

Original instructions

# JSNY7

## Magnetic switch



## Read and understand this document

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The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.

Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, and installations subject to separate industry or government regulations.

Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE ABB/JOKAB SAFETY PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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# Table of Contents

<b>1</b>	<b>Introduction</b> .....	<b>4</b>
	Scope .....	4
	Audience .....	4
	Prerequisites .....	4
	Special notes .....	4
<b>2</b>	<b>Overview</b> .....	<b>5</b>
	General description .....	5
	Safety regulations .....	5
	Function description .....	6
<b>3</b>	<b>Connections</b> .....	<b>7</b>
<b>4</b>	<b>Installation and maintenance</b> .....	<b>8</b>
	Installation precautions .....	8
	Maintenance .....	8
<b>5</b>	<b>Model overview</b> .....	<b>9</b>
	Accessories .....	9
<b>6</b>	<b>Technical data</b> .....	<b>10</b>
	Dimensions .....	11
	CAD model .....	11
<b>7</b>	<b>EC Declaration of conformity</b> .....	<b>12</b>

# 1 Introduction

## Scope

The purpose of these instructions is to describe the magnetic switch JSNY7 and to provide the necessary information required for assembly, installation, checks and adjustments after installation, and maintenance. The instructions also include information necessary to connect JSNY7 to a safety circuit.

## Audience

This document is intended for authorized installation personnel.


## Prerequisites

It is assumed that the reader of this document has knowledge of the following:

- Basic knowledge of ABB/Jokab Safety products.
- Knowledge of safety devices and safety locks.
- Knowledge of machine safety.

## Special notes

Pay attention to the following special notes in the document:

 **Warning!** Danger of severe personal injury!  
An instruction or procedure which, if not carried out correctly, may result in injury to the technician or other personnel.

**Caution!** Danger of damage to the equipment!  
An instruction or procedure which, if not carried out correctly, may damage the equipment.

NB: Notes are used to provide important or explanatory information.

## 2 Overview

### General description

The magnetic switch JSNY7 is designed to operate in dirty industrial environments and is certified to the highest level of safety regulation when working together with a suitable ABB/JOKAB SAFETY safety relay or Safety-PLC Pluto. The magnetic switch is small and resistant to both dirt and water, and has no dust collecting cavities making it useful in environments where hygiene is paramount. The small size of the switch makes it easy to position and hide on gates and hatches.

### Safety regulations

 **Warning!**

Carefully read through this entire manual before using the device.

The devices shall be installed by a trained electrician following the Safety regulations, standards and the Machine directive.

Failure to comply with instructions, operation that is not in accordance with the use prescribed in these instructions, improper installation or handling of the device can affect the safety of people and the plant.

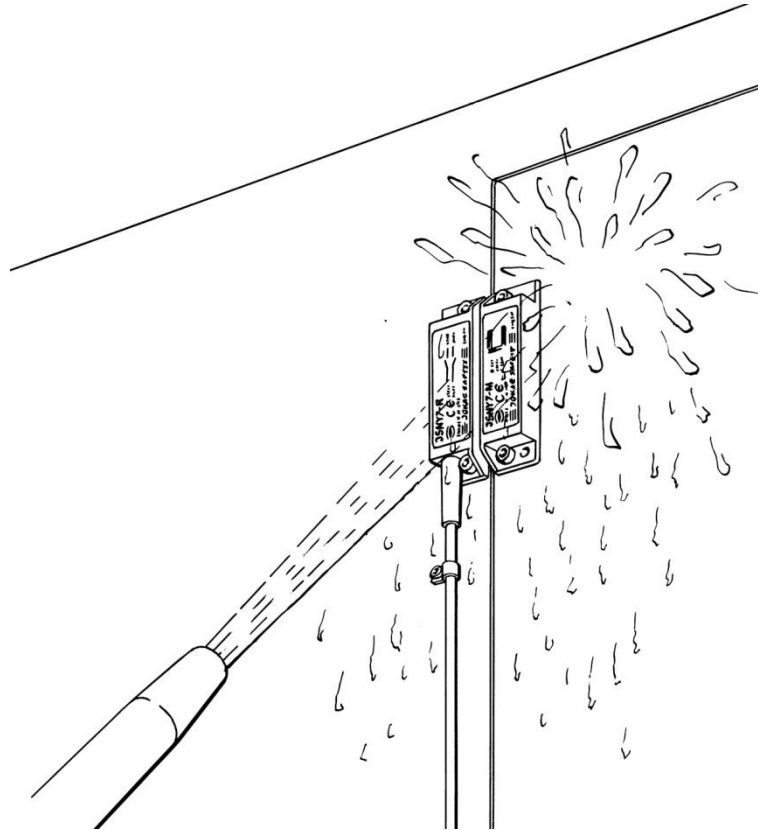
For installation and prescribed use of the product, the special notes in the instructions must be carefully observed and the technical standards relevant to the application must be considered.

In case of failure to comply with the instructions or standards, especially when tampering with and/or modifying the product, any liability is excluded.

## Function description

The magnetic switch has one closing and one opening contact. Both contacts have to be monitored. The contacts may be monitored by any of the safety relays in the RT-series such as the RT6, RT7 or RT9, or by the safety-PLC Pluto.

To avoid unauthorised operation of the JSNY7 switch it is only possible to actuate the JSNY7R with the coded magnet, JSNY7M. Other magnets, screwdrivers and tools have no effect on the switch contacts.



JSNY7 is resistant to both dirt and water.

### 3 Connections

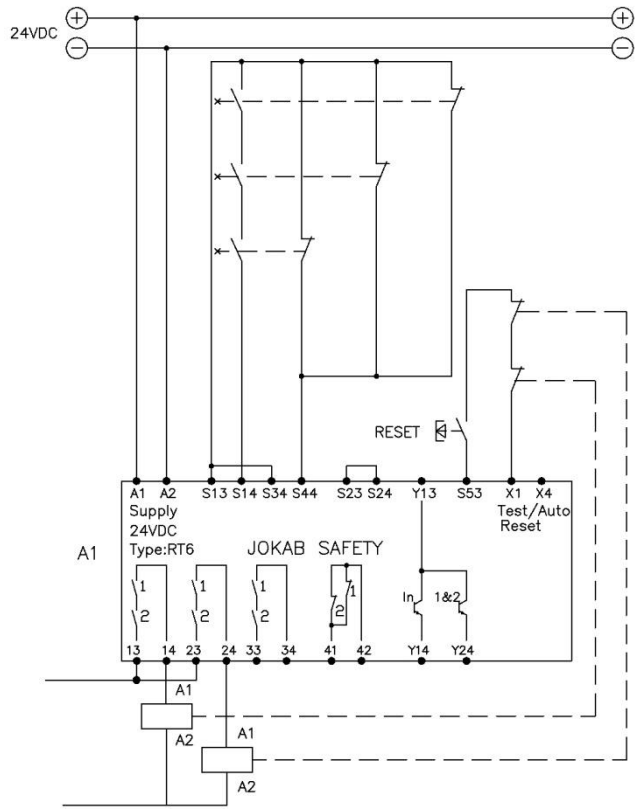
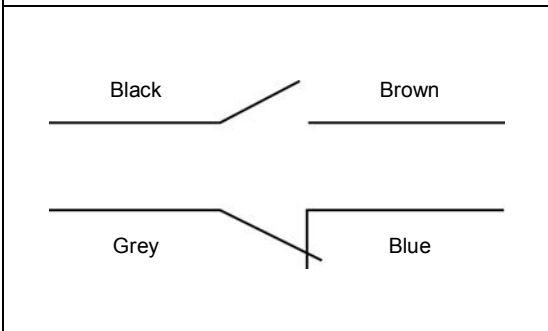
#### JSNY7 electrical connections

**Connection example:**

Three JSNY7 connected to RT6 safety relay.

NB: Safety components drawn in released position.

NB: To reach highest level of safety only one magnetic switch should be connected to the safety relay.



## 4 Installation and maintenance

The JSNY7 is very easy to install as it only consists of two units. After you have carefully measured out where to place JSNY7-R and JSNY7-M, fasten them with screws and connect the cable to the appropriate safety relay.

### Minimum safety distance

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When using interlocking guards without guard locking to safeguard a hazard zone, the minimum allowed safety distance between the guarded opening and the hazardous machine must be calculated. In order to ensure that the hazardous machine motion will be stopped before it can be reached, the minimum safety distance is calculated according to EN ISO 13855 ("Positioning of safeguards with respect to the approach speeds of parts of the human body").

The minimum safety distance is calculated according to the formula:

$$S = (K \times T) + C$$

Where

**S** = minimum safety distance (mm)


**K** = approach speed of a human body; 1600 mm/s

**T** = the total time from opening of the guard until the hazardous machine movement has stopped, i.e. including control system reaction times and other delays (s)

**C** = a safety distance taken from Table 4 or Table 5 of EN ISO 13857:2008, if it is possible to push fingers or a hand through the opening towards the hazard before a stop signal is generated

NB: In some cases, T might be reduced by the opening time of the guard until the opening size permits access of the relevant parts of the body. Refer to EN ISO 13855 for further details and EN ISO 13857 for specified values.

### Installation precautions

 **Warning!** All the safety functions must be tested before starting up the system.

### Maintenance

 **Warning!**

The safety functions and the mechanics shall be tested regularly, at least once every year to confirm that all the safety functions are working properly (EN 62061:2005).

In case of breakdown or damage to the product, contact the nearest ABB/Jokab Safety Service Office or reseller. Do not try to repair the product yourself since it may accidentally cause permanent damage to the product, impairing the safety of the device which in turn could lead to serious injury to personnel.



## 5 Model overview

Type	Article number	Description
JSNY7R-3	2TLJ020023R0000	JSNY7 magnetic switch with 3 m cable.
JSNY7R-6	2TLJ020023R0100	JSNY7 magnetic switch with 6 m cable.
JSNY7R-10	2TLJ020023R0200	JSNY7 magnetic switch with 10 m cable.
JSNY7M	2TLJ020024R0000	JSNY7 coded magnet.

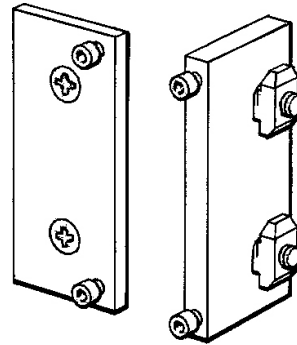
### Accessories

Note that all brackets come with nuts and screws for use with ABB/Jokab Safety Quick-Guard fencing system. For further information, contact your local ABB/Jokab Safety sales office.

Type	Article number	Description
JSM D4E	2TLJ040033R1800	Fitting for hinged door (2 fittings are needed for a full JSNY7)
JSM D4G	2TLJ040033R3300	Fittings for sliding door.



JSM D4E  
Fitting for hinged door  
Article number: 2TLJ040033R1800



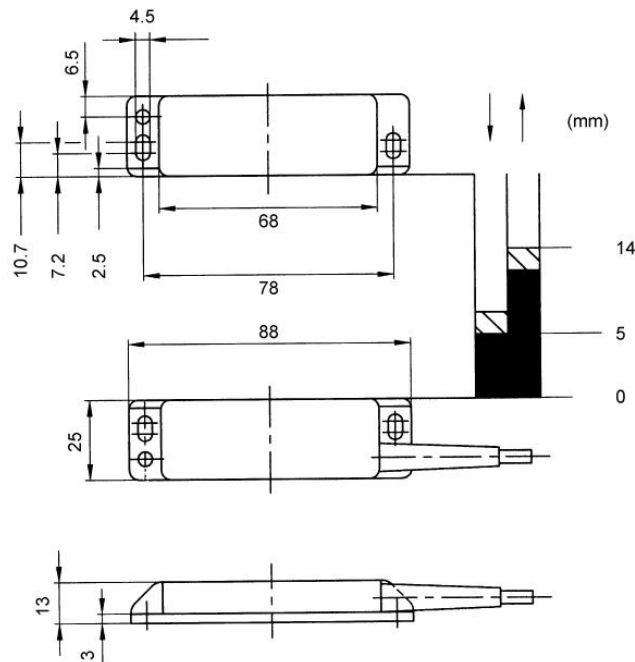
JSM D4G  
Fittings for sliding door  
Article number: 2TLJ040033R3300

## 6 Technical data

Manufacturer	
Address	ABB AB / JOKAB SAFETY Varlabergsvägen 11 SE-434 39 Kungsbacka Sweden
Electrical characteristics	
Max. supply voltage	30 VDC
Max. switch current	100 mA
General	
Protection class	IP67
Ambient temperature	-5...+70°C (movable) -20...+70°C (fixed)
Size	See drawing
Weight	Coded magnet: 32 g Sensor with 3 m cable: 133 g
Material	Enclosure/cover: PA 6 (UL94-VO)
Colour	Black
Contacts	1 NO + 1 NC
Connection	Cable Ø4.5, 4x0.25 mm <sup>2</sup> , 3 meter ; PVC (Other lengths upon request)
Fixing	Body: 2 x M5 Actuator: 2 x M5
Mechanical life	3 x 10 <sup>8</sup> switch operations, depending on load
Max. switching frequency	1 Hz
Switching point	Min. switch-on point: 5 mm Max. switch-off point: 14 mm
Safety / Harmonized standards	
Conformity	European Machinery Directive 2006/42/EC <b>CE</b> EN ISO 12100-1:2003+A1:2009, EN ISO 12100-2:2003+A1:2009, EN 954-1:1996/EN ISO 13849-1:2008, EN 1088+A2:2008, EN 60204-1:2006+A1:2009, GS-ET 15
EN ISO 13849-1	B <sub>10d</sub> : 30,000,000
Certifications	Inspecta

## Dimensions

### JSNY7 dimensions



NB: All measurements in millimetres.

### CAD model

- 1) Visit [www.jokabsafety.com](http://www.jokabsafety.com).
- 2) Choose language **English** in the menu at the top of the page.
- 3) In the menu to the left, choose **Products**.
- 4) A list of products is now shown. Choose **3D CAD files**. This will open a new window called "Jokab Safety AB – SolidComponents".
- 5) In the new window there is a menu to the left, showing different product categories. JSNY7 belongs to the category **Sensors/switches**, find it in the list and click it. If the language changed in the new window, click the corresponding flag at the top of the page to choose language again (Swedish, English or German available).
- 6) Choose **JSNY7** in the list now shown.
- 7) Choose a preferred format in the scroll down list next to "CAD-format" (SolidWorks, ProE, Sat, Step, Parasolid, Iges, Dwg, Dxf).
- 8) Click the **save icon** in front of the desired product ("JSNY7R", "JSNY7M", etc).
- 9) The product will now be added to the list of downloads. Click the **save icon** again in the new list to start the download.

## 7 EC Declaration of conformity



### EC Declaration of conformity

(according to 2006/42/EC, Annex 2A)

We ABB AB  
JOKAB Safety  
Varlabergsvägen 11  
SE-434 39 Kungsbacka  
Sweden

declare that the safety components of ABB AB manufacture with type designations and safety functions as listed below, is in conformity with the Directive

2006/42/EC

Person authorised to compile  
the technical file

Lars-Magnus Felth  
ABB AB  
JOKAB Safety  
Varlabergsvägen 11  
SE-434 39 Kungsbacka  
Sweden

#### **Product**

Magnetic switch JSNY7

Used harmonized standards

EN ISO 12100-1:2003+A1:2009, EN ISO 12100-2:2003+A1:2009,  
EN 954-1:1996/EN ISO 13849-1:2008, EN 1088+A2:2008,  
EN 60204-1:2006+A1:2009

Mats Linger  
PRU Manager  
Kungsbacka 2011-03-07

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[www.abb.com](http://www.abb.com)  
[www.jokabsafety.com](http://www.jokabsafety.com)

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