



M12 Inductive Proximity Sensor with 8mm / 10mm Non-flush Detection and PNP Normally Closed (N.C) Output - IP67 Protected

Basic Information

- Place of Origin: Guangdong, China
- Brand Name: KRONZ
- Certification: CE
- Model Number: IN8-M12PC68-M0A/D, IN8-M12PC50-M0A/D, IN10-M12PC68-M0A/D, IN10-M12PC50-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

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Product Specification

- Standard: IEC 60947-5-2
- Output Function: PNP, Normally Closed (N.C)
- Output Configuration: DC 3-wire
- Thread / Form Factor: M12 × 1 Mm Cylindrical
- Installation Type: Non-flush (unshielded)
- Rated Operating Current: 200 MA
- Connection: 4-pin M12 Connector, A-coded
- Switching Freq.: 500 Hz/500 Hz
- Highlight: **8mm / 10mm non-flush detection Inductive Proximity Sensor , PNP Normally Closed (N.C) M12 Sensor, IP67 protection Inductive Proximity Sensor**

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Product Description

M12 Inductive Proximity Sensor PNP N.C — 8mm / 10mm Non-flush | KRONZ

M12 Inductive Proximity Sensor -- PNP Normally Closed (N.C) Series

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

One-line positioning: The fail-safe choice for European PLCs and export-bound equipment. PNP current-sourcing output combined with normally-closed logic -- the output stays at 24 V during normal operation, and any wire break, supply loss, or sensor fault kills the output and triggers the alarm.

Models on this page: [IN8-M12PC68-M0A/D](#) , [IN8-M12PC50-M0A/D](#) , [IN10-M12PC68-M0A/D](#) , [IN10-M12PC50-M0A/D](#)

Product Overview

What this series solves

Normally-open sensors hide their faults. If the cable is cut, the connector is loose, or the supply drops, the PLC sees exactly the same state as "no metal present" -- and the line keeps running. The failure is silent until something crashes or a batch goes bad.

PNP normally-closed sensors invert that logic: the output sources 24 V during normal operation, and any abnormal condition causes the output to disappear. The PLC detects "voltage lost" and triggers a stop and an alarm. This is the fail-safe principle, delivered on the source (PNP) side for European PLCs and export equipment.

How PNP N.C works

PNP output is current sourcing. The internal PNP transistor has its emitter tied to L+. The N.C variant inverts the logic of N.O:

No metal target -> transistor on -> output pin sources ~L+ (24 V), load is energized -> PLC input reads "1"

Metal enters the range -> transistor off -> output pin goes high-impedance, load de-energizes -> PLC input reads "0"

The load is wired between OUT (black, Pin 4) and L- (blue, Pin 3) -- the same wiring position as PNP N.O. Only the internal logic differs. When you retrofit a PNP N.O station with PNP N.C, the cabinet wiring stays as it is.

When to choose PNP N.C

Your situation	Choose it?
You need fail-safe -- wire break must trigger an alarm	
PLC input module is source / common-minus (Siemens, Beckhoff and other European PLCs)	
Equipment is exported to Europe or North America with safety logic	
Used as a safety gate, guard interlock, or in-position check	
You only need a simple "target arrived" check, no safety logic	pick PNP N.O for simplicity
PLC is sink / common-plus (Mitsubishi, Omron, Japanese PLCs)	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

IN10 series -- 10 mm detection range, 400 Hz switching -- more installation margin

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

Key Features

1. Normally-closed logic -- faults surface, not hide

During normal operation the output sources 24 V. Cable break, M12 connector loose, 24 V supply lost, sensor itself failed -- any of these kills the output and the PLC captures it instantly. Turns "silent failure" into "loud alarm."

2. PNP current-sourcing, direct to European PLCs

The output plugs straight into the source input of Siemens S7, Beckhoff, or Schneider modules -- no interposing relay, no level shifter. Drop-in for export-bound equipment.

3. Designed for safety interlocks and in-position checks

Safety gate closed -> metal flag enters the range -> output opens -> machine allowed to start. Gate opens -> output returns -> safety circuit acts. Same idea for confirming that a workpiece is still in the fixture (drop-out triggers the alarm).

4. Same wiring as PNP N.O -- zero rewiring when you upgrade

The load is wired between OUT and L-, exactly as on PNP N.O. Upgrading from N.O to N.C requires no wiring change -- only invert the input logic in the PLC program. Retrofit projects are particularly easy.

5. 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.

6. 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. The trade-off is the free metal space around the sensing face -- see Configuration Details.

7. IP67 + -25...70 °C

IP67 per IEC 60529: dust-tight and protected against temporary immersion. Operating temperature covers -25 °C cold storage to +70 °C cabinet-side mounting.

8. Nickel-plated brass + PBT sensing face

Nickel-plated brass housing for impact and corrosion resistance. Blue PBT sensing face, wear-resistant and insensitive to metal swarf. Two hex nuts (17 mm across flats) resist long-term vibration loosening.

9. Field-replaceable M12 connector + triple electrical protection

4-pin M12 A-coded male connector (IEC 61076-2-101) for quick cordset replacement on the floor. Built-in short-circuit, reverse-polarity and power-up pulse protection -- the sensor survives commissioning mistakes.

Technical Specifications

Common electrical parameters (all 4 models)

Parameter	Specification	Standard
Output function	PNP, Normally Closed (N.C)	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-M12PC68-M0A/D	8 mm (non-flush)	500 Hz	68 mm	42 mm	68 mm	34 mm
IN8-M12PC50-M0A/D	8 mm (non-flush)	500 Hz	50 mm	28 mm	50 mm	20 mm
IN10-M12PC68-M0A/D	10 mm (non-flush)	400 Hz	68 mm	42 mm	68 mm	34 mm
IN10-M12PC50-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	--

PNP N.C output truth table

Metal target	Output transistor	Output pin level	LEDs	PLC input
Not in range	On	≈ L+ (24 V)	Lit	1
Enters range	Off (high-Z)	0 V (pulled down by load)	Off	0
Wire break / power loss / sensor fault	No output	--	Off	0 -> alarm

Note the last row -- that is exactly what normally-closed brings to a safety circuit.

Configuration Details

Model selection

Model	Range	Frequency	Body	Recommended use
IN8-M12PC68-M0A/D	8 mm	500 Hz	68 mm	Safety-gate interlock, high-speed station presence check

IN8-M12PC50-M0A/D	8 mm	500 Hz	50 mm	Slim fixtures, tight safety points
IN10-M12PC68-M0A/D	10 mm	400 Hz	68 mm	Vibration-tolerant guard doors, generous safety margin
IN10-M12PC50-M0A/D	10 mm	400 Hz	50 mm	Limited space with 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	PNP Normally Closed (N.C) switching output

Data note: 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.

Safety-circuit application example

Safety gate CLOSED -> metal flag enters range -> N.C output OPENS -> machine may start
 Safety gate OPEN -> metal flag leaves range -> N.C output CLOSES -> machine stops
 Cable cut / 24 V lost / sensor fault
 -> output disappears -> instant stop and alarm (fail-safe)

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 sensors let the magnetic field expand sideways. Without sufficient clearance, the effective range collapses. Recommended free space $\geq 3 \times S_n$ (≈ 24 mm for the 8 mm body, ≈ 30 mm for the 10 mm body). Side-by-side sensors also need adequate spacing to prevent mutual interference.

If you must flush-mount. This series is unshielded. Switch to a flush (shielded) variant if side clearance is impossible.

Tightening torque. Suggested maximum 15 N*m to avoid housing deformation.

Safety-point placement. Mount interlocks where they cannot be easily struck. Consider a protective bracket. Route the cable away from power conductors.

Typical applications

Industry	Use case
Safety guarding	Safety-gate / guard-door interlock, light-curtain bypass confirmation
Industrial automation	Workpiece in-position check (drop-out triggers alarm), fixture-clamp confirmation
Packaging machinery	Guard in-place, foil / carton missing detection
Material handling	Pallet in-position, stack-height over-limit detection
Machine tools	Guard interlock, tool in-position detection

Export equipment	European / American PLC integration with fail-safe logic
Robotics	Safety-fence gate status, gripper part-retention confirmation

Related variants in the same M12 series

Output function	Description
PNP Normally Open (N.O)	Sourcing, output at 24 V when metal arrives
NPN Normally Open (N.O)	Current-sinking output, fits Japanese PLCs
NPN Normally Closed (N.C)	Sinking + fail-safe

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