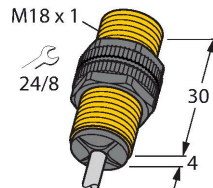


# NI10-P18-Y1/S100 Inductive Sensor – With Increased Temperature Range



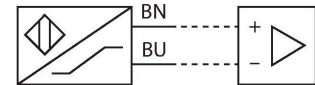
## Features

- Threaded barrel, M18 x 1
- Plastic, PA12-GF30-V0
- Temperatures up to +100 °C
- DC 2-wire, nom. 8.2 VDC
- Output acc. to DIN EN 60947-5-6 (NAMUR)
- Cable connection
- ATEX category II 2 G, Ex Zone 1
- ATEX category II 1 D, Ex Zone 20 for temperatures up to +70°C
- SIL 2 (Low Demand Mode) acc. to IEC 61508, PL c acc. to ISO 13849-1 at HFT0
- SIL 3 (All Demand Mode) acc. to IEC 61508, PL e acc. to ISO 13849-1 with redundant configuration HTF1

## Technical data

|   |  |
|---|--|
| Type                                    | NI10-P18-Y1/S100   |
| ID                                      | 10317  |
| Special version                         | S100 Corresponds to:Maximum ambient temperature = 100 °C |
| <b>General data</b>                     |  |
| Rated switching distance                | 10 mm  |
| Mounting conditions                     | Non-flush  |
| Secured operating distance              | $\leq (0.81 \times S_n)$ mm                              |
| Correction factors                      | St37 = 1; Al = 0.3; stainless steel = 0.7; Ms = 0.4      |
| Repeat accuracy                         | $\leq 2$ % of full scale                                 |
| Temperature drift                       | $\leq \pm 10$ %  |
|   | $\leq \pm 20$ %, $\geq +70$ °C                           |
| Hysteresis                              | 1...10 %   |
| <b>Electrical data</b>                  |  |
| Output function                         | 2-wire, NAMUR  |
| Switching frequency                     | 0.5 kHz  |
| Voltage                                 | Nom. 8.2 VDC   |
| Non-actuated current consumption        | $\geq 2.1$ mA  |
| Actuated current consumption            | $\leq 1.2$ mA  |
| Approval acc. to                        | KEMA 02 ATEX 1090X                                       |
| Internal capacitance (C)/inductance (L) | 150 nF/150 $\mu$ H                                       |
| Device marking                          | EX II 2 G Ex ia IIC T6 Gb/II 1 D Ex ia IIIC T135 °C Da   |
|   | (max. $U_i = 20$ V, $I_i = 60$ mA, $P_i = 200$ mW)       |

## Wiring diagram



## Functional principle

Inductive sensors detect metal objects contactless and wear-free. For this purpose they use a high-frequency electromagnetic AC field that interacts with the target. The sensors hosting a ferrite core coil generate the AC field through an LC resonant circuit. Special versions are available for ambient temperatures between -60°C and +250°C.

Technical data

| Mechanical data                       |   |
|---------------------------------------|---|
| Design                                | Threaded barrel, M18 x 1                              |
| Dimensions                            | 34 mm   |
| Housing material                      | Plastic, PA12-GF30                                    |
| Active area material                  | Plastic, PA12-GF30                                    |
| End cap                               | Plastic, EPTR   |
| Max. tightening torque of housing nut | 2 Nm  |
| Electrical connection                 | Cable   |
| Cable quality                         | Ø 5.2 mm, LifYY-T105, PVC, 2 m                        |
| Core cross-section                    | 2 x 0.5 mm <sup>2</sup>                               |
| Environmental conditions              |   |
| Ambient temperature                   | -25...+100 °C   |
|                                       | For explosion hazardous areas see instruction leaflet |
| Vibration resistance                  | 55 Hz (1 mm)  |
| Shock resistance                      | 30 g (11 ms)  |
| Protection class                      | IP67  |
| MTTF                                  | 6198 years acc. to SN 29500 (Ed. 99) 40 °C            |

Mounting instructions

# Mounting instructions/Description

The image contains three technical diagrams illustrating the mounting of a sensor. The top diagram shows a side view of a sensor mounted on a plate, with dimension T indicating the distance from the sensor's center to the edge of the plate. The middle diagram shows a top view of two sensors mounted on a plate, with dimension G indicating the distance between the centers of the two sensors. The bottom diagram shows a front view of a sensor mounted on a plate, with dimensions N, S, D, and W indicating various mounting parameters: N is the distance from the sensor's center to the top edge of the plate, S is the distance from the sensor's center to the bottom edge of the plate, D is the distance from the sensor's center to the left edge of the plate, and W is the distance from the sensor's center to the right edge of the plate.

|                        |         |
|------------------------|---------|
| Distance D             | 3 x B   |
| Distance W             | 3 x Sn  |
| Distance T             | 3 x B   |
| Distance S             | 1.5 x B |
| Distance G             | 6 x Sn  |
| Distance N             | 2 x Sn  |
| Diameter active area B | Ø 18 mm |

NI10-P18-Y1/S100| 02/21/2025 13-07 | technical changes reserved

## Accessories

QM-18

6945102



Quick-mount bracket with dead-stop; material: Chrome-plated brass. Male thread M24 × 1.5. Note: The switching distance of the proximity switches may change when using quick-mount brackets.

BST-18B

6947214



Mounting clamp for threaded barrel sensors, with dead-stop; material: PA6

MW18

6945004



Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

BSS-18

6901320



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

## Instructions for use

### Intended use

This device fulfills Directive 2014/34/EC and is suited for use in areas exposed to explosion hazards according to EN 60079-0:2018 and EN 60079-11:2012. Further it is suited for use in safety-related systems, including SIL2 as per IEC 61508. In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.

### For use in explosion hazardous areas conform to classification

II 2 G and II 1 D (Group II, Category 2 G, electrical equipment for gaseous atmospheres and category 1 D, electrical equipment for dust atmospheres).

### Marking (see device or technical data sheet)

Ⓔ II 2 G and Ex ia IIC T6 Gb and Ⓔ II 1 D Ex ia IIIC T135 °C Da acc. to EN 60079-0, -11

### Local admissible ambient temperature

As per ATEX category II 2 G electrical equipment -25...+100 °C, as per category II 1 D -25...+70 °C. The corresponding temperature classes are provided in the ATEX type-examination certificate.

### Installation/Commissioning

These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas. Please verify that the classification and the marking on the device comply with the actual application conditions.

This device is only suited for connection to approved Exi circuits according to EN 60079-0 and EN 60079-11. Please observe the maximum admissible electrical values. After connection to other circuits the sensor may no longer be used in Exi installations. When interconnected to (associated) electrical equipment, it is required to perform the "Proof of intrinsic safety" (EN 60079-14). Attention! When used in safety systems, all content of the security manual must be observed.

### Installation and mounting instructions

Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device. If the devices and the cable could be subject to mechanical damage, they must be protected accordingly. They must also be shielded against strong electro-magnetic fields. The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet.

### Service/Maintenance

Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.