

# Assembly and Operating Manual

## J02N/J02P

### Magnetic switch

Translation of Original Operating  
Manual

## Imprint

### Copyright:

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### Technical changes:

We reserve the right to make alterations for the purpose of technical improvement.

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Dear Customer,

Thank you for trusting our products and our family-owned company, the leading technology supplier of robots and production machines.

Our team is always available to answer any questions on this product and other solutions. Ask us questions and challenge us. We will find a solution!

Best regards,

Your SCHUNK team

Customer Management

Tel. +49-7133-103-2503

Fax +49-7133-103-2189

cmg@de.schunk.com



**Please read the operating manual in full and keep it close to the product.**

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# 1 General

## 1.1 About this manual

This manual contains important information for a safe and appropriate use of the product.

This manual is an integral part of the product and must be kept accessible for the personnel at all times.

Before starting work, the personnel must have read and understood this operating manual. Prerequisite for safe working is the observance of all safety instructions in this manual.

### 1.1.1 Presentation of Warning Labels

To make risks clear, the following signal words and symbols are used for safety notes.

#### **CAUTION**

##### **Material damage!**

Information about avoiding material damage.

---

### 1.1.2 Applicable documents

- General terms of business \*
- Catalog data sheet of the purchased product \*
- Assembly- and Operating Manual of the SCHUNK-module, on which the sensor is mounted \*

The documents labeled with an asterisk (\*) can be downloaded from [schunk.com/downloads](https://schunk.com/downloads).

## 1.2 Warranty

If the product is used as intended, the warranty is valid for 24 months from the ex-works delivery date under the following conditions:

- Observe the applicable documents, ▶ 1.1.2 [ 4 ]
- Observe the ambient conditions and operating conditions, ▶ 2.3 [ 5 ]

## 2 Basic safety notes

### 2.1 Intended use

The product (sensor) is used for sensing a position of a SCHUNK module via a magnetic control cam or a specific magnetic field.

- The product is intended for installation in a machine/ automated system. The applicable guidelines for the machine/ automated system must be observed and complied with.
- The product may only be used within the scope of its technical data, ▶ 3 [ 7].

### 2.2 Inappropriate use

The product is not a safety component in accordance with the EC Machine Directive 2006/42/EC and must not be used in safety-relevant parts of machine control units.

### 2.3 Environmental and operating conditions

#### Required ambient conditions and operating conditions

Incorrect ambient and operating conditions can make the product unsafe, leading to the risk of serious injuries, considerable material damage and/or a significant reduction to the product's life span.

- Make sure that the product is used only in the context of its defined application parameters, ▶ 3 [ 7].
- Make sure that the environment is free from splash water and vapors as well as from abrasion or processing dust. Exceptions are products that are designed especially for contaminated environments.

### 2.4 Constructional changes

#### Implementation of structural changes

Modifications, changes or reworking, e.g. additional threads, holes, or safety devices, can damage the product or impair its functionality or safety.

- Structural changes should only be made with the written approval of SCHUNK.

## 2.5 Personnel qualification

### Inadequate qualifications of the personnel

If the personnel working with the product is not sufficiently qualified, the result may be serious injuries and significant property damage.

- All work may only be performed by qualified personnel.
- Before working with the product, the personnel must have read and understood the complete assembly and operating manual.
- Observe the national safety regulations and rules and general safety instructions.

### 3 Technical data

Designation	J02N/J02P	
	5 V	10 V
Ambient temperature [°C]		
Min.		+ 5
Max.		+ 55
Nominal voltage [VDC]	5 +/-10%	24
Min.	4.5	10
Max.	5.5	30
IP rating	67	

More technical data is included in the catalog data sheet.  
Whichever is the latest version.

## 4 Assembly and settings

### 4.1 Mechanical connection

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#### NOTE

The assembly instructions in this chapter are generally applicable.

Module-specific assembly instructions for the sensor can be found in the Assembly and Operating Manual for the module, which can be downloaded at [schunk.com](http://schunk.com)

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#### CAUTION

#### Risk of damage to the sensor during assembly!

- Observe the maximal tightening torque.
- 

### 4.2 Electrical connection

#### CAUTION

#### Material damage due to incorrect bending radii!

The product may get damaged if the bending radius of the cable is less than the minimum.

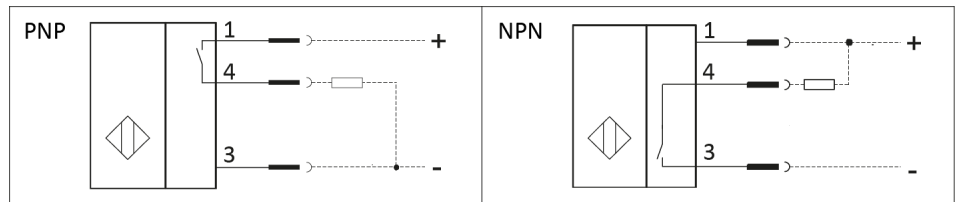
- See catalog datasheet for corresponding details.
- 

#### NOTE

- Do not use the sensor as a safety component.
  - Do not pull on the cable of the sensor.
  - Secure the cable and connection plug so that they are not taugt and cannot move during operation.
  - Do not exceed the permitted bending radius of the cable.
  - Do not allow the sensor to come into contact with hard objects and chemicals (e. g., nitric acid, chromic acid and sulfuric acid).
- 

Ferromagnetic components change the sensor's switching positions, e. g., adapter plate made of construction steel. For ferromagnetic adapter plates:

- First, install the module on the adapter plate.
- Then adjust the switching position of the sensor. Installing and connecting the sensor



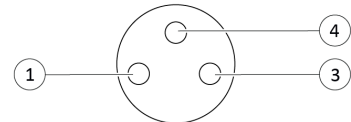
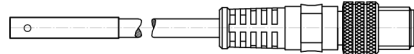
Closing

Type of switching : PNP oder NPN

Switching function: Closing

Connector M8

M8



2 m cable, open wire strand



1	Brown	Supply voltage	4	Black	Output 2
3	Blue	GND			

## 5 Troubleshooting

### 5.1 Sensor not operating

Possible cause	Corrective action
<ul style="list-style-type: none"> <li>Cable breakage</li> </ul>	Check whether the sensor cable is broken.
<ul style="list-style-type: none"> <li>No voltage or voltage too low</li> </ul>	Check whether the voltage at the sensor is within the permitted range, ▶ 3 [ 7]. Remove the sensor from the module, see the Assembly and Operating Manual for the module. Connect the sensor to the power supply. Hold the sensor on a magnet and check whether the LED on the sensor lights up. Install the sensor on the module, see the Assembly and Operating Manual for the module. Check whether the LED lights up at the position to be sensed and that the sensor is operating.

#### NOTE

If the LED does not light up or the sensor is not operating, contact SCHUNK Service.

### 5.2 Sensor is operating, but not as desired

Possible cause	Sources of interference	Corrective action
The sensor is interfered with or influenced by external magnetic or soft magnetic materials (Fe).	Motors (coils)	Increase the distance between the sensor and sources of interference (until the sensor operates correctly).
	Relays	
	Linear motors	
	Electrical welding	
The sensor is influenced by a different sensor.	Magnetized workpieces (workpieces made of iron (Fe) or similar materials)	Use finger attachments made of aluminum.
	Magnetized components and tools made of iron (adapter plates made, screws or hexagon socket keys, etc.)	Use components containing aluminum. V4A screws are recommended.
The sensor is affected by deposits of magnetic chips in the vicinity (in the air gap).	Same or similar product	Increase the distance between the sensors to at least 2 mm.
	Liquids with magnetic chips or the like.	Regularly clean the immediate environment of the sensor. (The higher the

Possible cause	Sources of interference	Corrective action
The sensor is affected by the directly adjacent module.	Built-in magnets in the piston of the adjacent module	exposure to such fluids, the more often it needs to be cleaned.) Increase the distance to the adjacent module to at least 10 mm.

**NOTE**

If these steps do not eliminate the problem, contact SCHUNK Service for troubleshooting.

## 6 EU Declaration of Conformity

Manufacturer/  
Distributor SCHUNK SE & Co. KG  
Spanntechnik | Greiftechnik | Automatisierungstechnik  
Bahnhofstr. 106 - 134  
D-74348 Lauffen/Neckar

Product designation: Magnetic switch J02N/J02P  
ID number 1353035, 1353072, 1353058, 1353073

We hereby declare that the product complies with all relevant harmonization legislation of the following directives at the time of declaration.

The declaration is rendered invalid if modifications are made to the product.

- **RoHS directive 2011/65/EU**
- **Low Voltage Directive 2014/35/EU**
- **Electromagnetic compatibility (EMC directive) 2014/30/EU**

Applied harmonized standards, especially:

EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN 60947-5-2:2007 + A1:2012	Low-voltage switchgear and controlgear – part 5-2: circuit devices and switching elements – Proximity switches (IEC 60947-5-2:2007 + A1:2012)
EN IEC 61000-6-2:2019	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments
EN 61000-6-4:2007 + A1:2011	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments (IEC 61000-6-4:2006 + A1:2010);

Other related technical standards and specifications:

IEC 62321:2008	Electrotechnical products – Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ether),
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Signed for and on behalf of: SCHUNK SE & Co. KG

Lauffen/Neckar, May 2024



i.V. Nico Peper;  
Director Software and Electronics;  
Technology & Innovation

## 7 UKCA Declaration of Conformity

Manufacturer/  
Distributor SCHUNK Intec Limited  
Clamping and gripping technology  
3 Drakes Mews, Crownhill  
MK8 0ER Milton Keynes

Product designation: Magnetic switch J02N/J02P  
ID number 1353035, 1353072, 1353058, 1353073

We hereby declare that the product complies with all relevant harmonization legislation of the following directives at the time of declaration.

The declaration is rendered invalid if modifications are made to the product.

- **Electromagnetic Compatibility Regulations 2016**
- **RoHS directive 2011/65/EU**

### Electrical Equipment (Safety) Regulations 2016

Applied harmonized standards, especially:

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN 60947-5-2:2007 + A1:2012 Low-voltage switchgear and controlgear – part 5-2: circuit devices and switching elements – Proximity switches (IEC 60947-5-2:2007 + A1:2012)

EN IEC 61000-6-2:2019 Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments

EN 61000-6-4:2007 + A1:2011 Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments (IEC 61000-6-4:2006 + A1:2010);

Other related technical standards and specifications:

IEC 62321:2008 Electrotechnical products – Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ether),

Person authorized to compile the technical documentation:  
Marcel Machado, address: refer to manufacturer's address

Signed for and on behalf of: SCHUNK SE & Co. KG

Lauffen/Neckar, May 2024

i.V. Nico Peper;  
Director Software and Electronics;  
Technology & Innovation

## 8 Information on the RoHS Directive, REACH Regulation and Substances of Very High Concern (SVHC)

### RoHS Directive

SCHUNK products are classified as "large-scale stationary installations" or as "large-scale stationary industrial tools" within the meaning of Directive 2011/65/EU and its extension 2015/863/EU "on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)", or fulfill their intended function only as part of one. Therefore products from SCHUNK do not fall within the scope of the directive at this time.

### REACH Regulation

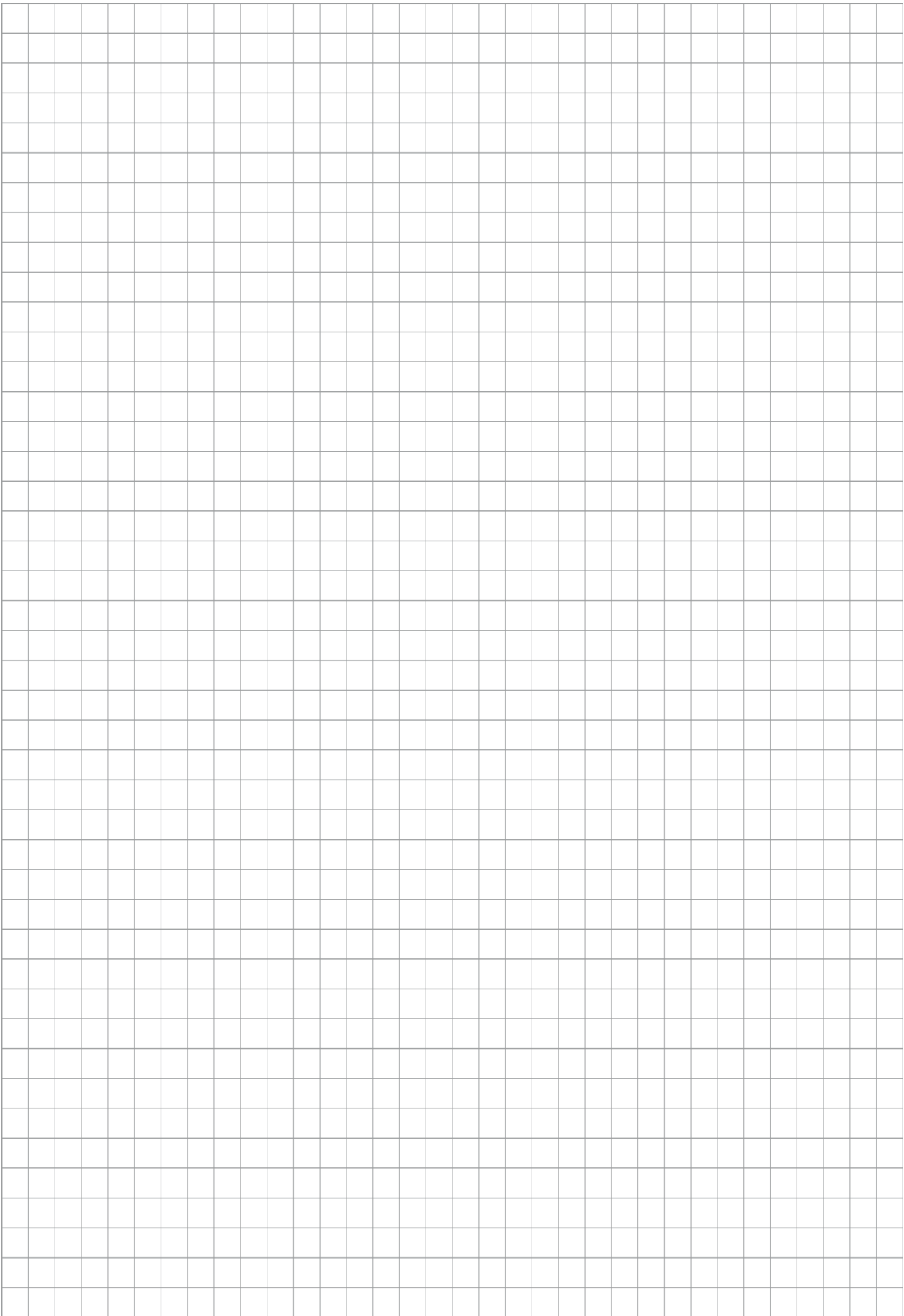
Products from SCHUNK fully comply with the regulations of Regulation (EC) No. 1907/2006 "concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)" and its amendment 2022/477. SCHUNK attaches great importance to completely avoiding chemicals of concern to humans and the environment wherever possible.

Only in rare exceptional cases do SCHUNK products contain SVHC substances on the candidate list with a mass content above 0.1%. In accordance with Article. 33 (1) of Regulation (EC) No. 1907/2006, SCHUNK complies with its duty to "communicate information on substances in articles" and lists the components concerned and the substances used in an overview that can be viewed at [schunk.com\SVHC](https://www.schunk.com/SVHC).

*Signature: see original declaration*

Lauffen/Neckar, May 2024

Dr.-Ing. Manuel Baumeister,  
Head of Systems Engineering,  
Technology & Innovation





**SCHUNK SE & Co. KG**  
Spanntechnik | Greiftechnik | Automatisierungstechnik

Bahnhofstr. 106 - 134  
D-74348 Lauffen/Neckar  
Tel. +49-7133-103-0  
info@de.schunk.com  
schunk.com

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