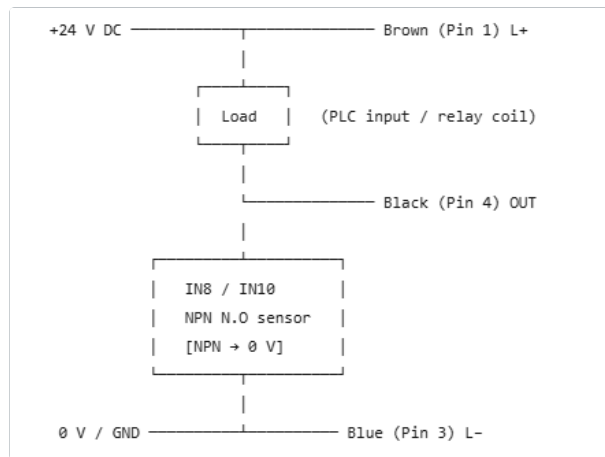
| Model              | Range | Frequency | Body  | Recommended use                                              |
|--------------------|-------|-----------|-------|--------------------------------------------------------------|
| IN8-M12NO68-M0A/D  | 8 mm  | 500 Hz    | 68 mm | High-speed counting, small-part detection, standard stations |
| IN8-M12NO50-M0A/D  | 8 mm  | 500 Hz    | 50 mm | Slim fixtures, tight machine frames                          |
| IN10-M12NO68-M0A/D | 10 mm | 400 Hz    | 68 mm | Targets that vibrate or have wide position tolerance         |
| IN10-M12NO50-M0A/D | 10 mm | 400 Hz    | 50 mm | Limited space but 10 mm range required                       |

Pin assignment -- 4-pin M12 A-coded

| Pin | Wire colour (typical) | Signal | Description                              |
|-----|-----------------------|--------|------------------------------------------|
| 1   | Brown                 | L+     | Supply positive, 10...30 V DC            |
| 2   | White                 | N/C    | Not connected (reserved)                 |
| 3   | Blue                  | L−     | Supply 0 V (GND)                         |
| 4   | Black                 | OUT    | NPN Normally Open (N.O) switching output |

The factory datasheet does not include a wiring diagram. The table above follows the M12 4-pin A-coded convention (IEC 61076-2-101). Verify against the wiring label packed with the sensor before commissioning.

Wiring diagram -- NPN N.O



Key point: The load sits between L+ and OUT. When the sensor closes, it sinks the output pin to 0 V, completing the current path. This is the source-and-sink (sink) wiring.

## Dimensions (mm)

| Dimension                             | 68 mm body | 50 mm body |
|---------------------------------------|------------|------------|
| Total length (straight M12 connector) | 68         | 50         |
| Barrel length (to connector shoulder) | 67         | 49         |
| Threaded section length               | 42         | 28         |
| Sensing face diameter                 | Ø7         | Ø7         |
| 90° right-angle connector height      | 34         | 20         |
| Mounting thread                       | M12 × 1 mm | M12 × 1 mm |
| Nut across flats                      | 17         | 17         |

## Mounting requirements (non-flush)

**Free metal space around the sensing face.** Non-flush (unshielded) sensors let the magnetic field expand sideways. Without sufficient clearance, the effective detection range collapses. Recommended free space  $\geq 3 \times S_n$  ( $\approx 24$  mm for the 8 mm body,  $\approx 30$  mm for the 10 mm body). When mounting two sensors side by side, also keep enough spacing to prevent mutual interference.

**If you must flush-mount.** This series is unshielded. If the installation cannot provide side clearance, switch to a flush (shielded) variant instead.

**Tightening torque.** Clamp with the two hex nuts. Do not over-tighten -- suggested maximum is 15 N\*m to avoid housing deformation.

**Temperature drift.** Datasheet repeat accuracy is  $< 1.0\%$  Sr and hysteresis  $< 15\%$  Sr. Allow margin for tight-positioning applications where temperature varies across the  $-25 \dots 70$  °C range.

## Typical applications

| Industry              | Use case                                                                     |
|-----------------------|------------------------------------------------------------------------------|
| Industrial automation | Part-presence detection on conveyors, station confirmation on assembly lines |
| Packaging machinery   | Carton and foil position verification, flap-in-place check                   |
| Material handling     | Pallet, tote and shuttle positioning                                         |
| Machine tools         | End-stop detection, tool-changer position feedback                           |
| Robotics              | Gripper open/close confirmation, axis end-position homing                    |

## Related variants in the same M12 series

| Output function           | Description                                                                     |
|---------------------------|---------------------------------------------------------------------------------|
| NPN Normally Closed (N.C) | Output closed when no target -- for fail-safe circuits and wire-break detection |
| PNP Normally Open (N.O)   | Current-sourcing output, fits Siemens and other European PLCs                   |

|                           |                      |
|---------------------------|----------------------|
| PNP Normally Closed (N.C) | Sourcing + fail-safe |
|---------------------------|----------------------|

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