



M12 Inductive Proximity Sensor with PNP Normally Open Output and 8mm / 10mm Non-flush Detection IP67 Protection

Our Product Introduction

Basic Information

- Place of Origin: Guangdong, China
- Brand Name: KRONZ
- Certification: CE
- Model Number: IN8-M12PO68-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

- Standard: IEC 60947-5-2
- Output Type: PNP, Normally Open (N.O)
- Rated Operating Current: 200 MA
- Thread / Construction Size: M12 * 1 Mm Cylindrical
- Mounting Type: Non-flush (unshielded)
- Connection: 4-pin M12 Connector, A-coded
- Highlight: **PNP Normally Open Inductive Proximity Sensor,
8mm / 10mm Non-flush M12 Sensor,
IP67 Protection Proximity Switch**

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Product Description

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

M12 Inductive Proximity Sensor * PNP Normally Open (NO) Series
8mm/10mm Non-flush Sensing * 10-30V DC * IP67 Protection * 4-pin M12 Connector

Single-wire positioning: Default choice for export machines and European PLCs. PNP sourcing output provides 24V when metal is detected, connecting directly to other source input modules without level conversion.

This page includes 4 models: IN8-M12PO68-M0A/D (featured), IN8-M12PO50-M0A/D, IN10-M12PO68-M0A/D, IN10-M12PO50-M0A/D

Product Overview

What Problem Does This Series Solve?

Every production line faces three fundamental questions: Is the part in position? Has the mechanism reached its final position? Has the gripper closed? All these questions ultimately come down to one point: Is there a metal object in the specified position? The PNP normally open transistor provides a straightforward answer: Output is open when no metal is present, and outputs 24V when metal is detected.

How PNP Normally Open Function Works

PNP output is also called current sourcing. Inside the sensor, the PNP transistor's emitter is connected to L+:

No metal target → Transistor cutoff → Output pin high impedance, no load current → PLC input reads "0"

Metal enters detection range → Transistor conducts → Output pin pulled to $\approx$ L+ (24V), current flows from output pin to load → PLC input reads "1"

Load is connected between OUT (black wire, pin 4) and L- (blue wire, pin 3). Current flows out of the sensor, hence it's called a sourcing device.

Why PNP is the International Default Option

Your Situation	Selection
PLC input module is sourcing/common negative (COM connected to 0V)	
You use Beckhoff, Schneider or other European brand PLCs	
Machine exports to Europe or North America	PNP is mainstream there
New project, PLC brand not yet determined	PNP has the widest compatibility
PLC is sinking/common positive (Mitsubishi, Omron, Keyence)	Choose NPN version
You need wire break/power loss alarm	Choose PNP NC

Selection note: If the machine is for export, or the PLC brand is not yet determined, PNP NO is the lowest-risk default choice. European and North American PLCs almost exclusively use sourcing inputs, while many Japanese modules offer switchable source/sink inputs.

Featured Model: IN8-M12PO68-M0A/D

The PNP normally open * 68mm sensor is highlighted in yellow on the factory datasheet. Its parameter combination is the most balanced: 8mm sensing range + 500Hz switching frequency (highest in this series), and the 68mm standard size fits the vast majority of mounting holes. This model typically has optimal stock availability and delivery cycles—recommended for priority consideration in new projects.

Choosing Between Two Body Families

IN8 Series: 8mm sensing range, 500Hz switching frequency—fastest response, suitable for high-speed counting and small part detection

IN10 Series: 10mm sensing range, 400Hz switching frequency—longer reach, suited for targets with vibration or uneven mounting surfaces

Both share M12 * 1mm thread, non-flush (unshielded) construction, appear on the same datasheet, and follow the same mounting-dimension logic.

Key Features

PNP sourcing output connects straight to European PLCs - No intermediate relay required. The output ties directly into sourcing input modules, Beckhoff, Schneider and similar. This removes one isolation relay in cost and one wiring failure point.

The default for export-bound equipment - Sourcing inputs are standard across European and North American PLCs. Specifying PNP on export machines avoids rework during on-site commissioning caused by logic-level mismatch.

Normally-open logic you can read at a glance - No metal detected → LED off, output open. Metal detected → 4 LEDs permanently on, output at 24V. Commissioning needs no lookup table—the lamp tells you the state.

8mm or 10mm sensing, up to 500Hz - Selectable on the same page: 8mm version at 500Hz (highest in this series, ideal for high-speed counting); 10mm version carries more margin for stations with target wobble.

Non-flush (unshielded) for longer reach in the same body - The unshielded design lets the field spread laterally, giving a longer sensing range than shielded versions in the same M12 envelope. The trade-off is a required metal-free clearance around the sensor.

IP67 + -25...70°C - IP67 per IEC 60529: fully dust-tight and protected against temporary immersion. Install directly where cutting fluid, coolant spray and metal swarf are present. Operating range covers -25°C cold storage through +70°C beside machine tools.

Nickel-plated brass body + PBT sensing face - The nickel-plated brass housing resists impact, corrosion and vibration. The blue PBT sensing face resists wear and is insensitive to metal chips. Twin hex nuts (17mm across flats) clamp the body so it will not loosen under sustained vibration.

Field-replaceable M12 connector, only 34mm elbow height - A 4-pin M12 A-coded male connector (IEC 61076-2-101), not a fixed cable. If the cable is torn off, swap the cordset—no disassembly, no rewiring. With a 90° angled cordset, installed height drops to 34mm (68mm body) / 20mm (50mm body), fitting control cabinets and tight machine spaces.

Triple electrical protection—hard to kill by miswiring - Built-in short-circuit, reverse-polarity and power-up pulse protection. Reverse the 24V during commissioning or short the output to ground, and the sensor protects itself, then returns to normal operation once the fault is cleared.

Technical Specifications

Common Electrical Data (Shared by All 4 Models)

Parameter	Specification	Standard
Output type	PNP, Normally Open (N.O)	IEC 60947-5-2
Output configuration	DC 3-wire	IEC 60947-5-2
Thread / construction size	M12 * 1mm cylindrical	--
Mounting type	Non-flush (unshielded)	IEC 60947-5-2
Operating voltage	10...30V DC (±10%)	IEC 60947-5-2
Voltage drop	≤ 2.0V	IEC 60947-5-2
Rated operating current	200mA	IEC 60947-5-2
Leakage current	≤ 0.01mA	IEC 60947-5-2
No-load current	≤ 10mA (at 24V 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 status indication	4 * LED, permanently on when output active	--
Connection	4-pin M12 connector, A-coded	IEC 61076-2-101

Model-Specific Data (The Real Differences)

Model	Sensing Range Sn	Switching Frequency	Body Length	Threaded Section	Total Length (straight)	Elbow Height
IN8-M12PO68-M0A/D	8mm (non-flush)	500Hz	68mm	42mm	68mm	34mm
IN8-M12PO50-M0A/D	8mm (non-flush)	500Hz	50mm	28mm	50mm	20mm
IN10-M12PO68-M0A/D	10mm (non-flush)	400Hz	68mm	42mm	68mm	34mm
IN10-M12PO50-M0A/D	10mm (non-flush)	400Hz	50mm	28mm	50mm	20mm

Shared across all four: M12 * 1mm thread, Ø7mm sensing face, barrel length 67mm (68mm body) / 49mm (50mm body), 17mm across-flats nuts.

Mechanical and Environmental Data

Parameter	Specification	Standard
Operating temperature	−25 ... +70°C	IEC 60068-2-14
Degree of protection	IP67 (dust-tight, temporary immersion)	IEC 60529
Housing material	Brass, nickel-plated	--
Sensing face material	PBT (polybutylene terephthalate)	--
Connector thread	M12 * 1mm male	IEC 61076-2-101
Mounting nuts	Twin hex nuts, 17mm across flats	--

PNP N.O Output Truth Table

Metal Target	Output Transistor	Output Pin Level	LED	PLC Input
Outside sensing range	Cut off (high-Z)	0V (pulled by load)	Off	0
Within sensing range	Conducting	≈ L+ (24V)	On	1

Configuration Details

Model List and Selection

Model	Sensing Range	Frequen cy	Bod y	Recommended Application
IN8-M12PO68-M0A/D	8mm	500Hz	68m m	Featured. High-speed counting, small-part presence detection, standard stations
IN8-M12PO50-M0A/D	8mm	500Hz	50m m	Shallow fixtures and narrow frames with limited mounting depth
IN10-M12PO68-M0A/D	10mm	400Hz	68m m	Target wobble, swarf build-up on the face, applications needing extra margin
IN10-M12PO50-M0A/D	10mm	400Hz	50m m	Space-constrained stations that still need 10mm range

Pin Assignment (4-pin M12, A-coded)

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

PNP N.O Wiring Diagram

Key point: the load sits between OUT and L−. When the sensor conducts it ties OUT to L+, and current flows out of the sensor through the load back to 0V. This is the sourcing connection.

Dimensions (mm)

Dimension	68mm Body	50mm Body
Total length (with straight M12 connector)	68	50
Barrel length (to connector shoulder)	67	49

Mounting threaded section length	42	28
Sensing face diameter	Ø7	Ø7
Height with 90° angled connector	34	20
Mounting thread	M12 * 1mm	M12 * 1mm
Nut across flats	17	17

Installation Requirements (Read This for Non-flush Mounting)

Metal-free clearance: Non-flush (unshielded) sensors have sensing fields that spread laterally, so the area around the sensing face must remain metal-free, otherwise effective sensing range decreases. Recommended clearance $\geq 3 * S_n$ (approximately 24mm for 8mm version, 30mm for 10mm version). When installing two sensors side by side, leave sufficient spacing to prevent mutual interference.

Must be embedded installation: This series does not include shielding. If the workstation cannot provide lateral clearance, choose shielded (flush-mountable) models.

Tightening torque: Lock with twin nuts; do not overtighten to avoid housing deformation (recommended $\leq 15 N \cdot m$).

Temperature drift: Datasheet shows repeat accuracy $< 1.0\%$ Sr, hysteresis $< 15\%$ Sr. Precision positioning stations should reserve additional margin.

Typical Applications

Industry	Application Point
Industrial Automation	Part in position on conveyor belt, assembly station confirmation
Packaging Machinery	Carton/foil position verification, lid closure detection
Material Handling	Pallet, container and shuttle positioning
Machine Tools	Travel limits, tool changer position feedback
Robotics	Gripper open/close confirmation, axis homing
Export Equipment	Compatible with European/North American PLCs, no level conversion needed

Other Output Versions in This Series

Output Type	Description
PNP Normally Closed (NC)	Power supply + safety circuit, wire break alarm
NPN Normally Open (NO)	Sinking output, matches Japanese PLCs
NPN Normally Closed (NC)	Sinking + safety circuit

Data Sources and Assumptions

Factory datasheet values (direct quotes): Operating voltage 10...30V DC ($\pm 10\%$), voltage drop $\leq 2.0V$, operating current 200mA, leakage current $\leq 0.01mA$, no-load current $\leq 10mA$ (24V), hysteresis $< 15\%$ Sr, repeat accuracy $< 1.0\%$ Sr, triple protection, 4 LED indication, -25...70°C, IP67, nickel-plated brass/PBT, M12 connector, M12 * 1mm, 8mm/10mm non-flush, 500Hz/400Hz, and all dimensional values.

Factory marking: IN8-M12PO68-M0A/D is highlighted in yellow on the datasheet, indicating manufacturer pre-selected featured unit (visually confirmed).

Standard-derived values (not listed in datasheet): Response time, standard target (Fe37), and sensing range correction factors for different metals according to IEC 60947-5-2 standard. These are intentionally not listed here—please confirm with engineers during selection process.

Engineering rules of thumb (non-datasheet data): Non-flush clearance $\geq 3 * S_n$, nut tightening torque $\leq 15N \cdot m$. All marked as recommendations in the text.

Stock/delivery period note: "Stock and delivery period typically optimal" is for reference only, not a commitment. Final confirmation subject to commercial terms.

This page does not contain: Any performance data, customer cases, sales figures, or certification claims not supported by datasheet or IEC standards.



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