SAFETY PRODUCTS

Electromagnetic Process Lock
Magne 3 and 4
Product Manual
Read and understand this document

Please read and understand this document before using the products. Please consult your ABB Jokab Safety representative if you have any questions or comments.

Suitability for use

ABB Jokab Safety shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer’s application or use of the product. Third party certificates for the products are available at https://new.abb.com/low-voltage/products/safety-products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

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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1 Introduction

1.1 Scope
The purpose of this product manual is to describe the Magne electromagnetic process lock and to provide the necessary information required for installation and use.

1.2 Audience
This document is intended for authorized installation personnel.

1.3 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 process locks.
- Knowledge of machine safety.

1.4 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.

ℹ️ Note! Important or explanatory information.
2 Overview

2.1 General description

Magne is an electromagnetic process lock that locks a door or hatch with a holding force of up to 1500 N. It is intended for applications that are sensitive to unintentional or unnecessary interruptions. There are several different Magne models.

- **Magne 3** keeps a door locked to protect a process from unwanted interruptions. It needs to be complemented by external interlocking devices if used in safety applications.

- **Magne 4** has an integrated Eden safety sensor, which provides a high safety level of guard interlocking protection. Eden consists of two different units, Adam and Eva. Adam senses the presence of Eva, which can indicate if the door is open and interrupt the process. Adam is built into Magne 4. Magne 4 is available with built-in Adam DYN (DYNlink signal) or Adam OSSD (OSSD signal) using an M12-5 or M12-8 connector.

For a complete Magne lock, both door parts and frame parts are necessary. Figure 1 shows some common Magne parts and accessories.

![Magne 3 and Magne 4 with accessories](image)

Figure 1  Magne with some common accessories

Magne 4 requires a separate Eva sensor, the actuator part of Eden. Eva, which uses either a general or unique code to transmit the Eden status, must be ordered and mounted separately.

The anchor plate is also ordered separately and delivered with a block of cellular rubber. The “32B” anchor plate has a built-in permanent magnet. It holds the door closed with a force of approximately 30 N when the power to Magne is disconnected. The “32A” anchor plate is available without permanent magnet.

Y-connectors can be used to connect several Magne units and Eden sensors in series to one single Pluto safety PLC or Vital safety module. No current peaks over the rated current will occur, which simplifies system dimensioning.
Magne can be mounted on a door or on a hatch with a JSM mounting kit. Mounting kits are available for either sliding doors or conventional doors. See *Mounting kit installation*

For further details, see *Model overview*

### 2.2 Safety information

It is the responsibility of the user to ensure the correct overall functionality of its systems and machines.

⚠️ **Warning!** Carefully read through the entire manual before using the device.

⚠️ **Warning!** The devices shall be installed by a trained electrician following the Safety regulations, standards and the Machinery directive.

⚠️ **Warning!** 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.

⚠️ **Warning!** 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.

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

3.1 Installation precautions

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

⚠️ **Warning!** Follow the instructions carefully to avoid personal injury or damage to the device.

⚠️ **Warning!** Do not defeat, tamper or bypass the safety function. Failure can result in death or serious injury.

⚠️ **Warning!** The M12 connector shall be connected after Magne has been installed on the intended surface.

⚠️ **Caution!** It is important that Eva is correctly positioned and oriented in relation to the built-in Adam sensor in Magne 4. See *Positioning and orientation of Eva with Magne 4.*

⚠️ **Caution!** After installation, check that the surfaces of the magnet and the anchor plate are parallel, so that full contact is obtained when the door is closed. Otherwise there will be no holding force of the lock or the holding force can be significantly reduced.

⚠️ **Caution!** Magne shall be installed as close to the door handle as possible. The distance between the lock and the handle creates a lever effect, reducing the holding force. The bigger the distance, the greater the risk of the anchor plate not being parallel and aligned with the electromagnet, which significantly reduces the holding force.

⚠️ **Caution!** Magne 4 shall be connected to the power supply after the door is closed and Eva is within sensing distance of Adam.

![Figure 2 Magne, Eva, JSM D21B, JSM D24 and JSM D27 installed on a door](image)
3.2 Installation

Installation shall be done in accordance with a risk assessment for the individual application. Installation shall only be carried out by competent personnel and in accordance with these instructions.

3.2.1 Installation instructions

1. Mount Magne and accessories, as close to the door handle as possible, according to the installation guide, see Mounting kit installation

2. Make sure Eva is correctly positioned and oriented in relation to the inbuilt Adam sensor in Magne 4 See Positioning and orientation of Eva with Magne 4

3. Calibrate the position of the anchor plate with Magne. See Anchor plate installation

4. Connect the pin out according to Electrical connections

5. Connect the M12 connector to Magne.

6. Close the door to put Eva within sensing distance of Adam.

7. Connect Magne to the power supply. Once connected, the green LED and the blue LED will illuminate with a constant light.

8. After installation, check the locking function.

Note! Do not connect Magne to power supply before Eva is within sensing distance. The Adam sensor within Magne 4 needs to learn the EVA code. Make sure that no power supply is connected when the cable is fitted to the Magne PIN out.

3.2.2 Mounting kit installation

For installation instructions, see the JSM Installation guide included in each Mounting kit package:

- **JSM D23 Installation guide** for JSM D23 (2TLA042023R0200). Mounting kit for Magne on sliding door.
- **JSM D28 Installation guide** for JSM D28 (2TLA042023R0100). Handle profile for Magne on conventional door.
- **JSM D21B Installation guide** for JSM D21B (2TLA042023R0500). Mounting kit for Magne on conventional door (5–15 mm door gap).

When used with Magne 4, with integrated Adam, a **JSM D24** mounting kit is required for Eva.

Figure 3 Mounting kits
3.2.3 Installation measurements

Installation tolerances for Magne on sliding door according to figure 4.

![Diagram of installation tolerances](image)

Figure 4. Installation tolerances in mm for Magne 3 and JSM D23 on a sliding door

3.2.4 Anchor plate installation

Mount the Anchor plate with 2 x M8 screws with cellular rubber between the anchor plate and the door. The cellular rubber enables the anchor plate to adjust to Magne. Do not compress the cellular rubber to a thickness less than 8 mm. Choose suitable screws and leave enough room for the cellular rubber to ensure movement of the anchor plate. Recommended tightening torque for anchor plate is 7 ±2 Nm.

**Note!** Do not overtighten the screws. This can deform the anchor plate, causing reduced or no holding force. A deformed anchor plate must be replaced.

Check that the surfaces of the magnet and the anchor plate are completely parallel, so that full contact is obtained when the door is closed. If the anchor plate tilts, the holding force of the lock can be significantly reduced or eliminated entirely.

![Diagram of anchor plate alignment](image)

Figure 5. Anchor plate must be parallel to Magne.
Maximum installation tolerance between electromagnet and anchor plate is ±5 mm lengthways and ±3 mm sideways to Magne.

Figure 6  Installation tolerance in mm for Anchor plate and Magne

3.2.5  **Positioning and orientation of Eva with Magne 4**

Magne 4 has an integrated Adam sensor, located between the electromagnet and the M12 connector. Figure 7 shows the Eden unit Eva correctly positioned above Magne when the door is closed.

Magne 4's safety functionality is based on the Eden sensor. For the sensor to work as intended, it is very important that the units are correctly positioned and that the safety functions are tested.

Figure 7  Positioning of Eva
4 **Electrical connections**

Connection diagrams with pin outs for different Magne models.

⚠️ **Warning!** Always use shielded cables to connect the unit to the rest of the safety circuit.

4.1 **Magne 3X**

![Diagram of Magne 3X](image)

**M12-5 pole connector:**

1. Brown: Locking signal +24 VDC
2. White: Not used
3. Blue: 0 V
4. Black: Not used
5. Grey: Info output, locked

⚠️ **Warning!** The info output is non-failsafe and shall therefore **never** be used to control a safety application.

ℹ️ **Note!** Several Magne 3X units can be connected using an M12-3A, but the info-signal will not be available.

4.2 **Magne 4X DYN**

![Diagram of Magne 4X DYN](image)

**M12-5 pole connector:**

1. Brown: +24 VDC
2. White: DYNlink signal in
3. Blue: 0 V
4. Black: DYNlink signal out
5. Grey: Locking signal +24 VDC
4.3 **Magne 4 DYN-Info**

The info output is non-failsafe and shall therefore **never** be used to control a safety application.

The safe DYNlink signals from the interlocking device Eden are used to control the safety application.

**Figure 10 Connections Magne 4 DYN-Info**

### M12-8 pole connector:

1. White: DYNlink signal in
2. Brown: +24 VDC
3. Green: Locking signal +24 VDC
4. Yellow: 0 V
5. Grey: Info output (Eden & Locked)
6. Pink: DYNlink signal out
7. Blue: 0 V
8. Red: Not used

---

**Figure 11 Connections Magne 4 DYN-2Info**

### M12-8 pole connector:

1. White: DYNlink signal in
2. Brown: +24 VDC
3. Green: Locking signal +24 VDC
4. Yellow: 0 V
5. Grey: Info output (Eden)
6. Pink: DYNlink signal out
7. Blue: 0 V
8. Red: Info output (Locked)

---

**Warning** The info outputs are non-failsafe and shall therefore **never** be used to control a safety application.

**Warning** The safe DYNlink signals from the interlocking device Eden are used to control the safety application.
4.5 **Magne 4 OSSD-Info**

![Electrical connections Magne 4 OSSD-Info]

**Warning**  The info output is non-failsafe and shall therefore **never** be used to control a safety application.

**Warning**  The safe OSSD signals from the interlocking device Eden are used to control the safety application.

**Note!**  Several Magne OSSD-Info units can be connected using an M12-3G, but the info-signal will not be available.

**M12-8 pole connector:**

1) White: OSSD1 out  
2) Brown: +24 VDC  
3) Green: OSSD1 in  
4) Yellow: OSSD2 in  
5) Grey: Info output (Eden & Locked)  
6) Pink: OSSD2 out  
7) Blue: 0 V  
8) Red: Locking signal +24 VDC
5 Serial connections

Magne 4 can be connected in series. However, it is not possible to combine OSSD and DYNlink signals. If only one OSSD is used, or if Magne OSSD is the first unit in the series, +24 VDC must be connected to OSSD1 In and OSSD2 In. Otherwise the OSSD output signals will not be generated from Magne. See figures below with examples of serial connections.

5.1 Magne 4 DYN-Info and Pluto

![Diagram of Magne 4 DYN-Info and Pluto](image1)

Figure 13 Magne 4 DYN-Info and Pluto. Drawing ID: 2TLC010021T0005

5.2 Magne 4 DYN-2Info and Pluto

![Diagram of Magne 4 DYN-2Info and Pluto](image2)

Figure 14 Magne 4 DYN-2Info and Pluto. Drawing ID: 2TLC010021T0006
5.3  Magne 4 OSSD-Info and Pluto

Figure 15  Magne 4 OSSD and Pluto. Drawing ID: 2TLC010021T0003

5.4  Magne 4X DYN, Pluto and M12-3S

Figure 16  Magne 4X DYN, Pluto and M12-3S. Drawing ID: 2TLC010021T0004
5.5 **Magne 4 OSSD-info and Sentry**

![Diagram of Magne 4 OSSD-info and Sentry](image)

**Figure 17** Magne OSSD and Sentry. Drawing ID: 2TLC010021T0002

5.6 **Magne 4 OSSD-Info, Sentry and M12 3G**

![Diagram of Magne 4 OSSD-Info, Sentry and M12 3G](image)

**Figure 18** Magne OSSD Sentry and M12-3G. Drawing ID: 2TLC010021T0001
6 Functions

6.1 Locking functions

Power is needed to lock Magne and a loss of power will result in unlocking.

Locking:
1. Close the door.
2. Lock via PLC program (e.g. via signal from push button) by applying +24VDC.

Unlocking:
3. Unlock via PLC program (e.g. via signal from push button, or automatically when the machine/process cycle ends) by removing +24VDC.
4. Open the door.

⚠️ Warning! An interlocking function monitors the door position, open or closed, but it does not prevent the door from being opened.

6.2 LED Indications

There is one blue LED (locked indicator) in Magne 3 and Magne 4 and there are one green and one red LED (Eva position indicator) in Magne 4. See table for description.

See Troubleshooting for actions to take.

Table 1  LED Indication

<table>
<thead>
<tr>
<th>Magne model</th>
<th>LED Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magne 4</td>
<td>Green</td>
<td>Eva within sensing distance, safety circuit closed (door closed)</td>
</tr>
<tr>
<td>Magne 4</td>
<td>Fast flashing green</td>
<td>Eva within 2 mm of maximum distance (door closed)</td>
</tr>
<tr>
<td>Magne 4</td>
<td>Flashing green - red</td>
<td>Eva within sensing distance, safety circuit broken before this unit (door closed)</td>
</tr>
<tr>
<td>Magne 4</td>
<td>Red</td>
<td>Eva out of sensing distance, safety circuit broken (door open)</td>
</tr>
<tr>
<td>Magne 4</td>
<td>Flashing red</td>
<td>No Eva programmed</td>
</tr>
<tr>
<td>Magne 4</td>
<td>Fast flashing red</td>
<td>Fail safe mode</td>
</tr>
<tr>
<td>Magne 4 (OSSD)</td>
<td>Fast flashing red-red-green</td>
<td>Invalid input signal</td>
</tr>
<tr>
<td>Magne 3 and 4</td>
<td>Flashing blue</td>
<td>Lock signal, but Magne is not detecting the anchor plate</td>
</tr>
<tr>
<td>Magne 3 and 4</td>
<td>Blue</td>
<td>Magne is locked</td>
</tr>
</tbody>
</table>
7 Maintenance

7.1 Maintenance precautions

⚠️ Warning! The safety functions and the mechanics shall be tested regularly. Check correct operation of all circuits and the lock function at least once a year. If any part of the product displays mechanical damage, remove and replace it. (EN ISO 13849-1:2015/EN 62061 + A2:2015)

⚠️ Caution! The electromagnet shall be regularly cleaned to maintain its full holding power.

⚠️ Warning! A defective unit shall be replaced with a new unit. Never bypass the safety circuit.

⚠️ Warning! 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. That may impair the safety of the device, which could lead to serious injury to personnel.

⚠️ Warning! ABB Jokab Safety will not accept responsibility for failure of the switch functions if the installation and maintenance requirements shown in this document are not implemented. These requirements form part of the product warranty.

7.2 Troubleshooting

7.2.1 LED indication

Table 2 Magne 3 and 4 LED Indication

<table>
<thead>
<tr>
<th>LED indication</th>
<th>Probable cause of fault</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No LED light</td>
<td>No voltage</td>
<td>Check +24 VDC power supply.</td>
</tr>
<tr>
<td>Flashing blue</td>
<td>Anchor plate is missing or not centred</td>
<td>Check anchor plate position.</td>
</tr>
</tbody>
</table>
Table 3  Magne 4 LED indication

<table>
<thead>
<tr>
<th>LED indication</th>
<th>Probable cause of fault</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red (solid light)</td>
<td>Eva away from Adam</td>
<td>Move Eva within sensing distance of Adam.</td>
</tr>
<tr>
<td></td>
<td>Metal between Eden sensors</td>
<td>Remove metal.</td>
</tr>
<tr>
<td>Green and red illuminates at same</td>
<td>Unit is defective</td>
<td>Replace the unit. Contact ABB Jokab Safety.</td>
</tr>
<tr>
<td>time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast flashing green - red</td>
<td>Valid Eva code missing</td>
<td>Perform procedure to replace Eva. If it still does not work, the unit is defective and must be replaced.</td>
</tr>
<tr>
<td>Fast flashing red</td>
<td>Fail safe mode</td>
<td>Power cycle (i.e. Turn off power. Wait for 1 minute and turn it on again).</td>
</tr>
<tr>
<td>Flashing green-red</td>
<td>Input signal is missing</td>
<td>1. Check output signal from the previous unit in the signal chain.</td>
</tr>
<tr>
<td>OSSD only</td>
<td>Invalid input signal</td>
<td>2. Turn off power supply.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Move Eva within sensing distance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Power supply.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.2.2 **Low or no holding force**

- Check that there is no dirt or dust on the anchor plate or Magne.
- Check that the position of the anchor plate with Magne is calibrated and that anchor plate is flat, parallel and aligned to Magne (when closed).
- Check that Magne is installed close to the door handle.

7.3 **Testing safety function**

This section only applies to Magne 4. Similar tests should be performed when using an external interlocking safety device together with Magne 3.

**Check the safety functions by following these steps:**

1. Interrupt the signal chain before this unit, when Eva is within sensing distance to Adam. The LED shall flash green and red and the safety control module go into safe state. For information on indications, see section *Troubleshooting* and *LED Indications*.
2. Reset the safety circuit and safety control module. The LED shall illuminate solid green light.
3. Move Eva away from Adam. The LED shall change color from green to red and the safety control module should go to safe state.
4. Move Eva back close to Adam and reset the safety circuit and safety control module.
### 7.4 Replacing Eva

When an Eva with unique code needs to be replaced, the old code must be deleted from the internal Adam sensor in Magne. To replace an Eva, and delete this code, follow the instructions below for Magne 4 with Adam DYN or Magne 4 with Adam OSSD. This process is not necessary when replacing an Eva with general code with another Eva with general code.

#### 7.4.1 Magne DYN

1. Move the old Eva out of sensing distance.
2. Disconnect the power supply from Magne. (0 V should always be connected).
3. Connect +24 VDC to DYNLINK signal in.
4. Connect the power supply to Magne (marked +24 VDC).
5. Disconnect the power supply from DYNlink signal in after 5 seconds and within 10 seconds. The Adam unit in Magne is now reset and Magne should flash red.
6. Disconnect the power supply from Magne (marked +24 VDC).
7. Mount the new Eva and move it within sensing distance.
8. Connect the power supply to Magne. The green LED of Magne should illuminate and the programming is completed.

#### 7.4.2 Magne OSSD

1. Move the old Eva out of sensing distance.
2. Disconnect the power supply from Magne (0 V should always be connected).
3. Connect +24 VDC to OSSD1 Out and OSSD2 Out.
4. Connect the power supply to Magne (marked +24 VDC).
5. Disconnect the power supply from both OSSD1 out and OSSD2 out after 5 seconds and within 10 seconds. The Adam unit in Magne is now reset and Magne should flash red.
6. Disconnect the power supply from Magne (marked +24 VDC).
7. Mount the new Eva and move it within sensing distance.
8. Connect the power supply to Magne. The green LED of Magne should illuminate and the programming is completed.
8 Model overview

8.1 Magne models

For information on anchor plates, Eva and available fittings for different door types, see *Accessories and spare parts*.

Table 4 Overview Magne models

<table>
<thead>
<tr>
<th>Model</th>
<th>Order code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magne 3X</td>
<td>2TLA042022R2700</td>
<td>Magne without built-in Eden sensor. M12-5 pole connector with output for lock information signal. The lock information signal is high when Magne is locked.</td>
</tr>
<tr>
<td>Magne 4X DYN</td>
<td>2TLA042022R3000</td>
<td>Magne with built-in Adam. M12-5 pole connector. No output for information signal.</td>
</tr>
<tr>
<td>Magne 4 DYN-Info</td>
<td>2TLA042022R3400</td>
<td>Magne with built-in Adam DYN info. M12-8 pole connector with output for information signal. The information signal is high if both Eva is within range and Magne is locked.</td>
</tr>
<tr>
<td>Magne 4 DYN-2Info</td>
<td>2TLA042022R3410</td>
<td>Magne with built-in Adam DYN info. M12-8 pole connector with output for information signal. The Eden information signal is high if Eva is within range. The locked information signal is high if Magne is locked.</td>
</tr>
<tr>
<td>Magne 4 OSSD-Info</td>
<td>2TLA042022R4600</td>
<td>Magne with built-in Adam OSSD info. M12-8 connector with output for information signal. The information signal is high if both Eva is within range and Magne is locked.</td>
</tr>
</tbody>
</table>

8.2 Accessories and spare parts

Accessories and spare parts are not included in Magne. They need to be ordered separately.

Table 5 Accessories and spare parts

<table>
<thead>
<tr>
<th>Type</th>
<th>Order code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eva General code</td>
<td>2TLA020046R0800</td>
<td>Eva with general coding (interchangeable)</td>
</tr>
<tr>
<td>Eva Unique code</td>
<td>2TLA020046R0900</td>
<td>Eva with unique coding (prevents defeat)</td>
</tr>
<tr>
<td>Magne Anchor 32A</td>
<td>2TLA042023R1300</td>
<td>Anchor plate 32A with cellular rubber (32 mm wide), without permanent magnet.</td>
</tr>
<tr>
<td>Magne Anchor 32B</td>
<td>2TLA042023R0400</td>
<td>Anchor plate 32B with cellular rubber (32 mm wide), with permanent magnet.</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>JSM D28</td>
<td>Aluminium profile for door handle that completely covers a Magne unit when the door is closed. For conventional door (5–15 mm door gap). Fits all Magne. Eva and anchor plate mounted in the profile.</td>
<td></td>
</tr>
<tr>
<td>JSM D21B</td>
<td>Mounting kit for Magne. For conventional door (5–15 mm door gap). Fits all Magne.</td>
<td></td>
</tr>
<tr>
<td>JSM D23</td>
<td>Mounting kit for Magne. For sliding door. Fits all Magne.</td>
<td></td>
</tr>
<tr>
<td>JSM D24</td>
<td>Mounting kit for Eva. For conventional door.</td>
<td></td>
</tr>
<tr>
<td>JSM D27</td>
<td>Door handle for JSM D21B.</td>
<td></td>
</tr>
<tr>
<td>Cellular rubber</td>
<td>Spare part for anchor plate. 10 mm thick.</td>
<td></td>
</tr>
<tr>
<td>M12-3A</td>
<td>Y-connector for connecting several units in series. For Magne 3X. Individual status not possible.</td>
<td></td>
</tr>
<tr>
<td>M12-3S</td>
<td>Y-connector for connecting several units in series. For Magne 3X and Magne 4X Dyn.</td>
<td></td>
</tr>
<tr>
<td>M12-3G</td>
<td>Y-connector for connecting several units in series. For Magne 4 OSSD-Info.</td>
<td></td>
</tr>
<tr>
<td>JSOP-2</td>
<td>Terminal plug for Y-connector M12-3G.</td>
<td></td>
</tr>
<tr>
<td>Tina 12A</td>
<td>Connection block for serial connection. For Magne 4 DYN-Info and Magne 4 DYN-2Info.</td>
<td></td>
</tr>
<tr>
<td>Urax-B1R</td>
<td>Urax B1R adapter for connecting Magne 4X DYN to AS-i-bus. A failsafe input node and three non-failsafe outputs. Connector for local resetting. AS-i-AUX power supply required. For Magne 4X DYN only.</td>
<td></td>
</tr>
</tbody>
</table>

All mounting kits include bolts and nuts necessary to mount Magne on ABB Quick-Guard® fencing systems.
9 Dimensions

9.1.1 Magne 3 and Magne 4

9.1.2 Cellular rubber
9.1.3 Anchor plate 32A without permanent magnet

Figure 21 Anchor plate 32A Dimensions in mm

9.1.4 Anchor plate 32B with permanent magnet

Figure 22 Anchor plate 32B dimensions in mm
## Table 6 Technical data

| Manufacturer | ABB AB, Jokab Safety  
| Varlabergsvägen 11  
| SE-434 39 Kungsbacka  
| Sweden |
| Mechanical data |  
| Anchor plate material | Iron with nickel coating  
| Electromagnet material | Iron with zinc-nickel coating  
| Housing material | Anodized aluminum and polycarbonate  
| Potting material | PUR, epoxy  
| Enclosure protection | IP67  
| Ambient temperature | Operating temperature: -20 °C to +50 °C  
| | Storage temperature: -20 °C to +70 °C  
| Holding force | Up to 1500 N (on correct installation)  
| | Anchor plate permanent magnet 32B holding force: 30 N  
| Humidity | 35-85 % (without ice formation or condensation)  
| Weight | Magne 3: 610 g  
| | Magne 4: 700 g  
| | Anchor plate (32A/32B): 290 g  
| Electrical data |  
| Operating voltage | Electromagnet +24 VDC ±15 %  
| Current consumption | +24 VDC:  
| | Magne 3: 10 mA  
| | Magne 4: 40 mA  
| | Note: Any current drawn on outputs (e.g. the information output) will be an additional input current on +24 V.  
| Locking signal: | Typically, 250 mA at 24 VDC, max 350 mA at 27.6 VDC  
| Information output | max 20 mA  
| Cable dimension | Cable dimensioning should be checked when connecting several units in series. Standard cables from ABB/Jokab Safety have a cross sectional area of 0.34 mm². Magne does not cause any power surge when locking is activated.  
| Connector | M12 5-pole male connector (Magne 3X, Magne 4X DYN)  
| | M12 8-pole male connector (Magne 4 DYN-Info, Magne 4 DYN-2Info and Magne 4 OSSD-Info)  
| All Magne 4: |  
| Transponder frequency | 4 MHz  
| Activation delay on connecting | < 2 s  
| Voltage drop output | VCC - 2.5 V  
| Assured release distance (S_{ar}) | 25 mm  
| Assured operation distance (S_{ao}) | 7 mm  
| Magne 4 OSSD: |  
| OSSD output | Max 50 mA (per output) (current limited)  


<table>
<thead>
<tr>
<th><strong>Response time at activation</strong></th>
<th>&lt;100 ms</th>
</tr>
</thead>
</table>
| **Response time at deactivation** | First unit <30 ms  
For each additional unit < 10 ms |
| **Voltage drop for OSSD output** | VCC - 2.5 V at 25 mA |
| **Power from switched off position (OSSD out)** | <3 µA |

**Magne 4 DYN:**
- **DYN output** | 15 mA (current limited) |
- **Response time at activation** | <100 ms |
- **Response time at deactivation** | <30 ms |

**Standard compliance and approvals**
- **European directives**
  - EMC directive 2014/30/EU
  - RoHS directive 2011/65/EU
- **Application standard compliance**
  - EN ISO 14119:2013, EN 60947-5-3:2013
- **Functional safety standard compliance**
  - EN ISO 13849-1:2015, PL e/Category 4,  
    PFH₀: 4.5 x 10⁻⁹  
  - EN 62061:2005 + A2: 2015, SIL CL3, PFH₀: 4.5 x 10⁻⁹  
  - EN 61508:2010, SIL 3, PFH₀: 4.50 x 10⁻⁹

⚠️ **Warning!**
- **The safety related values are based on interlocking device Eden and are not valid for the locking function.**

- **Electrical safety standard compliance**
- **Electromagnetic compatibility standard compliance**
  - EN 61000-6-2:2005,  
  - EN 61000-6-4:2007 + A1:2011,  

**Approvals**
- **Certifications**
  - cULus, TÜV Süd

**Information for use in USA/Canada (UL)**
- **Enclosure**
  - Type 1
- **Intended usage**
  - Applications according to NFPA 79
- **Connecting cables**
  - Cables to comply with CYJV/7, with a conductor area of min 0.2 mm².
- **Power source**
  - The Limited Voltage / Current source must comply with one of the following:
    - a. An isolating device such that the maximum open circuit voltage potential available to the circuit is not more than 30 VDC and the current is limited to a value not exceeding 8 amperes measured after 1 minute of operation.
    - b. A suitable isolating source in conjunction with a fuse in accordance with UL248. The fuse shall be rated max. 3 A and be installed in the 30 VDC power supply to the device in order to limit the available current.
<table>
<thead>
<tr>
<th>Conductor area</th>
<th>Max current limit for overload protection:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AWG (mm²) Amps</td>
</tr>
<tr>
<td>24</td>
<td>(0,20)2</td>
</tr>
<tr>
<td>22</td>
<td>(0,32)3</td>
</tr>
<tr>
<td>20</td>
<td>(0,52)5</td>
</tr>
<tr>
<td>18</td>
<td>(0,82)7</td>
</tr>
</tbody>
</table>

For further details about the integrated interlocking device, please see user instructions for Eden, available at [www.abb.com/jokabsafety](http://www.abb.com/jokabsafety).
11 EC Declarations of conformity

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

We ABB AB
JOKAB Safety
Varabergsvägen 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 Directives

2006/42/EC - Machinery
2014/30/EU - EMC
2011/65/EU - RoHS

Authorised to compile the
technical file

ABB AB
JOKAB Safety
Varabergsvägen 11
SE-434 39 Kungsbacka
Sweden

Product
Electromagnetic process lock
including non-contact safety
sensor Eden DYN/Eden OSSD
Magne 4X DYN
Magne 4 DYN-Info
Magne 4 DYN-Zinfo
Magne 4 OSSD-Info

Certificate
Z10 17 06 49833 0029 Rev.00

Certification Body
TÜV Süd Product Service GmbH
Ridlerstrasse 65
80339 München
Germany

Used harmonized standards
EN ISO 13849-1:2015, EN 62061:2005/A2:2015,
EN 61000-6-4:2007+A1:2011

Other used standards
EN 61508:2010

Tobias Gentzel
R&D Manager
Kungsbacka 2019-03-01

www.abb.com/jokabsafety

Original