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› Heschen SN05-N Square Inductive Proximity Sensor Switch User Manual

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Model: SN05-N

1. PRODUCT OVERVIEW

The Heschen SN05-N is a square inductive proximity sensor switch designed for reliable non-contact detection of metallic objects. It features a non-shielded design, NPN Normally Open (NO) output, and operates within a DC 10-30V range. This sensor is commonly used in industrial automation for position sensing, counting, and limit switching applications.



Image 1.1: Front view of the Heschen SN05-N sensor with its cable.

Key Features:

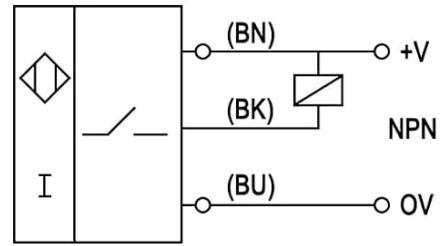
- **Detection Distance:** 5mm $\pm$ 10% for precise object sensing.
- **Supply Voltage:** DC 10-30V, suitable for various industrial power sources.
- **Output Type:** NPN, Normally Open (NO) configuration.
- **Output Current:** 200mA.
- **Installation Type:** Non-Shield (non-flush) for flexible mounting.
- **Compact Dimensions:** 18×18×29mm, allowing for installation in confined spaces.
- **LED Indicator:** Red LED indicates the sensor's operating state.
- **Protection:** Power supply reversal connection protection and short-circuit protection.

2. SPECIFICATIONS

Detailed technical specifications for the SN05-N inductive proximity sensor.

Table 2.1: Technical Specifications

Parameter	Value
Model Number	SN05-N
Detection Distance	5mm ±10%
Supply Voltage	DC 10-30V
Output Current	200mA
Output Type	NPN, Normally Open (NO)
Installation Type	Non-Shield (non-flush)
Dimensions (L×W×H)	18mm × 18mm × 29mm
Cable Length	Approximately 120cm (47 inches)
Detection Object	Magnetic metal
Insulation Impedance	≥ 50MΩ (between charging part and housing, DC500 megameter)
Ambient Temperature & Humidity	-35°C to +65°C (no freeze, no dew); 35-95% RH
Withstand Voltage	AC1000V 50/60Hz 1min (between charging part and housing)
Housing Material	ABS
Detection Surface Material	ABS
Protection Rating	IP67



Non-Screen Shield Type

● BN: Brown

● BK: Black

● BU: Blue



Image 2.1: Detailed dimensions of the SN05-N sensor.



Image 2.2: Visual representation of key characteristic parameters including IP67 rating.

3. INSTALLATION AND SETUP

Proper installation and wiring are crucial for the correct operation of the SN05-N sensor. This sensor is a DC three-wire NPN Normally Open (NO) type.

Wiring Diagram:

The SN05-N sensor uses a three-wire system. Connect the wires according to the following color code and diagram:

BN (Brown): Connect to +V (DC 10-30V power supply).

BK (Black): Output signal wire (connect to load).

BU (Blue): Connect to 0V (Ground).



Image 3.1: Wiring diagram showing connections for the NPN Normally Open sensor.

The load should be connected between the black (BK) output wire and the 0V (BU) wire. The sensor provides a low-level signal (0V) when an object is detected, and the load is connected to the positive supply.

Mounting:

The SN05-N is a non-shielded (non-flush) type sensor. This means it can be mounted with metal surrounding the sensing face, but the sensing face itself should be clear of metal to ensure proper operation. Ensure the sensor is securely fastened using the mounting holes provided.

4. OPERATION

The SN05-N inductive proximity sensor operates by generating an electromagnetic field. When a metallic object enters this field within the detection distance, the sensor's output state changes.

Detection Principle:

As an inductive sensor, it detects only metallic objects. The detection distance is 5mm $\pm$ 10%. The sensor's internal oscillator generates a high-frequency electromagnetic field. When a metallic object approaches the sensing face, eddy currents are induced in the object, which dampens the oscillation. This change in oscillation is detected by the sensor's circuitry, triggering the output.

LED Indicator:

The sensor is equipped with a red LED indicator. This LED illuminates when a metallic object is detected within the sensing range, providing a visual confirmation of the sensor's active state.



Image 4.1: Illustration of a metallic object being detected by the sensor, activating the LED indicator.

5. MAINTENANCE

The Heschen SN05-N sensor is designed for durability and requires minimal maintenance. Following these guidelines will help ensure its longevity and reliable performance.

Cleaning:

Keep the sensing face clean and free from excessive dust, dirt, or metallic debris. Use a soft, dry cloth to wipe the sensor. Avoid using abrasive cleaners or solvents that could damage the ABS housing.

Environmental Conditions:

Ensure the sensor operates within its specified ambient temperature and humidity ranges (-35°C to +65°C, 35-95% RH, no freeze, no dew). Extreme conditions outside these ranges can affect performance and lifespan. The IP67 rating indicates protection against dust ingress and temporary immersion in water, but it is not designed for continuous underwater use.

Cable Integrity:

Regularly inspect the cable for any signs of damage, such as cuts, abrasions, or kinks. Damaged cables can lead to intermittent operation or complete failure. Ensure the cable is not subjected to excessive pulling or bending forces.

6. TROUBLESHOOTING

If you encounter issues with your SN05-N sensor, refer to the following troubleshooting steps before seeking further assistance.

Table 6.1: Troubleshooting Guide

Problem	Possible Cause	Solution
Sensor not detecting objects / LED not illuminating.	- Incorrect wiring. - No power supply or incorrect voltage. - Object is non-metallic or too far. - Sensor damaged.	- Verify wiring against Image 3.1. - Check power supply (DC 10-30V). - Ensure object is metallic and within 5mm detection range. - Inspect sensor for physical damage.
Sensor always ON / LED always illuminated.	- Metallic object permanently within sensing range. - Sensor faulty (short circuit).	- Remove any metallic objects near the sensing face. - Disconnect sensor and test power supply; if issue persists, sensor may be faulty.
Intermittent detection.	- Unstable power supply. - Object moving too fast or at edge of detection range. - Cable damage.	- Ensure stable power supply. - Adjust object speed or sensor position. - Check cable for damage.

7. WARRANTY AND SUPPORT

Heschen Electric Co.,Ltd manufactures the SN05-N sensor. For specific warranty information, please refer to the purchase documentation or contact your supplier. General support for Heschen products can often be found through their official channels or by contacting the vendor from whom the product was purchased.

For technical inquiries or assistance, please provide the model number (SN05-N) and a detailed description of the issue.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question