



Safety Sensors and Switches

**Meet existing safety standards!
Supervise doors and hatches!
Safe stops and reliable restarts!**

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Why should I use Safety Sensors and Switches?

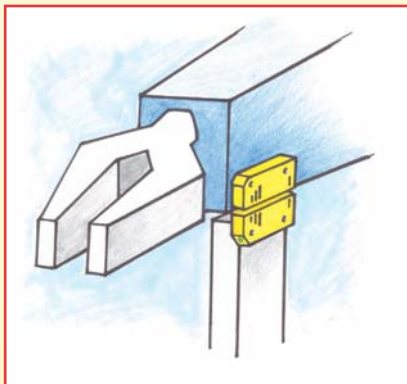
...to supervise doors and hatches around dangerous machines!

Assurance that a machine stops when a door or a hatch is opened can be solved by using different types of switches and sensors which are monitored with a safety relay or safety PLC. Switches and sensors are available both as non-contact (dynamic or magnetic) and various types of interlocking devices. Interlocking devices can be used when it is required, via a signal, to lock a gate during processes that cannot be stopped during certain operations. They are also used with machines that have a long stopping time.



...to ensure that a position is reached!

The sensor monitors that the robot is standing still in a monitored position when someone enters the robot's working area. The robot is then only stopped by the program. If the robot leaves the position, the power will directly be cut. This is used when the robot does not stop safely without restarting problems.



...to manage safety in harsh environments!

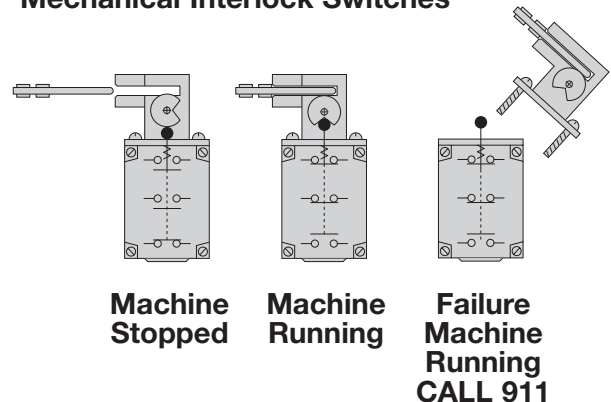
Non-contact dynamic sensors have a long life-time because they are not physically mechanically operated. They also endure very harsh environments (i.e. cold, heat, high-pressure wash-down) which is important in the food industry. Because the sensors are small, they are very easy to position and even completely conceal on doors and hatches.



...to prevent mechanical failures!

When a door or hatch loses proper tolerance due to wear or debris building up in the slot for the key, mechanical interlock switches have the probability of failing. Sagging or misalignment can cause the key to break or the screws that hold the head of the switch in position to loosen. This may lead to the interlock switch not giving a stop signal when the door or hatch is opened. For non-contact sensors these risks do not exist. If any of these conditions occur it will lead to a stop signal.

Mechanical Interlock Switches



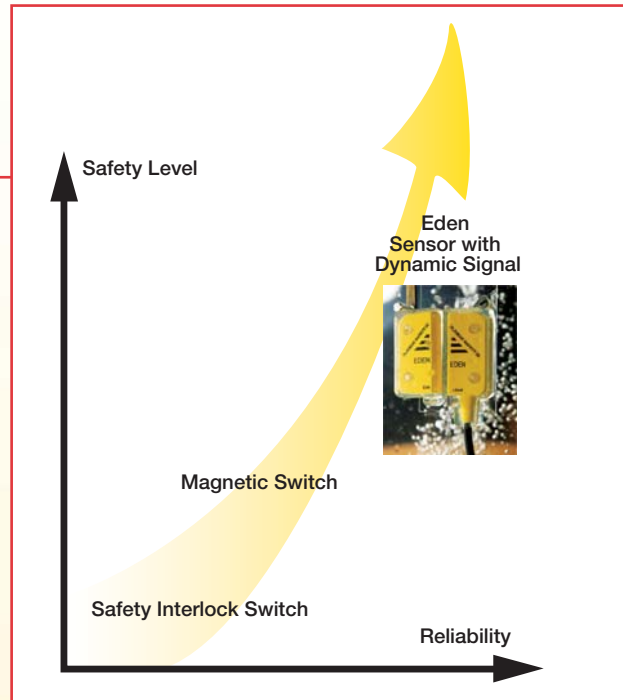
Eden provides the Highest Safety Level and Reliability

Our recommendation is to use the Eden sensor because it is the safest and most reliable solution. The Eden sensor is both a non-contact switch and it has a dynamic function. It is also possible to connect up to 30 Eden sensors in series and still achieve a safety category 4.

What requirements should one have on sensors/switches?

The sensor/switch shall be reliable in both the safety and production point of view.

- A person must be able to trust that dangerous movements and functions are safely stopped by the sensors/switches.
- In the production point of view, unintentional stops should be avoided.



How safe is a Sensor/Switch?

In order to trust the safety function, it is essential to be aware that a safety sensor/switch must be mounted and used according to the specifications. The certification authorities only test the product according to the appropriate standards and to the specifications from the manufacturer.

Mechanical Switches

For mechanical switches (e.g. key operated), a door or hatch has to be constructed to small tolerances in order for the switch, the key or the mounting brackets to last according to the life time specification from the supplier. The screws holding the parts have to be locked in such a way that they cannot be loosened. In order to prevent material from getting into the slot for the key, the environment has to be clean.

If a door goes outside the design tolerances from wear, the screws loosen or material comes into the slot, this may lead to the interlocked switch not giving a stop signal when the door is opened. Even two mechanical switches on a door could break to an unsafe state if the door somehow gets outside the tolerances of the switches. To prevent accidents the mechanical switch normally needs continuous checks of both the switch and the installation.

Non-Contact Sensors/Switches

For non-contact sensors the risks associated with mechanical switches do not exist. If screws, brackets or sensors get loose, it will lead to a stop signal. Therefore only one sensor with dual or dynamic function is needed in order to reach the highest safety level.

There are two types of non-contact sensors — active and passive. The active sensor, Eden, is constantly communicating with a dynamic signal between the two parts and any failure will directly lead to a stop signal. The passive type, a magnet switch, has two reed contacts which are activated by a coded magnet. Both the passive and the active sensors are checked every time a door is opened. From a safety point of view, the active sensor, Eden, is preferred because it is checked constantly whereas the passive sensor is only checked when a door opens.

From the reliability point of view, a long detection distance with large tolerances and a well-defined on and off position is needed. The active sensor, Eden, fulfills these demands. A magnet switch has smaller tolerances and an intermediate position where only one contact opens. A bad installation or vibrations can lead to an unintentional stop if one contact opens and closes again. The supervision of a two-channel system is based on both contacts having to be operated in order to permit a new start. In a dynamic safety circuit, there is only one pulsed signal and therefore no intermediate position.

Eden Non-Contact Non-Magnetic Safety Sensor for the Highest Level of Safety

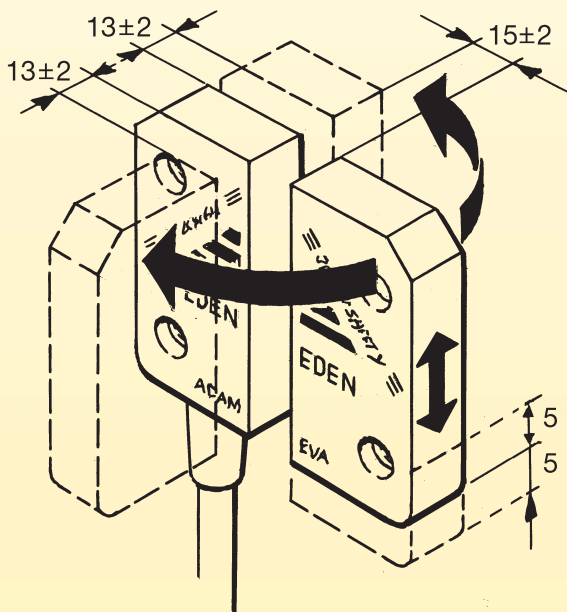
Eden — Adam and Eva — is a non-contact safety sensor for use on interlocked gates, hatches, etc. A coded signal is transmitted from the control device Vital or from the safety PLC Pluto via Adam to Eva, which modifies the signal and sends it back again. The maximum sensing distance between Adam and Eva is currently 15mm +/- 2 mm.

Up to 30 Edens can be connected in series to Vital and still achieve the same safety level in the safety circuit. It is also possible to connect safety light beams and E-stops in the same safety circuit.

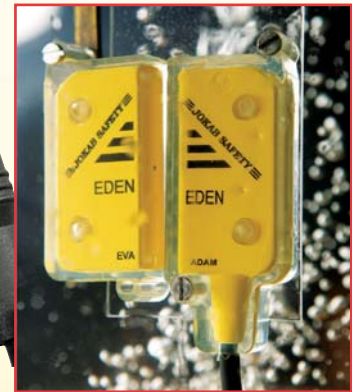
Adam is available with cable lengths up to 20 m and with M12 connectors. The LED on Adam provides indication of four different conditions, contact/non-contact between Adam and Eva, alignment, and safety status. The same information is also available via the Adam connection cable. For harsh environments, Jokab Safety offers Eden E — Adam E and Eva E. There is also a coded version Eden EC, Adam EC and Eva EC.

Flexible Mounting

The ability to operate at distances of up to 15mm and at different detection directions allows a wide range of mounting possibilities.



Eden E for harsh environments



Applications

- Doors and Hatches
- Position Control
- Sector Detection
- Slot Detection

Features

- Safety category 4 according to EN 954-1/EN ISO 13849-1 together with Vital or Pluto
- Non-contact detection, large sensing distance 0 - 15 mm +/- 2 mm
- Up to 30 sensors connected in series at safety category 4
- Versatile mounting, 360° detection
- Protection class IP67 (Eden E - IP69K)
- Signal will penetrate through non-metallic materials (wood, plastic, etc.)
- Safety light beams, E-stops and Eden can be connected in the same safety circuit together with Vital or Pluto meeting safety category 4 (EN 954-1/EN ISO 13849-1)
- LED indication on sensor and status information via the connector cable
- Small hysteresis (< 1mm)
- Eden C and Eden EC - available coded versions

Approvals



Eden Application Examples

Eden to Detect Position

Adam and Eva has contact only if they are within 15 mm from each other.

Eden Used for Sector Detection

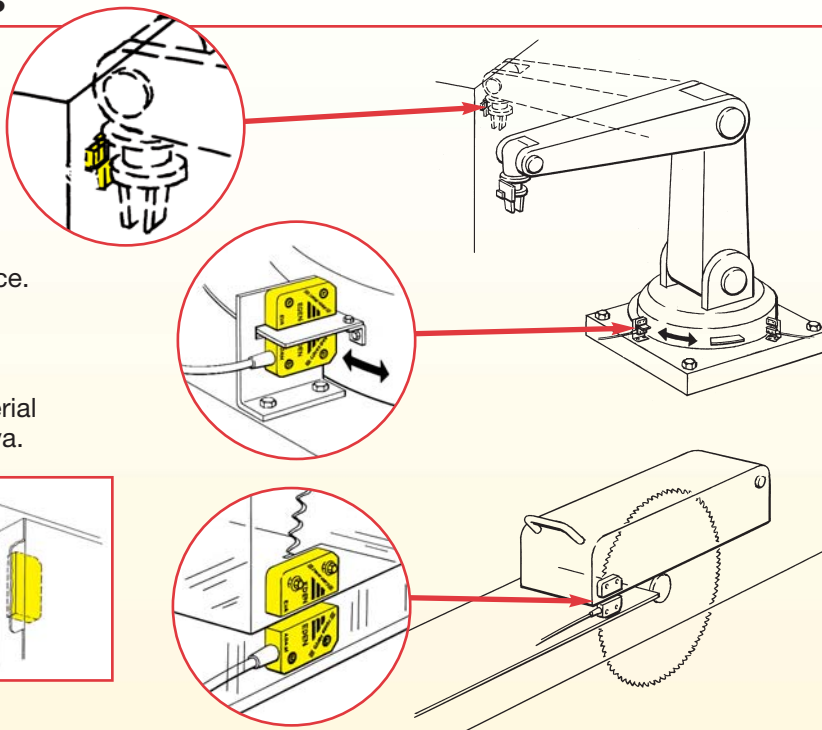
Metal stops the signal between Adam and Eva. Additional Eden sensor(s) can be mounted to detect metal plate(s) in place.

Eden Used for Detection of Position of Saw Guard

Wood, plastic and other non-metallic material lets the signal pass between Adam and Eva.

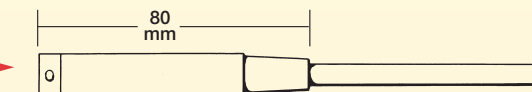
Eden Hidden in Doors and Hatches

Non-metallic door material between Adam and Eva allows signal through.

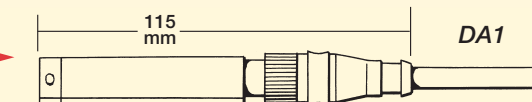


Eden Mounting

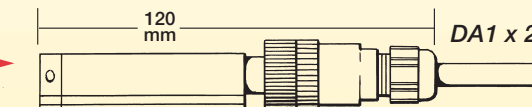
Mounting Adam with integral cable.



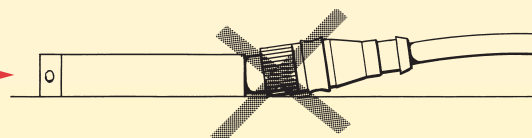
Mounting with one protection plate (DA1) for Adam M12 using prewired molded M12 connector.



Mounting with two protection plates (DA1) for Adam M12 using field wirable M12 connector.

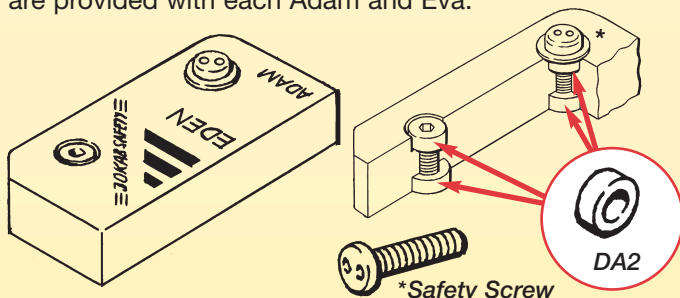


Wrong mounting without protection plate may cause permanent damage to sensor.



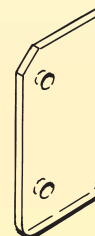
DA2 Mounting Spacer

The DA2 mounting spacer must be used in order to physically protect Eden from damage. Four spacers are provided with each Adam and Eva.



DA1 Protection Plate

Four protection plates (2.5 mm) are supplied with Adam M12. To protect Adam and Eva protection plate (DA1) can be used on both sides.



Eden Technical Data

Manufacturer..... JOKAB SAFETY
Ordering Data/Article Numbers.....see page 7:29-7:31
Safety Category together with Vital or Pluto
(according to EN 954-1/EN ISO 13849-1)..... 4

Color.....yellow and black

Weight

Adam M12.....30 g
Adam 3 m.....220 g (including cable)
Adam 10 m.....650 g (including cable)
Adam E10 m.....660 g (including cable)
Adam EC.....660 g (including cable)
Eva.....26 g
Eva E.....36 g
Eva EC.....36 g

Power Supply.....24VDC +15%/-25%

Power Consumption

Adam without info output.....45 mA
Adam with info output.....max. 55 mA

Max. Cable Length.....see Vital Technical Data

Ambient Temperature

Eden/Eden C.....-40°C to +70°C (operation)
-25°C to +70°C (storage)
Adam E/Adam EC.....-40°C to +70°C (operation)
-25°C to +70°C (storage)
(Test OK +90°C to 100°C)

Protection Class

Eden.....IP67
Eden E/Eden EC.....IP69K

Mounting.....M4 screw, e.g. safety screw
20-053-42. Max torque 2 Nm
(screws should be locked with Loctite or similar)

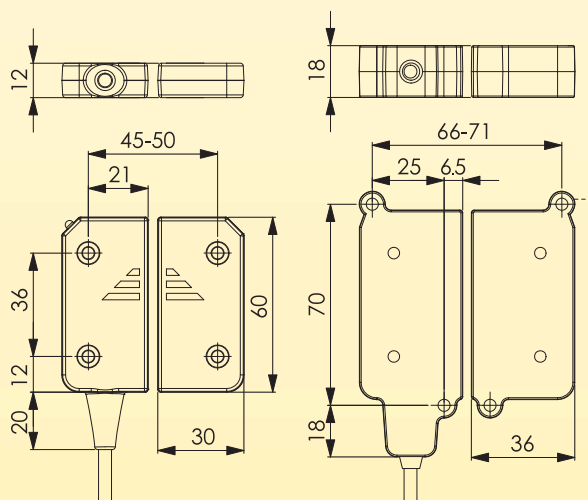
Detection Distance Max

Adam/Eva 15+/-2 mm.....Flash 2 mm before red position
Adam C/Eva C 12+/-2 mm.....Flash 2 mm before red position
Adam E/Eva E 12+/-2 mm.....Flash 2 mm before red position
Adam/Eva EC 10+/-2 mm.....Flash 2 mm before red position
Hysteresis.....approx. 1 mm

*Metal may have influence on detection distance.
This can be prevented by protection plates, DA1.*

Minimum Distance between Eden Pairs.....50 mm

Life.....>10⁷ cycles



Minimum distance to metal when there is metal on one or more sides.

Adam/Eva, Adam EC/Eva EC (1).....0 mm
Adam/Eva, Adam EC/Eva EC (more).....2.5 mm
Adam E/Eva E (1).....0 mm
Adam E/Eva E (more).....0 mm
Adam C/Eva C (1).....5 mm
Adam C/Eva C (more).....5 mm

Material.....Macromelt (based on polyamid)
(Eden E and Eden EC is also covered by PUR, polyurethane)

Chemical Resistance

Macromelt.....cutting oils, vegetable and animal oils,
hydrogen peroxide, diluted acids and bases: good
(alcohol and strong acids: not recommended)
PU (Eden E and Eden EC).....cutting oils, vegetable and
animal oils, hydrogen peroxide, diluted
acids and bases, alcohols: good
(strong oxidating acids: not recommended)

LED on Adam

Green.....Eva within range, safety
circuit closed (door closed)
Flashing.....Eva within range, earlier
safety circuit open (door closed)
Red.....Eva out of range, safety
circuit open (door open)
Fast Flashing.....Eva within 2 mm from maximum
sensing distance (door closed)

Cable.....3 or 10 m, Ø5.7 mm, black PVC
5 x 0.34 mm² + screen, UL 2464

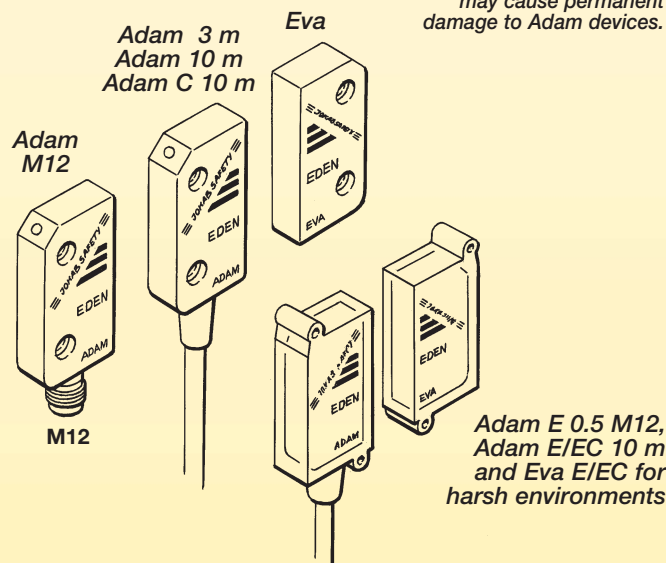
Connector.....M12: 5-pin male contact

Connections

Brown (1).....+24 VDC
White (2).....dynamic signal in
Blue (3).....0 VDC
Black (4).....dynamic signal out
Grey (5).....info output *(see below)*

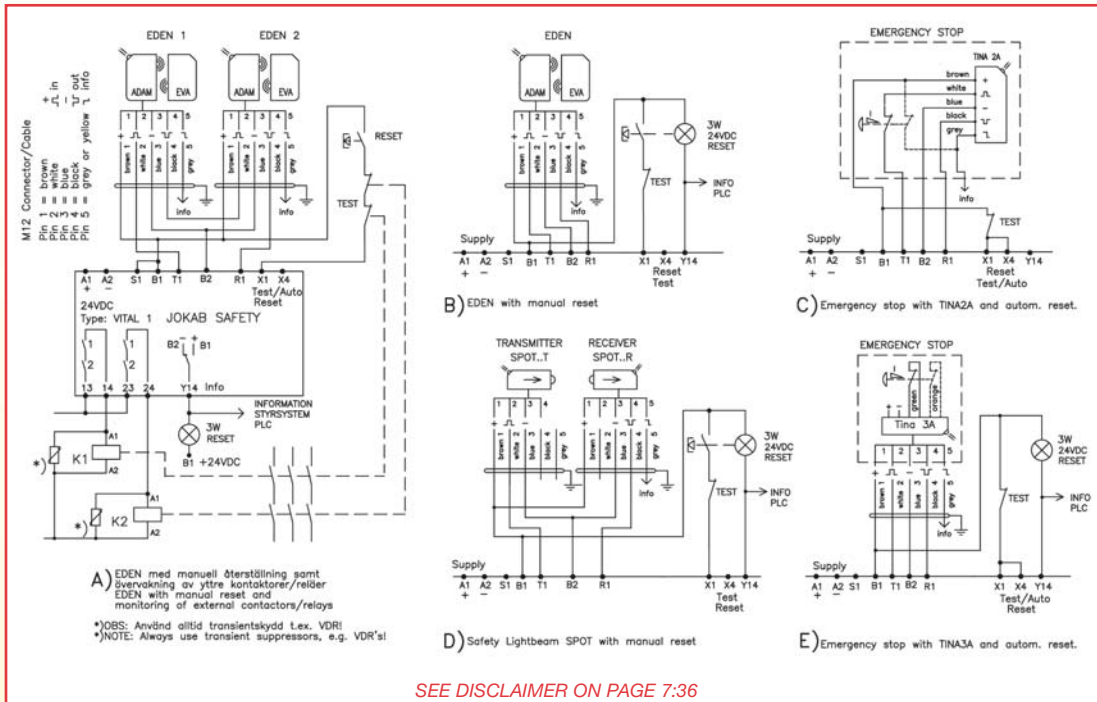
24 VDC when LED is green or flashing
(tolerance -2 VDC) 10mA max
0 VDC when LED is red (tolerance +2 VDC)

Warning: Incorrect connection
may cause permanent
damage to Adam devices.



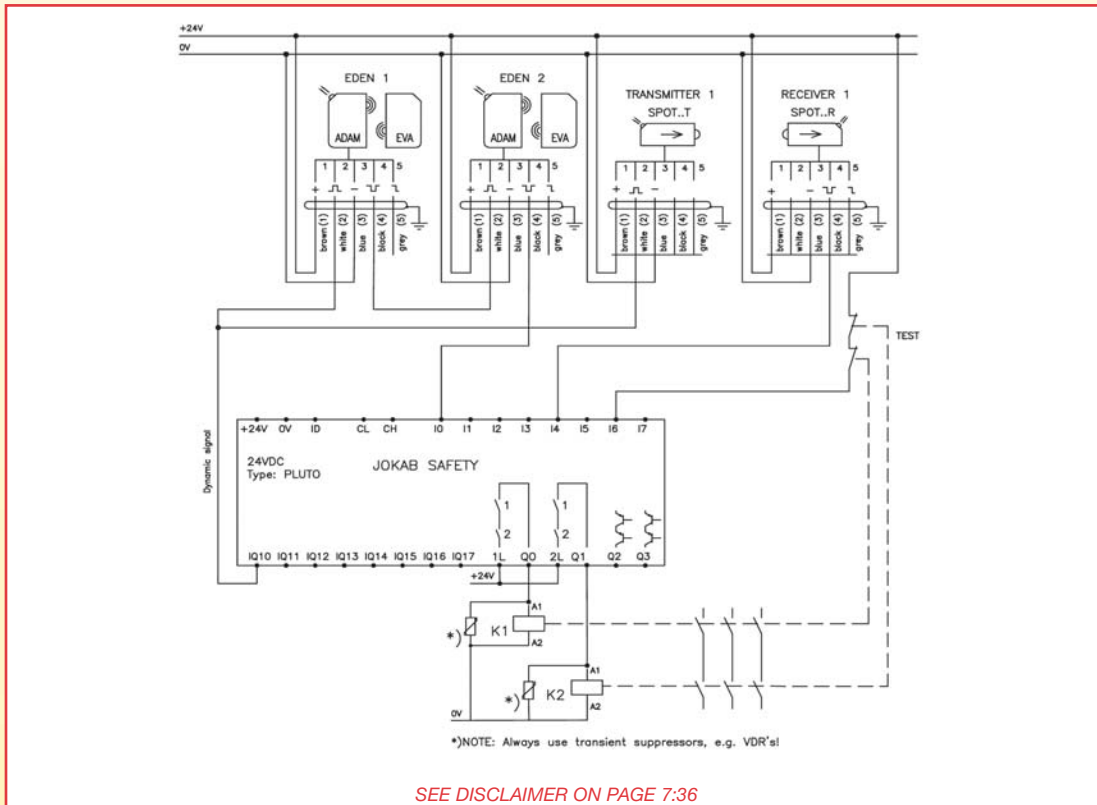
Eden Connection Example

Connection of Eden to Vital 1



Eden Connection Example

Connection of Eden to Pluto



SafeSlide™ Safety Lockout System

SafeSlide, a unique Safety Lockout System, was designed and developed by Jokab Safety North America to be used in conjunction with Jokab Safety's Eden non-contact, non-magnetic electronic safety sensor.

The product is engineered to be installed on doors, gates and hatches of all types used on machine guarding, barrier and fencing systems to provide safe entry and exit.

When the SafeSlide is engaged while the door is open and secured with a single or multiple padlocks, the system prevents the door from inadvertently closing which would cause the Eden Adam and Eva to reestablish contact creating an unsafe situation.

When the SafeSlide is engaged while the door is closed, it slides down over the flange on the bracket attached to the door and secures the door until the SafeSlide is disengaged.

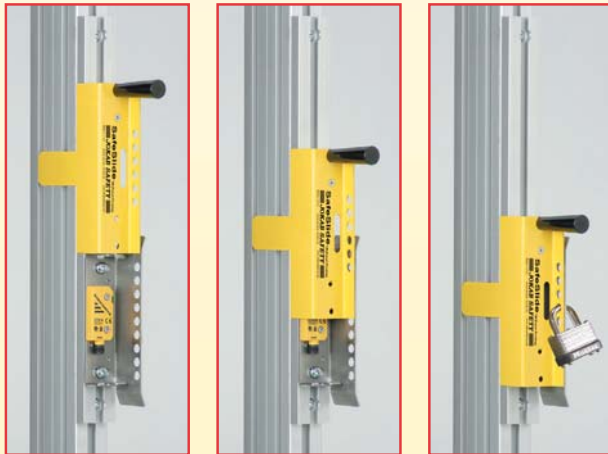
The handle on the front of the slide allows for opening of the door, gate or hatch from the outside of the guarded area and a metal tab allows opening from the inside.



With the door closed and SafeSlide engaged, the Eden Adam and Eva are able to make contact and the door is secured.



With the door open and SafeSlide engaged, the Eden Adam and Eva are unable to make contact preventing an unsafe situation.



When SafeSlide is engaged it completely eliminates the possibility of the Eden Adam and Eva making contact. A simple padlock can secure the position for further safety.

Applications

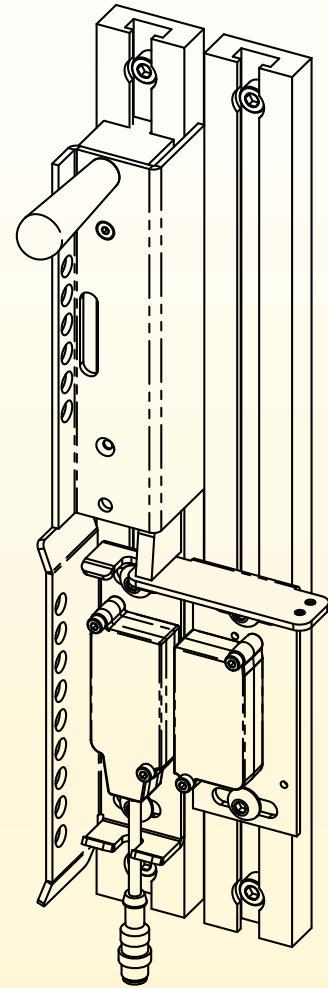
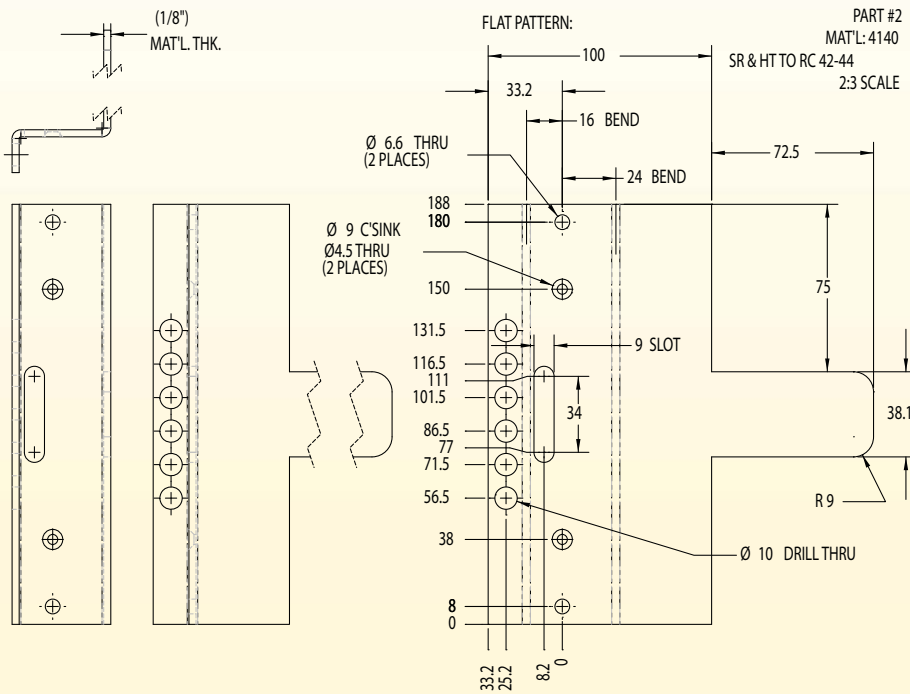
- Hinged or Sliding Doors, Hatches and Gates for Machine Guarding, Barrier and Fencing Systems

Features

- Lock out holes for padlocks and scissor type lockout devices
- Mounting holes to accommodate installation of Eden — Adam and Eva Safety Sensor
- Adjustable slots for door, gate or hatch gap differences
- Upper slide with handle provides an automatic or manual lock cover upon opening of door gate or hatch
- Tabs located on device allow for wire and cable connections the the Eden switches
- Slots provided to allow viewing of LEDs located on the switches

SafeSlide Technical Data

Manufacturer.....JOKAB SAFETY
Ordering Data/Article Numbers.....see page 7:31
Color.....yellow and black
Weight.....1.9 kg
Mounting.....Quick-Guard Fencing Profile
(can be mounted to other handles or locking devices)
Material.....steel with UHMW slide block



SafeSlide Isolates Hazardous Motion and Offers Control Reliability during Non-Lockout/Tagout Applications

SafeSlide meets safety standards that apply to the control of energy during servicing and/or maintenance of machines and equipment.

Normal production operations are not covered by OSHA 1910 - Subpart O - Lockout/Tagout. Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if one of these situations occurs:

- An employee is required to remove or bypass a guard or other safety device
- An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

JSNY5 Safety Interlock Switch

Switch Operational Description

Increasing automation and more demanding safety regulations have lead to the development of the JSNY5 safety switch. This switch enhances the range of Safety Switches, incorporating advanced features and benefits making this switch a market leader. This switch offers three contacts which gives both the two contacts needed for high safety level as well as a contact for the indication of operating status.

The advanced design offers the choice of four operating positions from only two actuator entries by simply rotating the head through 180°.

However, when installed and in it's working condition only one entry can be used, ensuring no other element can tamper with the switch function.

When mounting the switch from the front two elongated holes are provided to aid alignment with two set screw holes for accurate fixing. Top fixing is also possible.

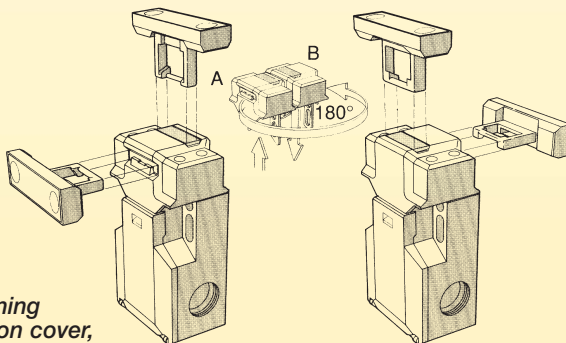
Two M20 cable entries allow for a variety of cabling options including through wiring.

Positive Forced Disconnected Contacts

The design assures that the contacts will not fail or be held in a normally closed position, due to failure of the spring mechanism or the welding/sticking of the contacts.

Safety Level

The positive forced disconnect contacts give a high electrical safety level. By combining the JSNY5 with one of our suitable safety relay in the RT-series, Pluto Safety PLC or Vital (Tina) the requirements for both hatch and gate switch supervision can be fulfilled. To obtain the same level of safety as Eden, two switches per gate are required.



After opening the snap-on cover, the head portion can be removed (version A), after turning the head through 180° (version B) it can be replaced onto the body of the switch and be locked into position by closing the snap-on cover. This ensures 4 actuating positions are possible.



Applications

- Gates and Hatches
- Removable Cover

Features

- 2 NC + 1 NO (actuator in)
- 4 actuating positions
- Actuator force 10 or 30 N

Protection from Unauthorized or Incidental Access

To avoid unauthorized operation, the JSNY5 switch is manufactured using multi-coding to GS-ET 15. The switch cannot be defeated by screwdrivers, magnets or any other mechanism.

Connection Examples

For examples of how our safety switches can solve various safety problems, see "Connection Examples" beginning on page 4:46 of the Safety Relay Section.

Regulations and Standards

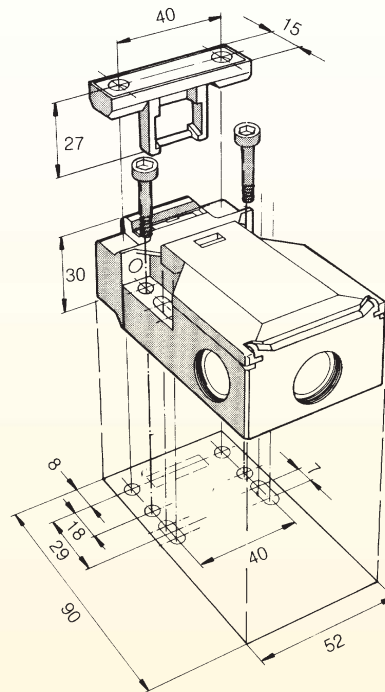
The JSNY5 is designed and approved in accordance with appropriate directives and standards. Examples of such are: 98/37/EC, EN ISO 12100-1/-2, EN 60204-1 and EN 954-1/ EN ISO 13849-1, EN 1088 and GS-ET 15.

Approvals



JSNY5A/B Technical Data

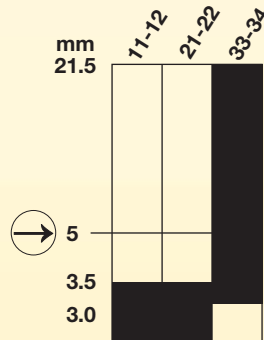
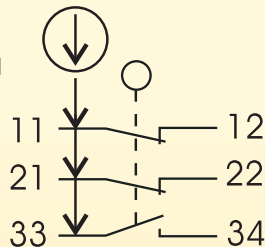
Manufacturer.....	JOKAB SAFETY
Ordering Data/Article Numbers.....	see page 7:32
Color.....	black and yellow label
Weight.....	approximately 0.13kg
Enclosure/Cover.....	PA 6 (UL94-VO)
Actuator.....	steel actuator
Min. Opening Radius for Actuator on a Hatch.....	150 mm
Ambient Air Temperature.....	-30°C to +80°C
Contacts (actuator in).....	2 NC + 1 NO (NC are direct opening action)
Mechanical Life.....	1 million switch operations
Max. Switching Frequency.....	30/min
Fixing.....	body 2 x M5, actuator 2x M5
Cable Entry.....	2 x M20 x 1.5
Degree of Protection.....	IP65 IEC 529/DIN VDE 0470 T1
Rated Insulation Voltage.....	400 V AC
Rated Operational Current.....	5A
Utilization Category.....	AC-15/DC-13
Short-Circuit Protection.....	Fuse 6A slow acting, 16A quick acting
CSA.....	5A 300V AC B300 (same pol.)
Protection Class.....	IP65



JSNY5A/B Contact Description

Overlapping Contact 33-34

The overlapping contact 33-34 enables operational status indication of e.g. incorrect adjustment of switch before the positive forced disconnect NC contacts open.



Actuator
Withdrawn

off
on

Actuator
Inserted

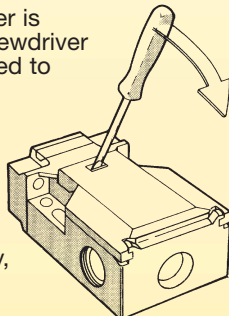
Accessories and Spare Parts

- Standard actuator
- Flexible key for smaller opening radius
- Cable gland
- Snap-on cover
- Tina 2A with M20 connection for a dynamic loop
- Tina 2B with cable connection
- Tina 3A with M12 and M20 connections for a dynamic loop

JSNY5A/B Contact Description

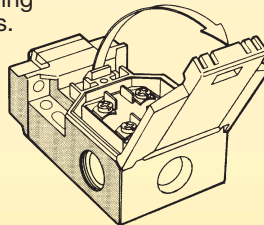
Easy Accessibility for Wiring

The snap-on cover is released by a screwdriver and can be opened to an angle of 135° providing easy access to the wiring terminals. Should the snap-on cover not provide adequate security, a retaining screw can be used.



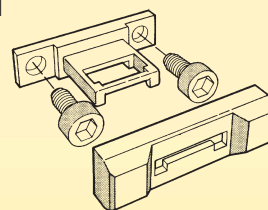
Protected Contact Block

A transparent cover protects the contact block from external elements during the installation and wiring process.



Prevention of Actuator Dismantling

A cover plate with a one-way snap-fit which seals the mounting screws prevents unauthorized dismantling of the actuator assembly. The cover plate **must** be mounted to prevent overtravel of the switching mechanism.



JSNY7 Magnetic Switch

Switch Operational Description

The magnetic switch is designed to operate in dirty industrial environments and is certified to the highest level of safety regulation when working together with a suitable Jokab Safety safety relay.

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. The magnetic switch has a long working life since no mechanical contact is made during operation.

Contacts

The magnetic switch has one closing and one opening contact. Both contacts have to be monitored. The contacts may be monitored by either the RT9 safety relay or other suitable relays in the new RT-series, i.e. RT6, RT9 or Safety PLC Pluto. By using the RT-series it is possible to choose between the reset (R) and test-input (T) functions. The 'R' stands for reset, supervised reset, which can be used on safety installations allowing passage, for instance gates. In addition to the input from the magnetic sensor, the reset-input has to be both closed and opened before the output contacts can close. This means that neither a short circuit nor a stuck button can give a reset.

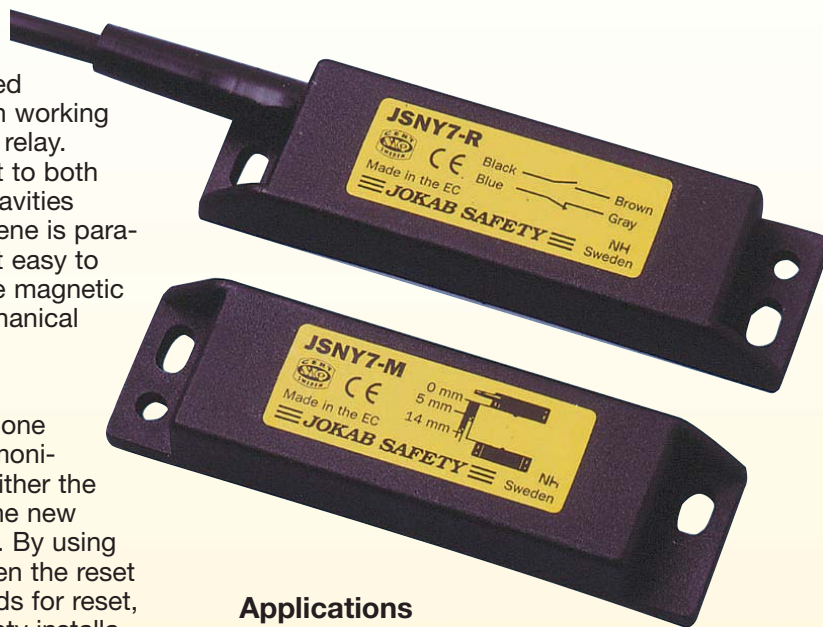
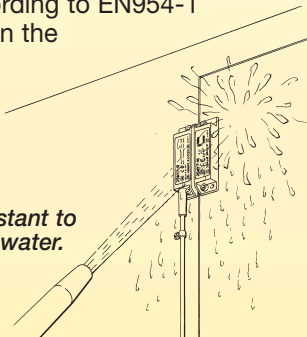
To disable the reset function, the two connection blocks on the safety relay have to be hardwire connected. The Reset input will become a Test-input (T), the output will then operate when the input contacts change state.

Both the Test and Reset inputs can also be used to test the functionality of relays and contactors connected to the relay outputs. By connecting a normally closed contact to the Reset/Test input it is possible to test that contactors/relays have returned to their 'reset' state before a new 'start' signal is given. For further information please see separate data sheet regarding Safety Relays in the RT-series.

Safety Level

The JSNY7 is approved to the highest level of safety regulations, category 4 according to EN954-1 together with a safety relay in the RT-series, Pluto Safety PLC or Vital. The magnetic switch is approved and certified by Inspecta.

JSNY7 is resistant to both dirt and water.



Applications

- Gates and Hatches
- Position Control

Features

- Small size
- IP 67
- Certified for highest level of safety regulations

Protection from Unauthorized or Incidental Access

To avoid unauthorized 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.

Connection Examples

For examples of how our safety switches can solve various safety problems, see "Connection Examples" beginning on page 4:46 of the Safety Relay Section.

Regulations and Standards

The JSNY7 is designed and approved in accordance with appropriate directives and standards. Examples of such are: 98/37/EC, EN ISO 12100-1/-2, EN 60204-1 and EN 954-1/ EN ISO 13849-1, EN 1088 and GS-ET 15.

Approvals

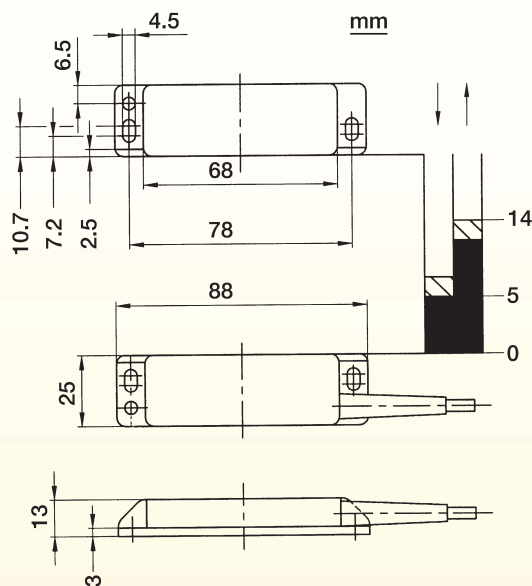


JSNY7 Technical Data

Manufacturer.....	JOKAB SAFETY
Ordering Data/Article Numbers.....	see page 7:32
Color.....	black
Weight.....	Sensor and cable 133 g Coded magnet 32 g
Enclosure/Cover.....	PA 6 (UL94-VO)
Operating Temperature Range	
Moveable.....	-5°C to +70°C
Fixed.....	-20°C to +70°C
Mechanical Life.....	3 x 10 ⁸ switchings, depending on load
Max. Switching Frequency.....	1 Hz
Supply Voltage Max.....	30 VDC
Switch Current Max.....	100 mA
Connection.....	Cable ϕ 4.5, 4 x 0.25 mm ² x 3 meter; PVC (other lengths upon request)
Switching Point.....	Min. switch-on point 5 mm Max. Switch-off point 14 mm
Protection Class.....	IP67 according to DIN 40050

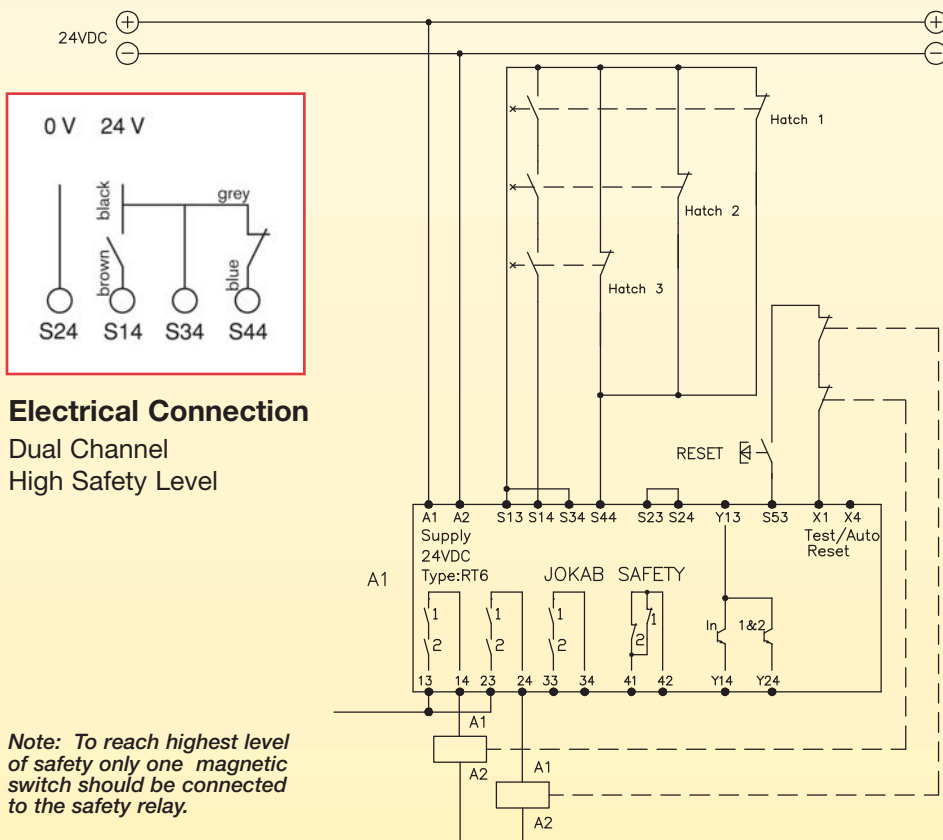
JSM D4E Conventional Opening Door Magnet Switch Fittings

Ordering Data/Article Numbers.....	see page 25
Preassembled with.....	Screws and nuts
Material.....	Aluminum



Note: Two fittings are needed for assembly of a complete magnetic switch JSNY7.

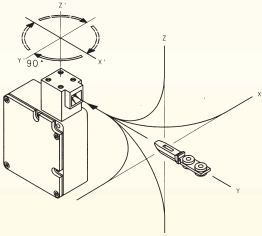
JSNY7 Contact/Electrical Connection Description



JSNY8 Solenoid Locking Safety Interlock Switch

Description

The JSNY8 Safety Interlock Switch, in conjunction with the machine control system, enables gates, movable guards, etc. to be locked in their protective positions, thus preventing access to machinery until dangerous operations have ceased.



Applications include:

- Processes which cannot be interrupted, such as welding.
- Machinery with a long stopping procedure, such as paper machinery that requires a long braking operation.
- Prevention of unauthorized access to a particular area.

The JSNY8 has 2 + 2 NC positive force disconnection contacts. The first pair closes when the actuator key is pushed into the head. The other pair closes when the locking mechanism is in the locked position.

The head can be set in four positions, thus providing the safety device with four different operating positions. These are selected by twisting the head according to the instructions in the diagram above. The leading edges of the actuator key are reinforced and beveled in order to guide it properly into the hole. The JSNY8 is encased in a robust metal housing (IP67) providing a high level of protection to the internal operating components.

Two Versions

The JSNY8 is available in two basic versions, either with a spring lock or a magnetic lock. In the spring lock (JSNY8S) version, the locking mechanism moves into the locked position directly when the door is closed and the actuator key is pushed into the lock. The actuator key can only be released and the gate opened by supplying operational voltage to the solenoid (E1-E2). The JSNY8S also has an emergency 'unlocking' facility to enable the actuator key to be released without the energization of the solenoid (E1-E2).

In the magnetic lock (JSNY8M) version, the locking mechanism is only in the locked position when the solenoid (E1-E2) is supplied with operating voltage. Release of the actuator key is only possible when the operating voltage is removed from the solenoid (E1-E2).

Safety Level

The JSNY8 has double forced disconnection contacts to the actuator key and the locking mechanism. The actuator key has a triple coding design. To achieve maximum safety level in the connection to the machine's control system, it is recommended that the JSNY8 is monitored by an appropriate Jokab Safety safety relay, Pluto Safety PLC or Vital. To obtain the same level of safety as Knox, two switches per gate are required.



Applications

- Gates and Hatches

Features

- Robust design
- Universal installation
- 2 NC + 2 NC outputs
- 1000 N locking force

Optional Features

- Actuator to operate at smaller radius
- Customer specific applications

Tamper-Proof

The JSNY8 Safety Interlock Switch is tamper-proof. The safety device cannot be manipulated by screwdrivers, magnets or other tools.

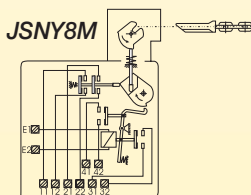
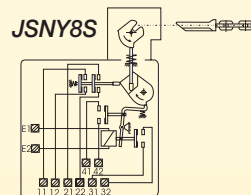
Connection Examples

For examples of how our safety switches can solve various safety problems, see "Connection Examples" beginning on page 4:46 of the Safety Relay Section.

Regulations and Standards

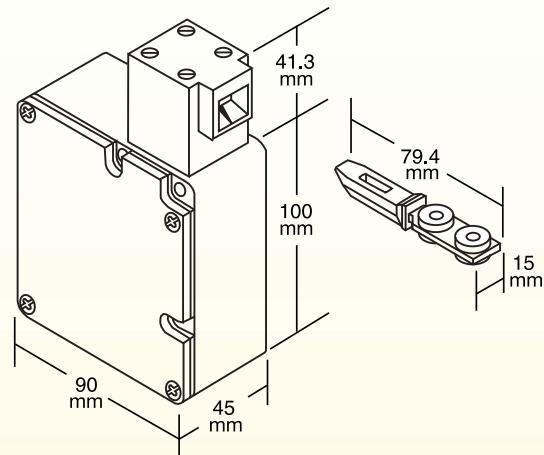
The JSNY8 is designed and approved in accordance with appropriate standards. Examples of such are: EN60204, IEC 204, EN 60947-1-5, IEC 947-5-1, VDE 0113, VDE 0660 T200, GS-ET 19 and EN 1088. IEC 947-5-1, GS-ET 15.

Approvals



JSNY8S/M Technical Data

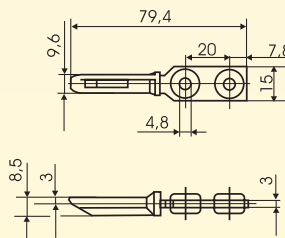
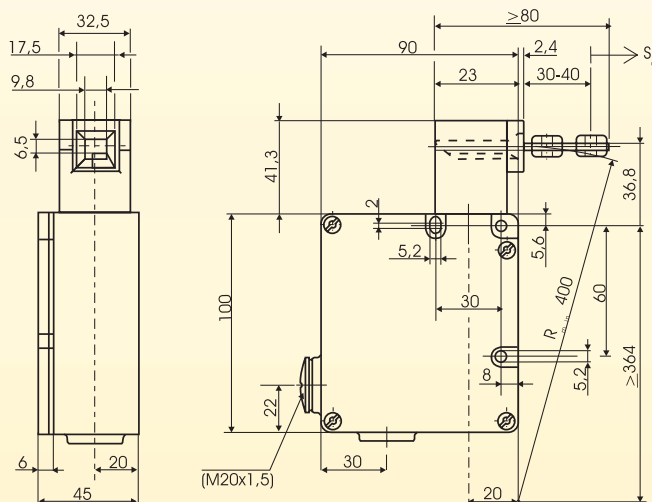
Manufacturer.....	JOKAB SAFETY
Ordering Data/Article Numbers.....	see pages 7:32-7:33
Color.....	black
Weight.....	550 g
Enclosure.....	metal housing
Actuator Key.....	steel and plastic (PA6)
Min. Opening Radius for Hatch.....	400 mm (smaller radius on request)
Locking Force.....	1000 N
Working Temperature.....	-30°C to +60°C
Contacts.....	Actuator key inserted 2 NC Locking mechanism, locked position 2 NC
Mechanical Service Life.....	1 million switch operations
Installation.....	3 x M5
Cable Entry.....	2 x M20 x 1.5
Enclosure Class.....	IP67 IEC 529/DIN VDE 0660 T200
Operating Voltage.....	24 V DC
Rated Insulation Voltage.....	250 V
Rated Operating Current.....	10A
Utilization Category.....	AC-12 250V/10A AC-15 230V/4A



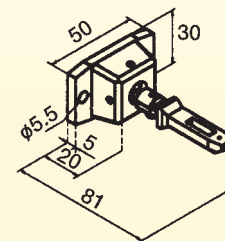
Short-Circuit Protection..... Fuse 10A slow acting
16A quick acting

Power Consumption..... 5.2 W

Protection Class..... IP67



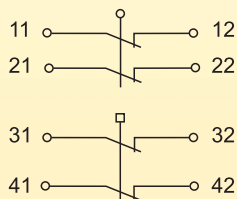
Note: The safety switch must not be used as an end stop!



JSNY8/9N2

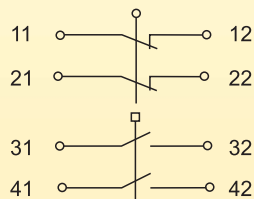
Rmin: 150 mm
Flexible actuator

JSNY8S/M Contact Description



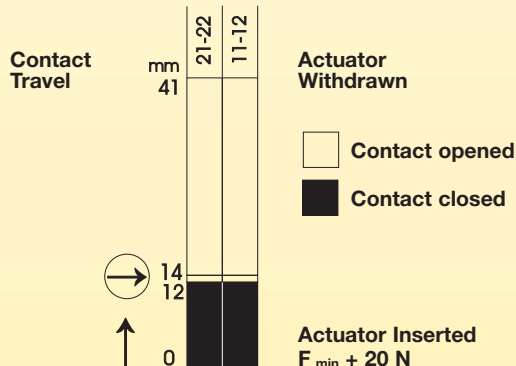
JSNY8S

Key actuator inserted
Normally locked



JSNY8M

Key actuator inserted
Normally unlocked



JSNY9 Solenoid Locking Safety Interlock Switch

Description

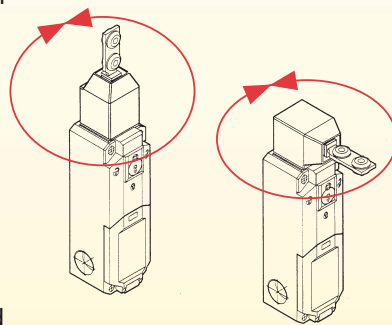
The JSNY9 is used for locking a gate/hatch, to prevent access to machinery, until hazardous operations have ceased.

Applications include:

- Processes which cannot be interrupted, e.g. welding.
- Machinery with a long stopping time, e.g. paper machinery which requires a long braking operation.
- Prevention of unauthorized access to a particular area.

The JSNY9 is equipped with a 2 x (1NO + 1 NC) contact configuration, the first pair of contacts changeover when the key is inserted. The second pair of contacts changeover when the locking mechanism is in the locked position.

The JSNY9 switch is encased in a robust plastic housing and can be mounted either horizontally or vertically. The advanced design of the head provides eight possible key insertion options. This is achieved by mounting the head either vertically or horizontally on the base unit, as shown in the diagram. The location for the actuator key is reinforced and beveled to ensure a smooth operation.



The control unit offers eight operating positions that provide the actuator with eight different input options.

Two Versions

The JSNY9 switch is available in two basic versions, either with a spring lock or an electromagnetic locking mechanism.

The JSNY9S (spring lock) switch operates immediately when the gate/hatch is closed, i.e. when the key actuator is inserted into the locking mechanism. The gate/hatch can be opened and the actuator key released only by supplying the operational voltage to the solenoid connections (E1 E2). The JSNY9S also has a manual emergency unlocking facility to enable authorized release of the actuator key.

In the JSNY9M (magnetic lock) version, the mechanism is only locked when the gate/hatch is closed i.e. the actuator key inserted and the solenoid (E1 E2) supplied with the operating voltage. The gate/hatch can only be opened when this operating voltage is removed.

Safety Level

In order to achieve a high safety level, the JSNY9 switch is equipped with dual sets of contacts operated with a coded actuator key. In order to meet the required installation safety level it is recommended that the JSNY9 safety switch is monitored by an appropriate Jokab Safety safety relay, Pluto Safety PLC or Vital. To obtain the same level of safety as Knox, two switches per gate are required.



Applications

- Gates and Hatches

Features

- Compact and robust
- Universal installation
- 2 x (1 NO + 1 NC)
- Actuator holding force 1500 N
- Eight head configurations
- LED status indication

Optional Features

- LED display, indicating the status of the actuator key, locking mechanism and contacts.
- Actuator to operate at smaller radius
- Customer specific applications

Protection from Unauthorized or Incidental Access

The JSNY9 is designed to protect against unauthorized access; screwdrivers, magnets or similar tools cannot manipulate the safety switch.

Connection Examples

For examples of how our safety switches can solve various safety problems, see "Connection Examples" beginning on page 4:46 of the Safety Relay Section.

Regulations and Standards

The JSNY9 is designed and approved in accordance with appropriate standards. Examples of such are: EN60204, IEC 204, EN 60947-5-1, IEC 947-5-1, VDE 0113, VDE 0660 T200, GS-ET 19 and EN 1088.

Approvals



Magne 1A/2A Magnetic Lock with Indication

The Magne 1A is a magnetic lock which has been adapted for use in industrial applications and other harsh environments. It can electrically lock and hold a door closed with up to 1500 Newtons of force and when power is turned off no magnetic material will stick on the magnet surface.

Magne 1A can be used together with Eden door position sensors providing protection from dangerous machine movements.

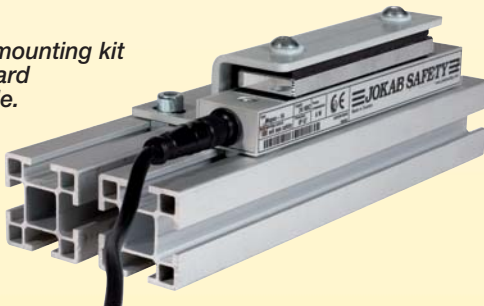
Magne 2A already has an Eden sensor built in. Use of M12 connectors makes it easy to connect several Magne units and Eden sensors in series enabling control and monitoring by either a Pluto Safety PLC or a Vital Safety Module. Via the connection cable it is also possible to obtain an indication signal informing if the Magne unit is locked or not.



Magne mounted on Quick-Guard fencing profile with anchor and cellrubber.



Magne with mounting kit on Quick-Guard fencing profile.



Magne with mounting kit and handle on Quick-Guard fencing profile.



Applications

- Electrical locking of doors and hatches to production applications that are sensitive to unintentional/unnecessary interruptions
- For safety supervision the Magne 2 has an integrated Eden

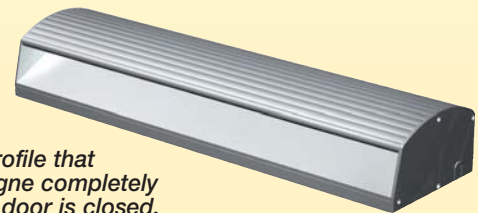
Features

- Robust construction
- No moving parts
- Strong magnetic holding force of 1500N
- Can stand and operate in harsh environments
- Locked/unlocked indication
- Possible to connect in series with Eden sensors
- No current peaks on activation
- Magne 2 in combination with a handle profile provides a complete door solution

Accessories

- Mounting kit for conventional door, with fitting and screws for assembly on Jokab Safety Quick-Guard fencing system (5-15 mm door gap)
- Plastic handle
- Handle profile for mounting on a hinged door with Jokab Safety Quick-Guard fencing system (5-15 door gap)

Handle profile that hides Magne completely when the door is closed.



Magne Technical Data

Manufacturer.....JOKAB SAFETY

Ordering Data/Article Numbers..... see page 7:34

Power Supply

Magnet.....24 VDC +15%/-20%

Eden.....17-27 VDC, ripple max 10%

Power Consumption

Magnet.....7 W (300 mA at 24 VDC)

Eden.....45-55 mA (see data for Eden)

Operating Temperature Range..... -20°C to +50°C

Protection Class.....IP67

Weight

Magne 1A..... 610 g

Magne 2A..... 700 g

Armature..... 290 g

Holding Force

24 VDC..... min 1500 N

3 VDC..... 15 - 30 N

0 VDC..... 0 N

Contacts..... Reed sensor (non-safety)

Maximum Switch Current..... 100mA

Mechanical Life..... >10⁷

Connector

Magne 1A..... 5-pole male connector

Magne 2A..... 8-pole male connector

Connections - Magne 1A

Brown (1).....locking, +24 VDC

White (2).....NO/NC contact common

Blue (3).....0 VDC

Black (4)..... NO-contact

Grey (5)..... NC-contact

Connections - Magne 2A

White (1).....dynamic signal input

Brown (2)..... +24 VDC

Green (3).....locking, +24 VDC

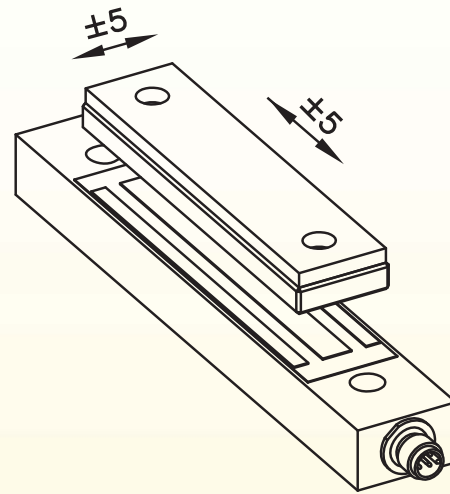
Yellow (4).....locking, 0 VDC

Grey (5)..... information closed (max. 10 mA)

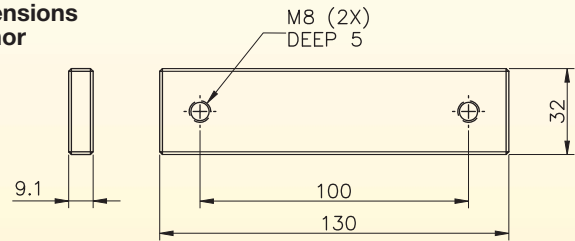
Pink (6)..... dynamic signal output

Blue (7).....0VDC

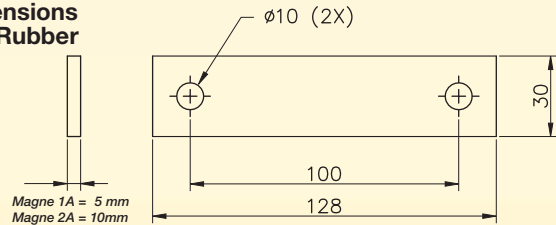
Red (8)..... information locked (max. 100 mA)



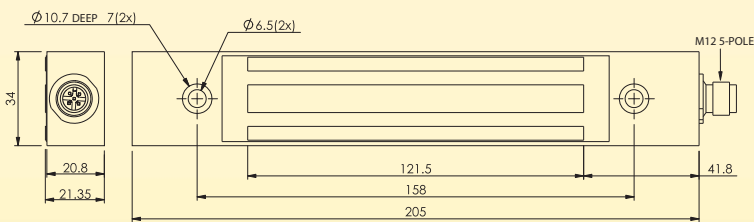
Dimensions Anchor



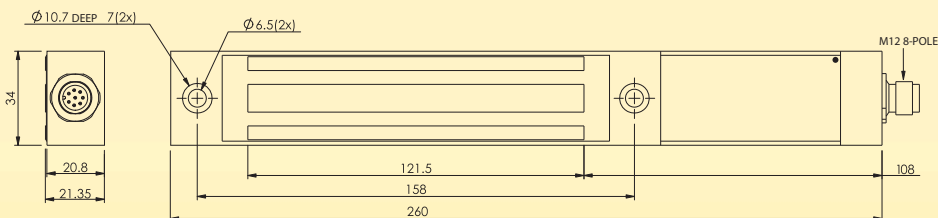
Dimensions Cell Rubber



Magne Installation Tolerance



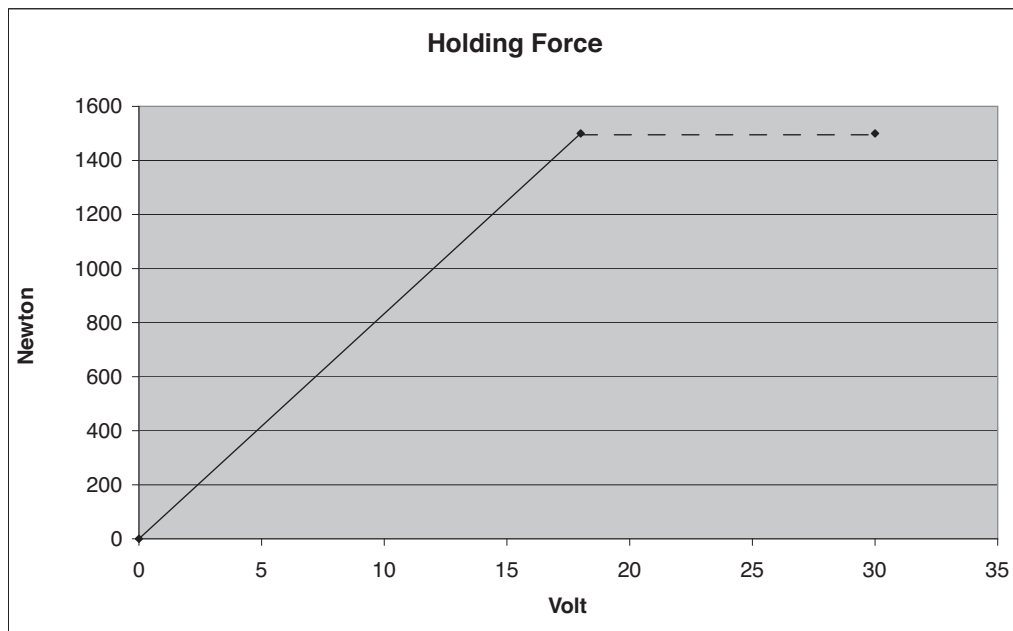
Magne 1A



Magne 2A

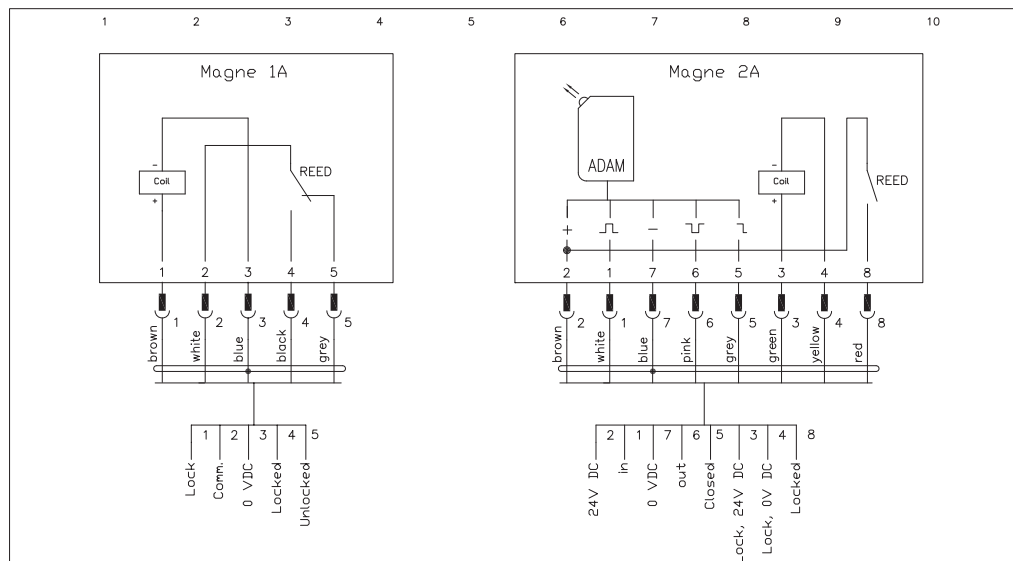
Holding Force

Magne 1A/2A



Connection Example

Magne 1A/2A



Remark
Connection Magne 1A and 2A

JOKAB SAFETY

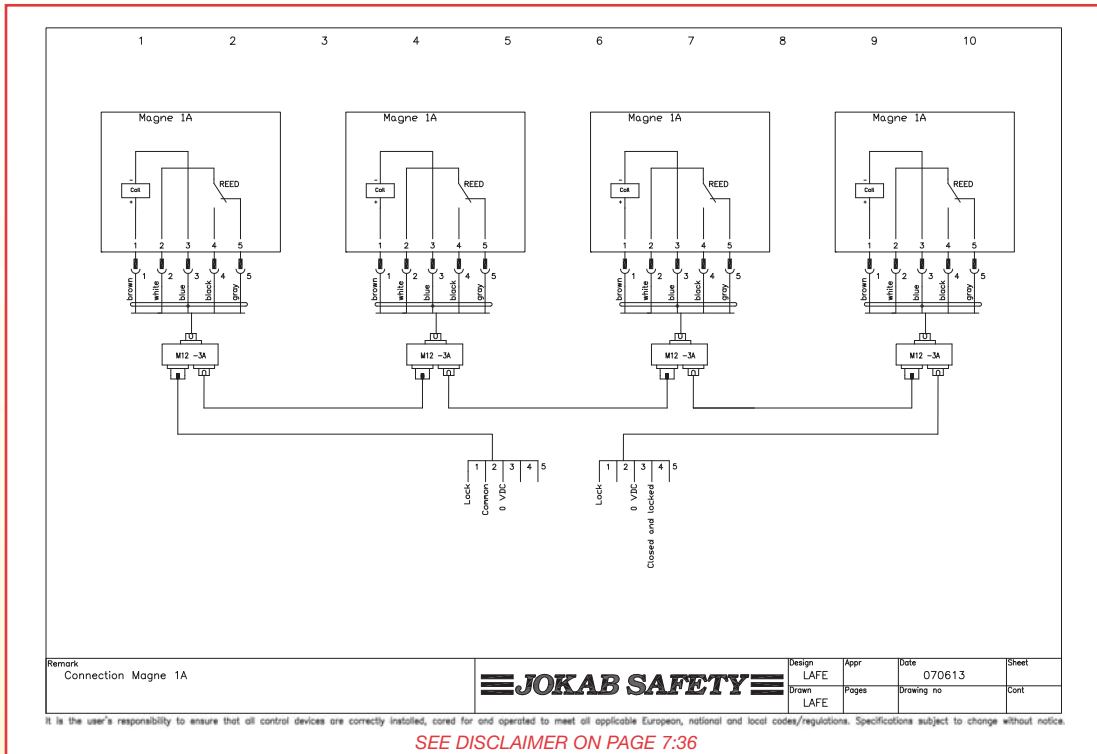
Design: LAFE
Appr: LAFE
Date: 071031
Drawing no: Cont

It is the user's responsibility to ensure that all control devices are correctly installed, cored for and operated to meet all applicable European, national and local codes/regulations. Specifications subject to change without notice.

SEE DISCLAIMER ON PAGE 7:36

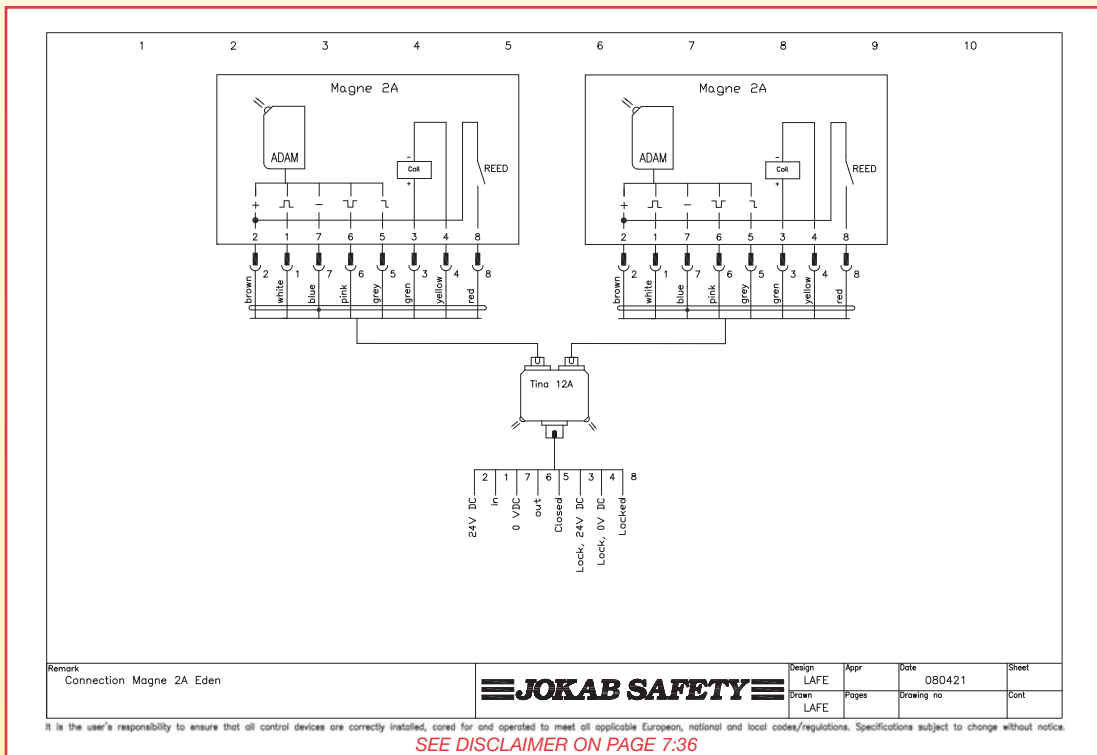
Connection Example

Magne 1A in series



Connection Example

Magne 2A in series



Dalton

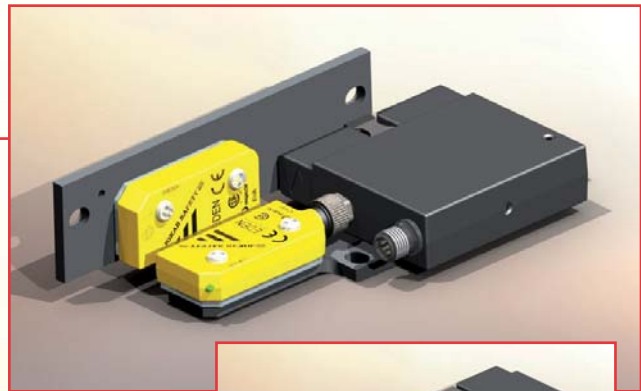
The Intelligent Process Lock

Dalton is a locking unit that is intended for use in preventing unnecessary process stoppages, i.e. it is not a safety lock. It can be used either as a free-standing lock or integrated with Eden as a safety sensor. In the unlocked state the door is held closed by a ball catch and locked mechanically. If necessary, the holding force of the ball catch can be adjusted. The unit only permits locking if the ball catch is secured and when the Eva is in contact with the Adam (depending on the variant). When an input is supplied with voltage, the ball catch is locked.

Dalton is easily connected with an M12 connector. The junction block can also be used for distribution of both the safety and locking functions. The Dalton status is indicated by LEDs and can also be read by a PLC via the information output.

Installation

Dalton can be installed with its opening in two directions. When Dalton is used in conjunction with Eden the number of DA1 washers varies depending on the angle at which the tongue approaches the ball catch. This is to optimize the sensing distance for the Adam and Eva.



Dalton M12 Eden M122 for severe environments

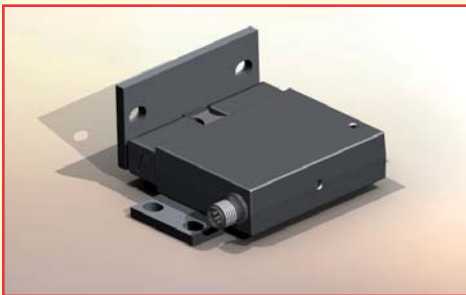


Applications

- Doors and hatches

Features

- Small and robust
- Integrated with Eden
- Flexible installation
- High enclosure classification - IP 67
- Withstands severe environments
- Low current consumption
- Status information with LED on the lock housing and in the cable connection



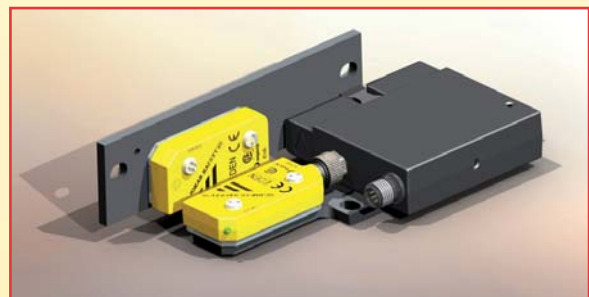
Dalton with 5-pole or 8-pole connector



Dalton Eden with 5-pole or 8-pole connector to Dalton



Dalton M12 M121



Dalton M12 Eden M122

Dalton Technical Data

Manufacturer.....JOKAB SAFETY

Ordering Data/Article Numbers.....see pages 7:35-7:36

Locking Function.....M - locked when energized

Color.....black

Operating Voltage.....24 VDC +25%/-20%

Power Consumption

Unlocked.....40 mA

Locked.....130 mA

Lock input.....5 mA

Information output.....max 10 mA

Eden.....see data for Adam M12

Protection Class.....IP67

Holding Force

Unlocked.....25-100 Nm

Locked.....1000 Nm

Mechanical Life.....>10⁷

Connectors.....8-pole male plug, M12

.....5-pole male plug, M12

.....outlet for externally connected Adam

.....outlet M12 5-pole

(varies depending on type of Dalton)

Connections - 8-Pole

White (1).....dynamic input signal, Adam

Brown (2).....+24 VDC

Green (3).....lock signal

Yellow (4).....not used

Grey (5).....information Adam

Pink (6).....dynamic output signal, Adam

Blue (7).....0 VDC

Red (8).....information Dalton

Connections - 5-Pole

Brown (1).....+24 VDC

White (2).....not used

Blue (3).....0 VDC

Black (4).....lock signal

Grey (5).....information Dalton

LED Indication

Red = Red Green = Green Pulse.....information function

.....1 locked

.....0 closed but unlocked

.....0 open

Alarm

.....1Hz Lock has not entered

the unlocked state

.....1Hz Eden or ball catch

not in position = open

.....1Hz Open, locking

not permitted

.....1Hz Lock has not entered

the locked state

.....1Hz Undervoltage,

locking not permitted

.....1Hz Overvoltage

Overtemperature (>80°C)

Material

Ball catch, securing plate.....anodized aluminum

Enclosure.....anodized aluminum

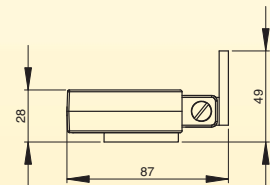
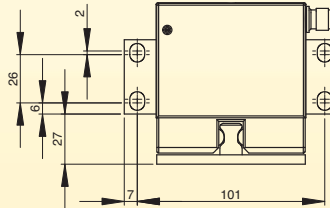
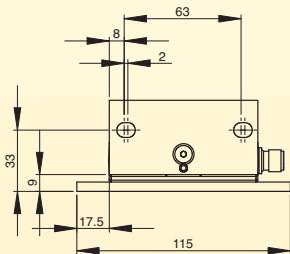
Lock tongue, securing plate.....anodized aluminum

Chemical Resistance

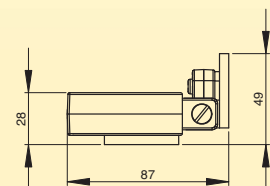
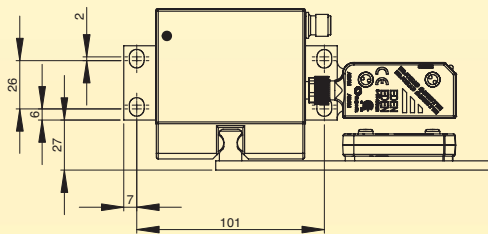
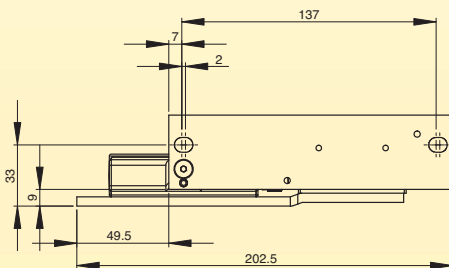
Stainless steel.....most acids: good

(hydrochloric and sulphuric acids: not recommended)

Dalton M111, Dalton M311 and Dalton M12 M121

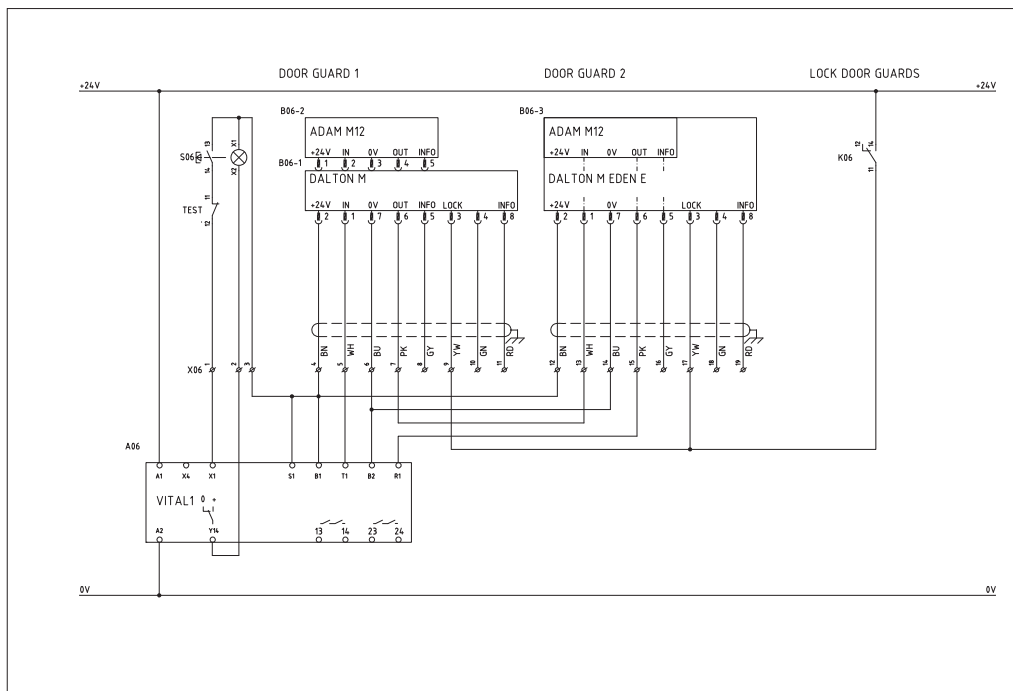


Dalton M12 Eden M122 and Dalton Eden M112



Connection Example

Dalton to Vital 1

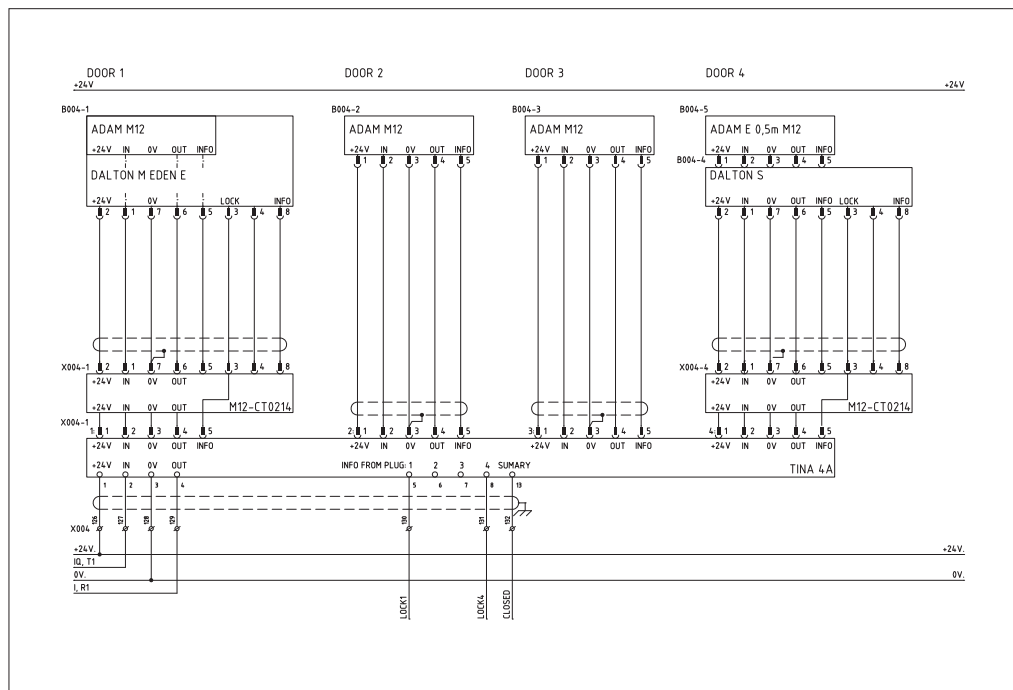


It is the user's responsibility to ensure that all control devices are correctly installed, cored for and operated to meet all applicable European, national and local codes/regulations. Specifications subject to change without notice.

SEE DISCLAIMER ON PAGE 7:36

Connection Example

Dalton and Eden connected to Vital 1 or Pluto Safety PLC



It is the user's responsibility to ensure that all control devices are correctly installed, cored for and operated to meet all applicable European, national and local codes/regulations. Specifications subject to change without notice.

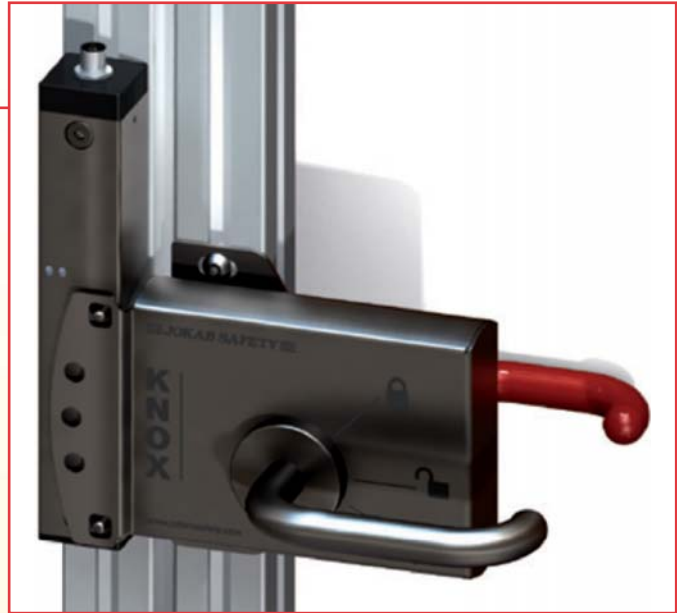
SEE DISCLAIMER ON PAGE 7:36

Knox Safety Lock for Secure Locking

Knox is a double lock that complies with the highest safety level—two lock cylinders with monitored positions—that can be used both as a safety and process lock. The locking function is electronically controlled and is bi-stable, i.e. it retains its position (locked/unlocked) in the event of a power failure.

The handles operate as they would on a normal door—except that the exterior handle also has a reset function and there is an interior handle that can be used for emergency opening.

Its design and durability mean that it is ideal for harsh environments, as the sensors in the lock are non-contact and the lock is manufactured of stainless steel.



Knox Safety Lock Open



Knox Safety Lock Emergency Opened



Knox Safety Lock Reset, Openable



Knox Safety Lock Operational Mode Locked and Reset (Emergency Opening Only)

Applications

- Locking doors to cells/lines with long stop times
- Application where you need a robust lock

Features

- Double locking function as specified in PL e/Category 4 (EN ISO 13849-1)
- Withstands harsh environments
- Status information with LEDs on lock housing and at cable connection
- Controlled to locked and unlocked positions—remain locked/unlocked in the event of power failure
- Electronic connection only on the door frame

Knox Technical Data

Manufacturer.....JOKAB SAFETY

Ordering Data/Article Numbers..... see page 7:36

Locking Function..... S/M - unlocked and locked with voltage

Color.....gray and black with red interior handle

Operating Voltage.....24 VDC +/-15%

Power Consumption

Electronics..... 70 mA (in locked position)

Lock/lock inverse.....135 mA (when locking/unlocking)

Total max150 mA

Information output..... max 10 mA

Protection Class..... IP65

Holding Force

Unlocked..... 5000 N (10,000 N ultimate breaking strength)

Locked.....5000 N (10,000 N ultimate breaking strength)

Mechanical Life.....>10⁷

Connectors.....8-pole male plug, M12

Connections (pin)

White (1).....dynamic input signal

Brown (2)..... +24 VDC

Green (3)..... lock

Yellow (4)..... lock inverse

Grey (5)..... information locked

Pink (6)..... dynamic output signal

Blue (7)..... 0 VDC

Red (8)..... information reset

LED Indication

Red = Red Green = Green Pulse.....information function

LED 1

Green.....locked (and reset)

Green Red.....locked, no dynamic signal in

Red.....unlocked

LED2

Green.....reset

Red.....not reset

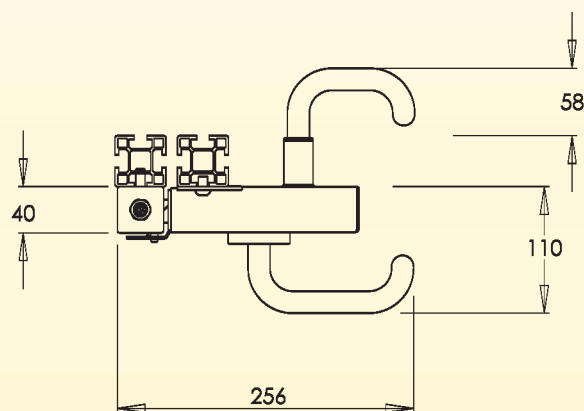
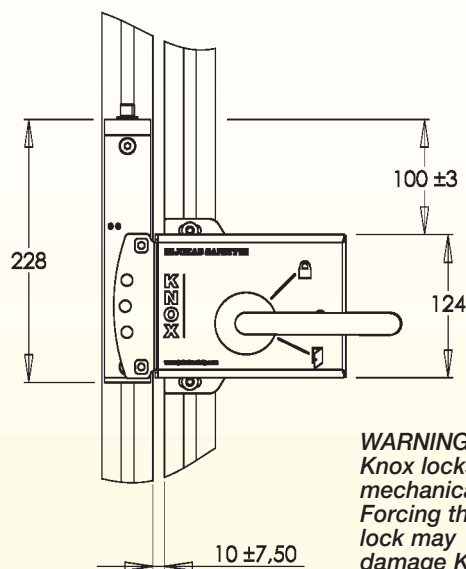
Alarm LED2 (dirt indicator reset sensor)

Green Green.....reset

Red Red.....not reset

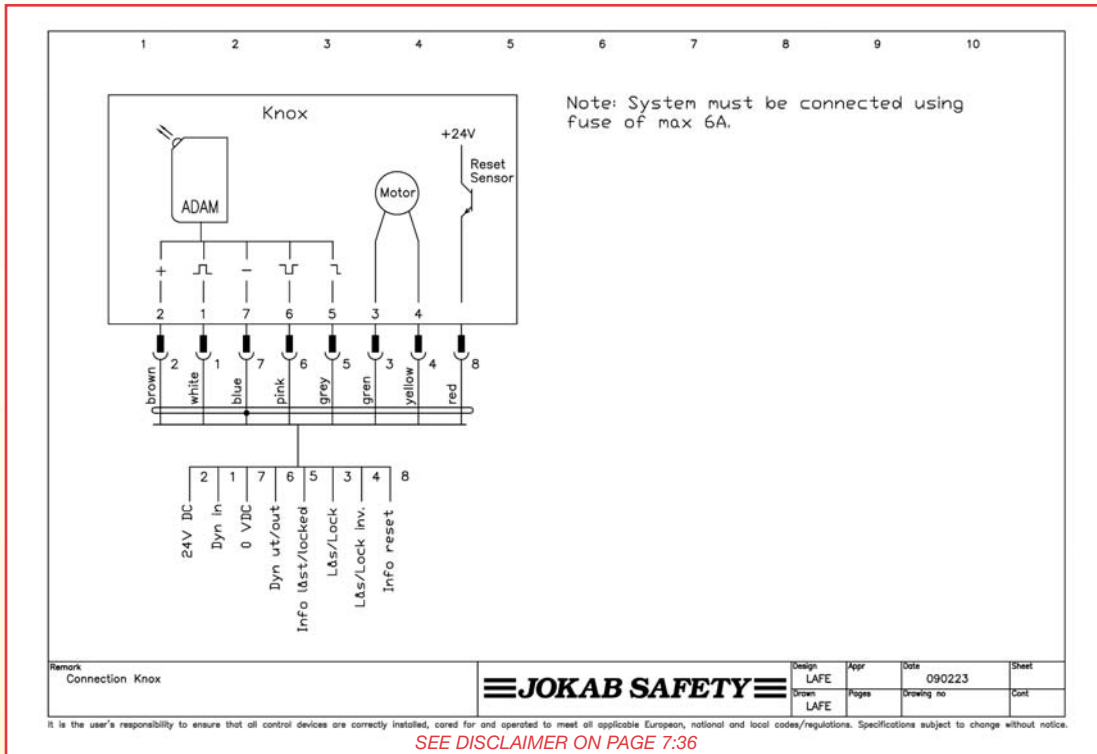
Accessories.....Tina 12A

(distribution block for two Knox)



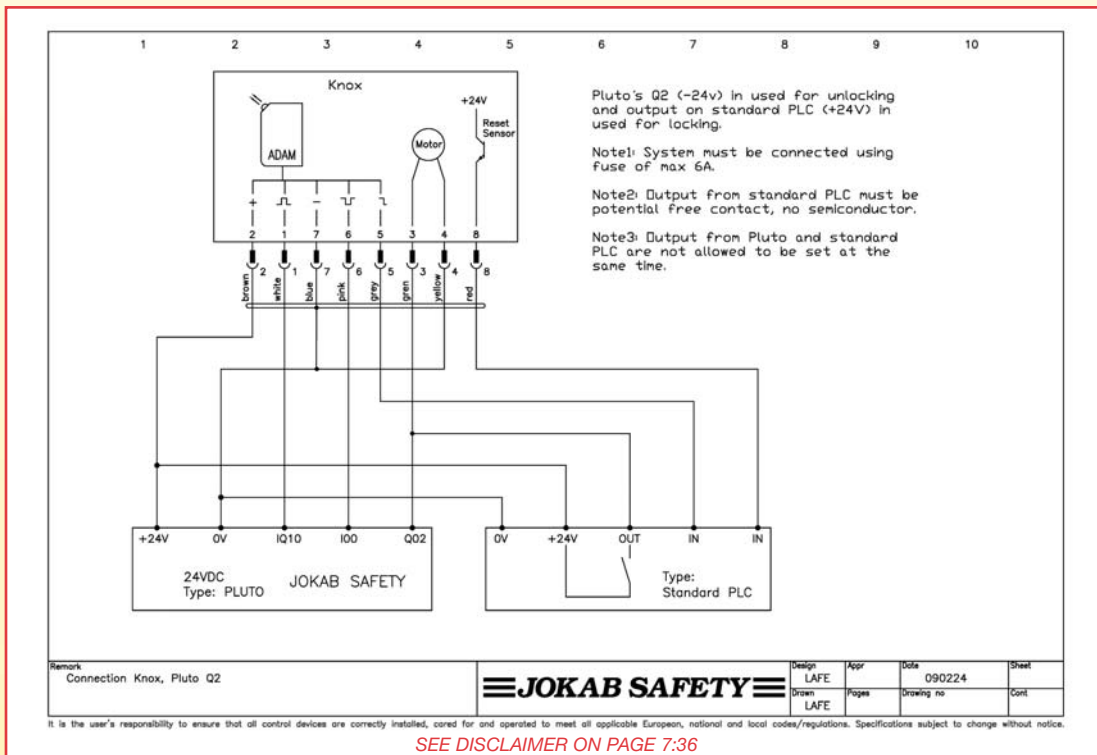
Connection Example

Knox



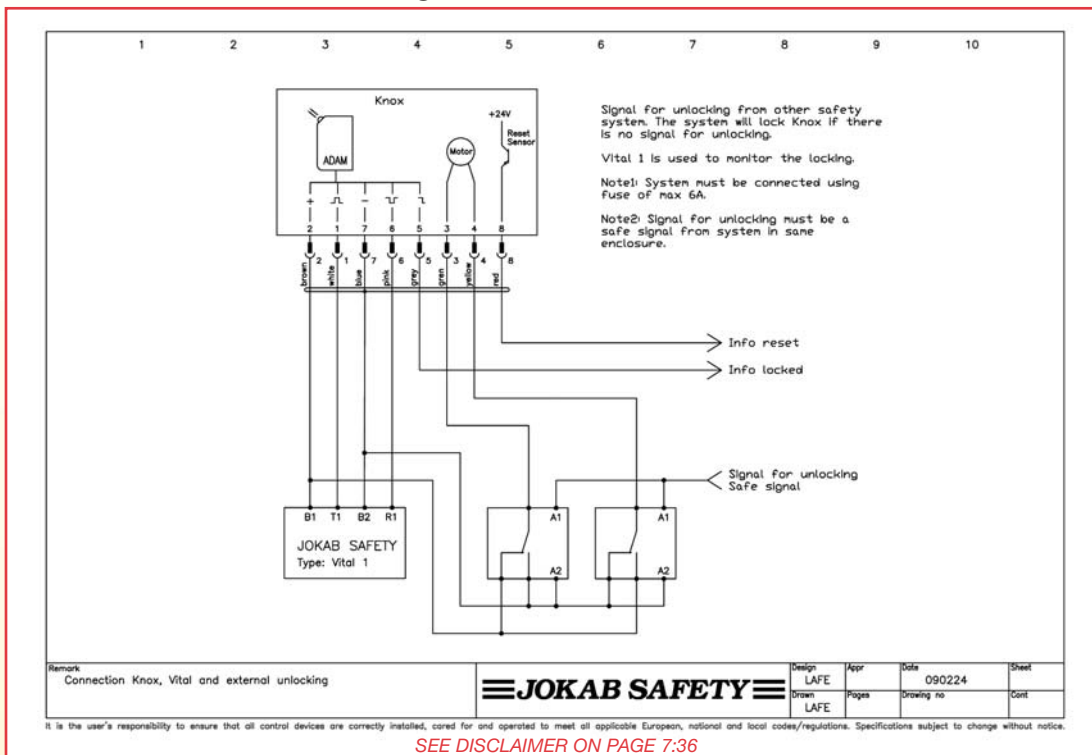
Connection Example

Knox and Pluto



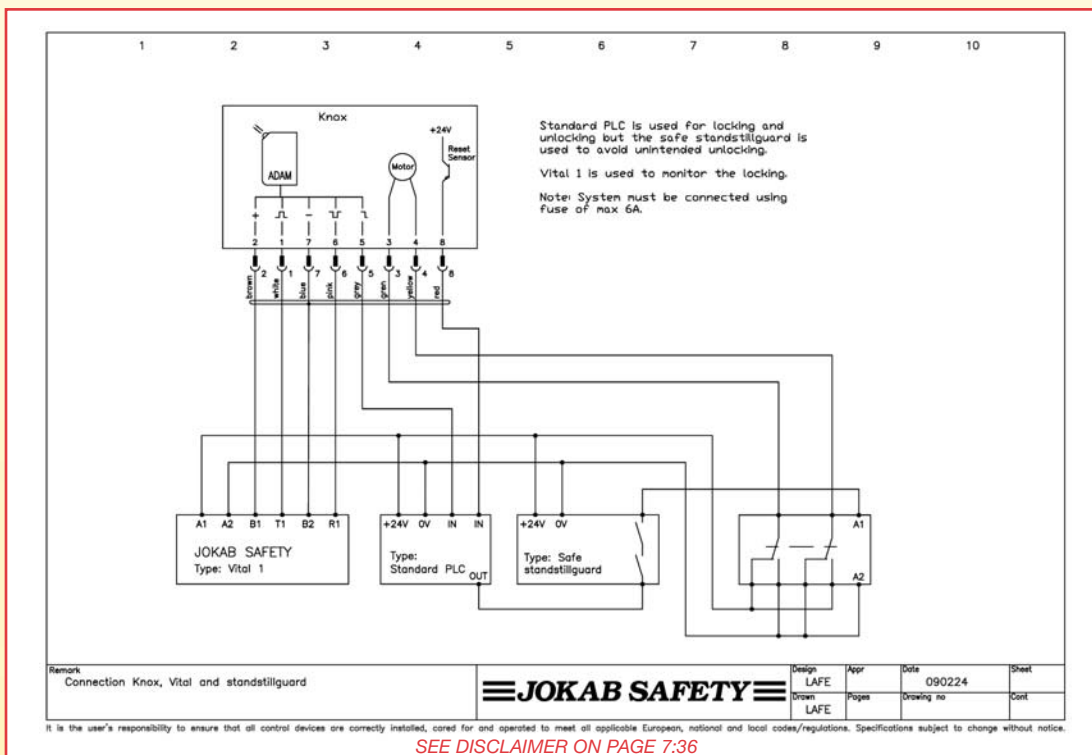
Connection Example

Knox with Vital and External Unlocking









Connection Example

Knox with Downtime Monitor



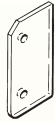

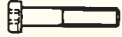








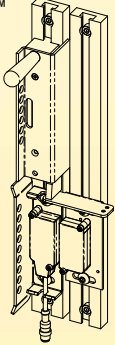
Component List - Sensors and Switches

Designation		Article Number	Description
Eva		20-046-00	Electronic actuator for Adam switches, IP67 protection degree, polyamid housing. Includes 4 pieces of DA2 mounting washers.
Eva E		20-046-06	Electronic actuator encapsulated for Adam switches, IP69K protection degree, polyamid housing.
Adam M12		20-051-00	Non-contact electronic safety sensor with 5 pole M12 male quick disconnect, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP67 protection degree, versatile mounting with 360 degree detection, sensing distance of 0-15mm +/- 2mm with Eva, polyamid housing. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). 4 pieces DA1 distance protection plate and 4 pieces DA2 mounting washers included.
Adam 3m		20-051-02	Non-contact electronic safety sensor with 3 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP67 protection degree, versatile mounting with 360 degree detection, sensing distance of 0-15mm +/- 2mm with Eva, polyamid housing. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). 4 pieces DA1 distance protection plate and 4 pieces DA2 mounting washers included. M12 male connection at end of cable.
Adam 10m		20-051-04	Non-contact electronic safety sensor with 10 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP67 protection degree, versatile mounting with 360 degree detection, sensing distance of 0-15mm +/- 2mm with Eva, polyamid housing. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). 4 pieces DA1 distance protection plate and 4 pieces DA2 mounting washers included. M12 male connection at end of cable.
Adam 20m		20-051-05	Non-contact electronic safety sensor with 20 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP67 protection degree, versatile mounting with 360 degree detection, sensing distance of 0-15mm +/- 2mm with Eva, polyamid housing. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). 4 pieces DA1 distance protection plate and 4 pieces DA2 mounting washers included. M12 male connection at end of cable.

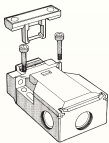
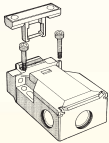




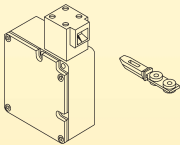
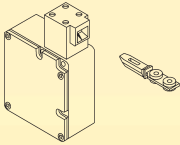
Component List - Sensors and Switches

Designation	Article Number	Description
Adam E 10m	20-051-06	Non-contact electronic safety sensor encapsulated with 10 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP69K protection degree, versatile mounting with 360 degree detection, sensing distance of 0-12mm +/- 2mm with EvaE, polyurethane housing for harsh environments. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). M12 male connection at end of cable.
Adam E 0.5m M12	20-051-07	Non-contact electronic safety sensor encapsulated with 0.5 meter molded PVC cable and 5 pole M12 male quick disconnect, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP69K protection degree (IP67 at connector), versatile mounting with 360 degree detection, sensing distance of 0-12mm +/- 2mm with EvaE, polyurethane housing for harsh environments. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input).
Adam E 20m	20-051-08	Non-contact electronic safety sensor encapsulated with 20 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP69K protection degree, versatile mounting with 360 degree detection, sensing distance of 0-12mm +/- 2mm with EvaE, polyurethane housing for harsh environments. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input).
Eden C 10m	20-051-14	Non-contact electronic safety sensor and actuator with 10 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP67 protection degree, versatile mounting with 360 degree detection, sensing distance of 0-15mm +/- 2mm, polyamid housing. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). 4 pieces DA1 distance protection plate and 8 pieces DA2 mounting washers included. System comes as a matched, coded pair.
Eden EC 10m	20-051-16	Non-contact electronic safety sensor encapsulated and actuator with 10 meter molded PVC cable, multi-function status indicator LED, integrated information output 24VDC - 10mA, IP69K protection degree, versatile mounting with 360 degree detection, sensing distance of 0-12mm +/- 2mm, polyurethane housing for harsh environments. Requires Vital 1 controller or Pluto Safety PLC to function and operate to Safety Category 4. Maximum of 30 Eden sensors connected to one Vital controller possible while maintaining category 4 level of safety (10 per Pluto input). System comes as a matched, coded pair.

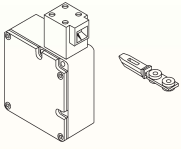
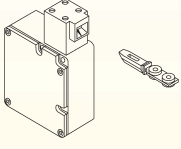
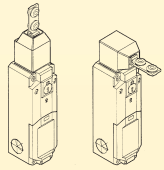
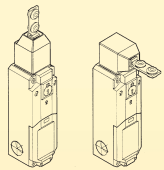
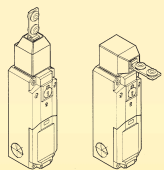
Component List - Sensors and Switches

Designation		Article Number	Description
DA 1		20-053-00	Distance protective plate for Adam M12. Polycarbonate with 2.5mm thickness. Suitable for Adam 3m/10m/20m if necessary.
DA 2		20-053-01	Mounting spacer 4.5 x 8 x 4 mm, polyamid for use with Adam and Eva units.
		20-053-10	M4 mounting screw (length 18 mm) for recessed mounting of Adam and Eva.
		20-053-20	M4 mounting screw (length 16 mm) for projecting mounting of Adam and Eva.
		20-053-30	M4 mounting screw (length 25 mm) for projecting mounting of Adam E and Eva E.
		20-053-32	M4 nylon mounting screw (length 25 mm) for recessed or projecting mounting of Adam and Eva (Adam E and Eva E).
		20-053-42	Safety screw (SM4 x 20) for mounting Adam and Eva.
		20-053-43	Safety screw (SM4 x 25) for mounting of Adam E and Eva E.
		20-053-50	Safety screwdriver bit SBITS
		20-053-62	4 Safety screws (SM4 x 20mm) + 1 screwdriver bit
		20-053-63	4 Safety screws (SM4 x 25mm) + 1 screwdriver bit
JSNA-SafeSlide™		50-003-08	Eden lockout assembly for safe lockout at the door. Provisions for up to 6 locks that fastens the metal plate between the Eden pair. Adjustable for either right side or left side opening doors.

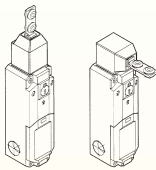
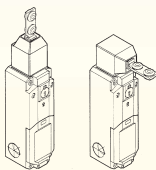
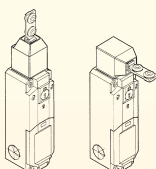
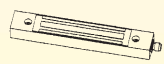
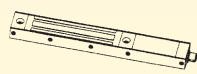
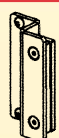
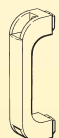
Component List - Mechanical Switches

Designation	Article Number	Description
JSNY5A 	20-022-00	Safety interlock switch with 2 NC positive opening & 1 NO contacts, 6A rated operational current, 10N actuator retention force, IP65, plastic body, two M20 conduit entries, comes with steel actuator.
JSNY5B 	20-022-01	Safety interlock switch with 2 NC positive opening & 1 NO contacts, 6A rated operational current, 30N actuator retention force, IP65, plastic body, two M20 conduit entries, comes with steel actuator.
JSNY7R-3 	20-023-00	Magnetic safety switch with 1 NO & 1 NC contacts, 100mA switched current maximum, IP67, plastic body, 3 meters of molded cable.
JSNY7R-6 	20-023-01	Magnetic safety switch with 1 NO & 1 NC contacts, 100mA switched current maximum, IP67, plastic body, 6 meters of molded cable.
JSNY7R-10 	20-023-02	Magnetic safety switch with 1 NO & 1 NC contacts, 100mA switched current maximum, IP67, plastic body, 10 meters of molded cable.
JSNY7M 	20-024-00	Coded magnet for JSNY7 IP67, plastic body.
JSNY8M 	20-030-00	Safety interlock switch with power to lock 24VDC (5.2W) solenoid, 2 NC positive opening contacts from actuator and 2NC contacts from solenoid, 10A rated operating current, 1000N locking force, IP67, metal body, two M20 conduit entries, comes with metal actuator.
JSNY8S 	20-030-01	Safety interlock switch with power to unlock 24VDC (5.2W) solenoid, 2 NC positive opening contacts from actuator and 2NC contacts from solenoid, 10A rated operating current, 1000N locking force, IP67, metal body, two M20 conduit entries, comes with metal actuator.


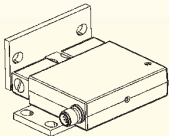
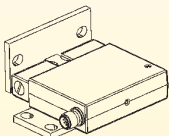
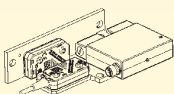
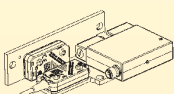
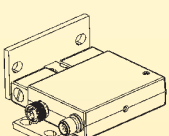
Component List - Mechanical Switches

Designation	Article Number	Description
JSNY8MN2 	20-030-02	Safety interlock switch with power to lock 24 VDC (5.2W) solenoid, 2 NC positive opening contacts from actuator and 2NC contacts from solenoid, 10A rated operating current, 1000 N locking force, IP67, metal body, two M20 conduit entries, comes with flexible actuator.
JSNY8SN2 	20-030-03	Safety interlock switch with power to unlock 24 VDC (5.2W) solenoid, 2 NC positive opening contacts from actuator and 2NC contacts from solenoid, 10A rated operating current, 1000 N locking force, IP67, metal body, two M20 conduit entries, comes with flexible actuator.
JSPG11	20-031-00	JSPG11 cable gland PG11/6 mm
JSNYN1	20-032-00	Steel actuator for JSNY4/5 safety interlock switches.
JSNYN2	20-032-01	Steel actuator for JSNY4/5 safety interlock switches for horizontal operation.
JSNYN3	20-032-02	Steel actuator for JSNY4/5 safety interlock switches for vertical bend.
JSNYN4	20-032-03	Steel actuator for JSNY4/5 safety interlock switches for extra power, 100 N.
JSNYN5	20-032-06	Steel actuator for JSNY4/5 safety interlock switches with flexible bend.
JSNY8/9N1	20-032-04	Steel actuator for JSNY8/9 safety interlock switches, standard.
JSNY8/9N2	20-032-05	Steel actuator for JSNY8/9 safety interlock switches, flexible.
JSNY8EO	20-032-20	JSNY8EO Emergency opening button for JSNY8S
JSNY9S 	20-036-01	Safety interlock switch with power to unlock 24VAC/DC (1.1VA) solenoid, 1 NO & 1 NC positive opening contacts from actuator and 1 NO & 1 NC positive opening contacts from solenoid, 10A thermal current, 1000N locking force, IP67, plastic body, three M20 conduit entries, comes with metal actuator.
JSNY9SN2 	20-036-02	Safety interlock switch with power to unlock 24VAC/DC (1.1VA) solenoid, 1 NO & 1 NC positive opening contacts from actuator and 1 NO & 1 NC positive opening contacts from solenoid, 10A thermal current, 1000N locking force, IP67, plastic body, three M20 conduit entries, comes with flexible actuator.
JSNY9SLA 	20-036-12	Safety interlock switch with power to unlock 24VAC/DC (1.1VA) solenoid, LED indication, 1 NO & 1 NC positive opening contacts from actuator and 1 NO & 1 NC positive opening contacts from solenoid, 10A thermal current, 1000N locking force, IP67, plastic body, three M20 conduit entries, comes with metal actuator.

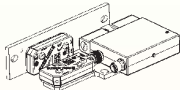
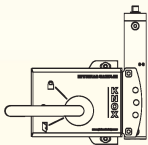
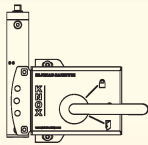


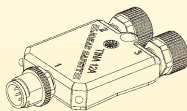
Component List - Mechanical Switches

Designation	Article Number	Description
JSNY9M 	20-036-21	Safety interlock switch with power to lock 24VAC/DC (1.1VA) solenoid, 1 NO & 1 NC positive opening contacts from actuator and 1 NO & 1 NC positive opening contacts from solenoid, 10A thermal current, 1000N locking force, IP67, plastic body, three M20 conduit entries, comes with metal actuator.
JSNY9MN2 	20-036-22	Safety interlock switch with power to lock 24 VAC/DC (1.1VA) solenoid, 1 NO & 1 NC positive opening contacts from actuator and 1 NO & 1 NC positive opening contacts from solenoid, 10A thermal current, 1000 N locking force, IP67, plastic body, three M20 conduit entries, comes with flexible actuator.
JSNY9MLA 	20-036-32	Safety interlock switch with power to lock 24VAC/DC (1.1VA) solenoid, LED indication, 1 NO & 1 NC positive opening contacts from actuator and 1 NO & 1 NC positive opening contacts from solenoid, 10A thermal current, 1000N locking force, IP67, plastic body, three M20 conduit entries, comes with metal actuator.
Magne 1A 	42-022-00	Electro-magnetic lock for secure fastening of doors or hatches. 24VDC, 6W, 250mA power requirements with 1500N holding force. IP67 protection with a 5 pole M12 connector. N/O, N/C change over contact for PLC information. Includes anchor plate.
Magne 2A 	42-022-10	Electro-magnetic lock for secure fastening of doors or hatches with integrated Adam Category 4 safety sensor. 24VDC, 7W, 300mA power requirements with 1500N holding force. IP67 protection with a 8 pole M12 connector. N/O, N/C change over contact for PLC information. Kit includes the Eva non contact actuator for the Eden System. Includes anchor plate.
JSM D21B 	42-023-05	Magne standard mounting bracket for use with Magne 1A and Magne 2A anchors on regular swing doors. 6mm thick anodized aluminum bracket with counter sunk fastening bolts for the anchor. This bracket can be used for both right and left doors as well as cable exit up or down.
JSMD2AGS 	42-023-10	Handle for JSM D21B Magne standard mounting kit.
JSM D23	42-023-02	Magne standard mounting bracket for use with Magne 1A, Magne 2A, anchors and Evas on sliding doors. 6mm thick anodized aluminum bracket with counter sunk fastening bolts for the anchor. This bracket can be used for both right and left doors as well as cable exit up or down.

Component List - Mechanical Switches

Designation	Article Number	Description
JSM D24	42-023-03	Magne standard mounting bracket for use with Magne 2A Evas on regular swing doors. 6mm thick anodized aluminum bracket with counter sunk fastening bolts for the anchor. This bracket can be used for both right and left doors as well as cable exit up or down. Bracket should be used with JSM D21B.
Handle Profile	 42-023-01	Magne protective handle mounting kit for use with Magne 1A and Magne 2A anchors and optional Evas on regular swing doors. Extruded aluminum profile completely hides the Magne unit when the door is closed. This handle can be used for both right and left doors as well as cable exit up or down.
Dalton M111	 20-038-00	Process lock for power to lock secure fastening of doors and hatches. M12 8 pole male connector for machine controls, 24VDC. Black anodized IP 67 enclosure. 1000N energized holding force and 25-100N de-energized holding force. LED indication for locked, closed and unlocked, open, and additional diagnostics. To be used in conjunction with additional safeguarding devices.
Dalton M311	 20-038-06	Process lock for power to lock secure fastening of doors and hatches. M12 5 pole male connector for machine controls, 24VDC. Black anodized IP 67 enclosure. 1000N energized holding force and 25-100N de-energized holding force. LED indication for locked, closed and unlocked, open, and additional diagnostics. To be used in conjunction with additional safeguarding devices.
Dalton Eden M112	 20-038-03	Process lock for power to lock secure fastening of doors and hatches. M12 8 pole male connector for machine controls, 24VDC. Black anodized IP 67 enclosure. 1000N energized holding force and 25-100N de-energized holding force. LED indication for locked, closed and unlocked, open, and additional diagnostics. Comes with securing plate for separately mounted Eden sensors.
Dalton Eden M312	 20-038-07	Process lock for power to lock secure fastening of doors and hatches. M12 5 pole male connector for machine controls, 24VDC. Black anodized IP 67 enclosure. 1000N energized holding force and 25-100N de-energized holding force. LED indication for locked, closed and unlocked, open, and additional diagnostics. Comes with securing plate for separately mounted Eden sensors.
Dalton M12 M121	 20-038-01	Process lock for power to lock secure fastening of doors and hatches. M12 8 pole male connector for machine controls and a M12 5 pole female connector for attachment of Eden sensor, 24VDC. Black anodized IP 67 enclosure. 1000N energized holding force and 25-100N de-energized holding force. LED indication for locked, closed and unlocked, open, and additional diagnostics. To be used in conjunction with additional safeguarding devices.

Component List - Mechanical Switches

Designation	Article Number	Description
Dalton M12 Eden M122 	20-038-02	Process lock for power to lock secure fastening of doors and hatches. M12 8 pole male connector for machine controls and a M12 5 pole female connector for attachment of Eden sensor, 24VDC. Black anodized IP 67 enclosure. 1000N energized holding force and 25-100N de-energized holding force. LED indication for locked, closed and unlocked, open, and additional diagnostics. Comes with securing plate for separately mounted Eden sensors.
Knox R 	20-105-00	Safety lock cylinder, right hung for outward opening door.
Knox L 	20-105-00	Safety lock cylinder, left hung for outward opening door.
Knox F	20-105-00	Safety lock frame section.
DA 1 	20-053-00	Distance protective plate for Adam M12. Polycarbonate with 2.5mm thickness. Suitable for Adam 3m/10m/20m if necessary.
M12-CT0214 	20-060-01	Extension cable 20cm, black PVC jacket with straight 5 pole M12 female, 8 pole M12 male connectors, 22AWG conductors, overall braid shield.
Tina 12A 	20-054-18	Dynamic connection block, 2 ports for connecting up to 2 safety devices with dynamic signals and locking inputs. Ports are 8 pole M12 female quick disconnects. 8 pole M12 male quick disconnect for connecting the safety devices to the Vital 1 controller or Pluto Safety PLC. Multi-function status indicator LEDs, integrated information output 24VDC - 10mA.

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