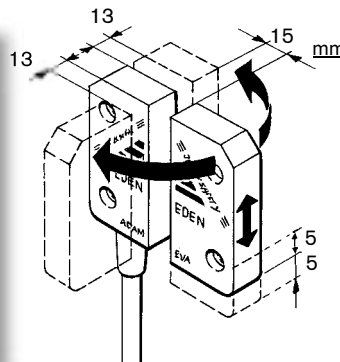


# Non-contact safety sensor Eden

## Approvals:



*Flexible mounting and  
The ability to operate at  
long distances.*

## Safety sensor for:

- Doors and hatches
- Position control
- Sector detection
- Slot detection

## Features:

Safety category 4 according to EN 954-1 together with Vital or Pluto

Non-contact detection, large sensing distance 0 - 15 mm +/- 2 mm

Up to 30 sensors connected in series to Vital at safety category 4

Versatile mounting, 360° detection

Protection class IP 67/ 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).

LED indication on sensor and status information via the connector cable

Small hysteresis (< 1mm)

## A non-contact safety sensor for the highest safety level

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 15 mm +/- 2 mm.

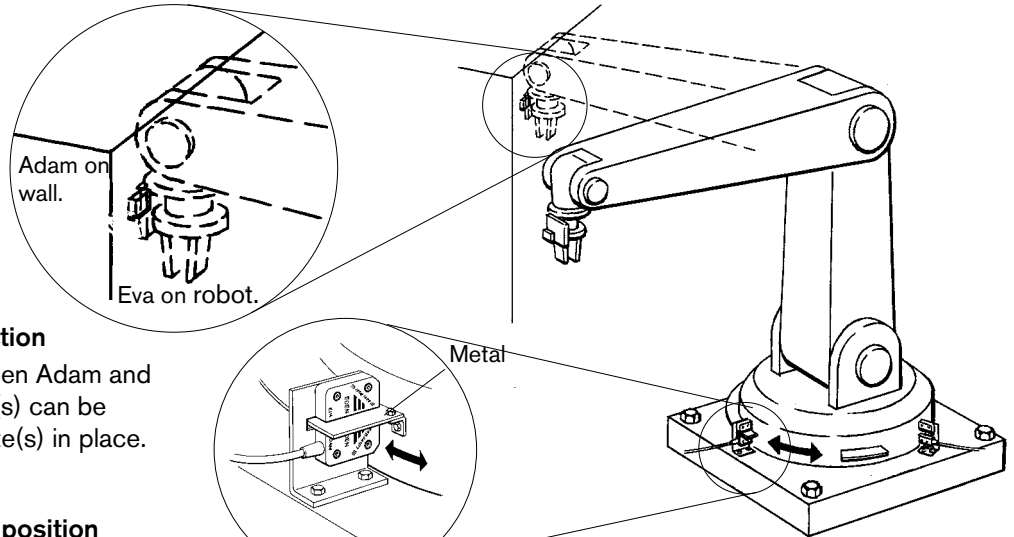
Up to 30 Edens can be connected in series to Vital and still achieve the same safety level in the safety circuit. It is also possible to connect safety light beams and E-stops in the same safety circuit.

Adam is available with cable lengths up to 10 m and with M12 connectors. The LED on Adam provides indication of three different conditions, contact/non-contact between Adam and Eva and safety status. The same information is also available via the Adam connection cable. Eden E is available for harsh environments, Adam E and Eva E. Rapid blinking serves as an alignment aid. There is also a coded version Eden EC, Adam EC and Eva EC.

## Application examples - Eden

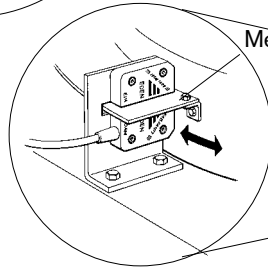
### Eden to detect position

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



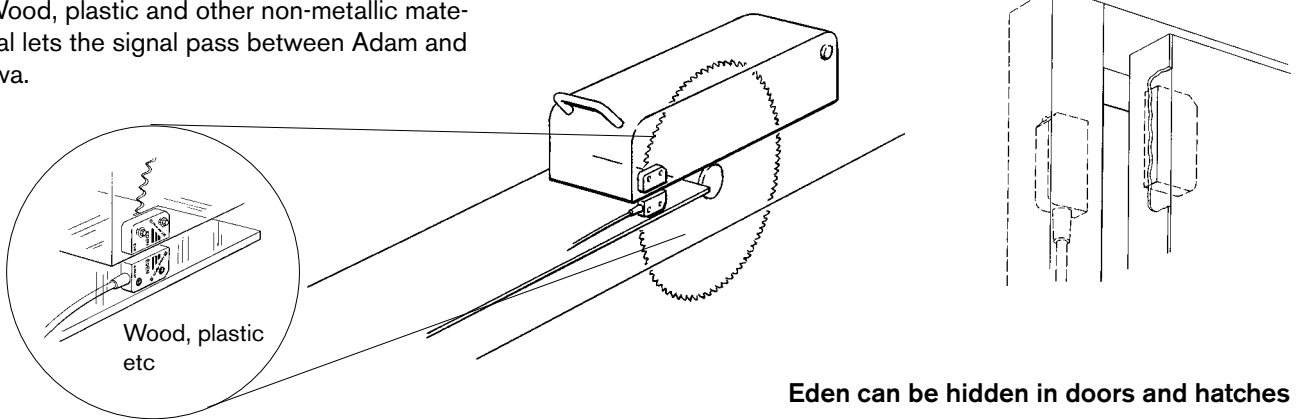
### Eden used for sector detection

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

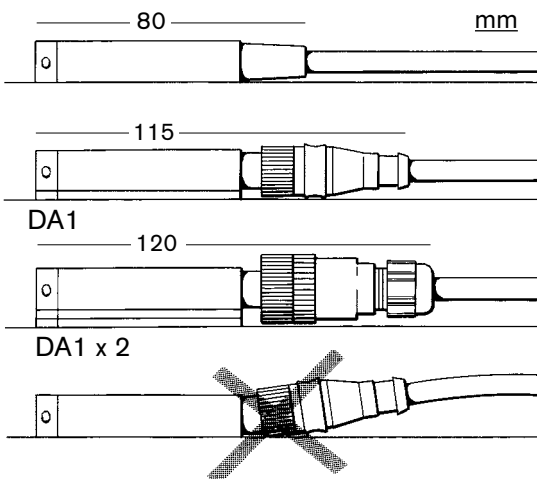
Wood, plastic and other non-metallic material lets the signal pass between Adam and Eva.



### Eden can be hidden in doors and hatches

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

## Mounting - Eden



Mounting Adam with integral cable.

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

Mounting with two protection plates (DA1) for Adam M12 using M12 connector with glanded cable.

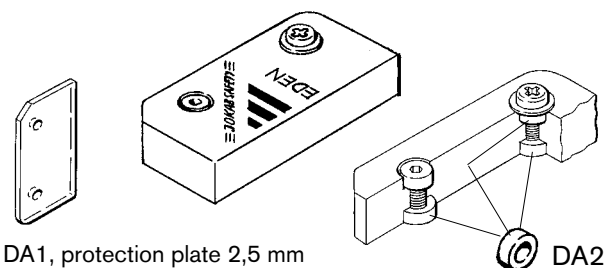
Wrong mounting without protection plate may cause permanent damage to sensor.

### Notes:

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

### DA2 mounting

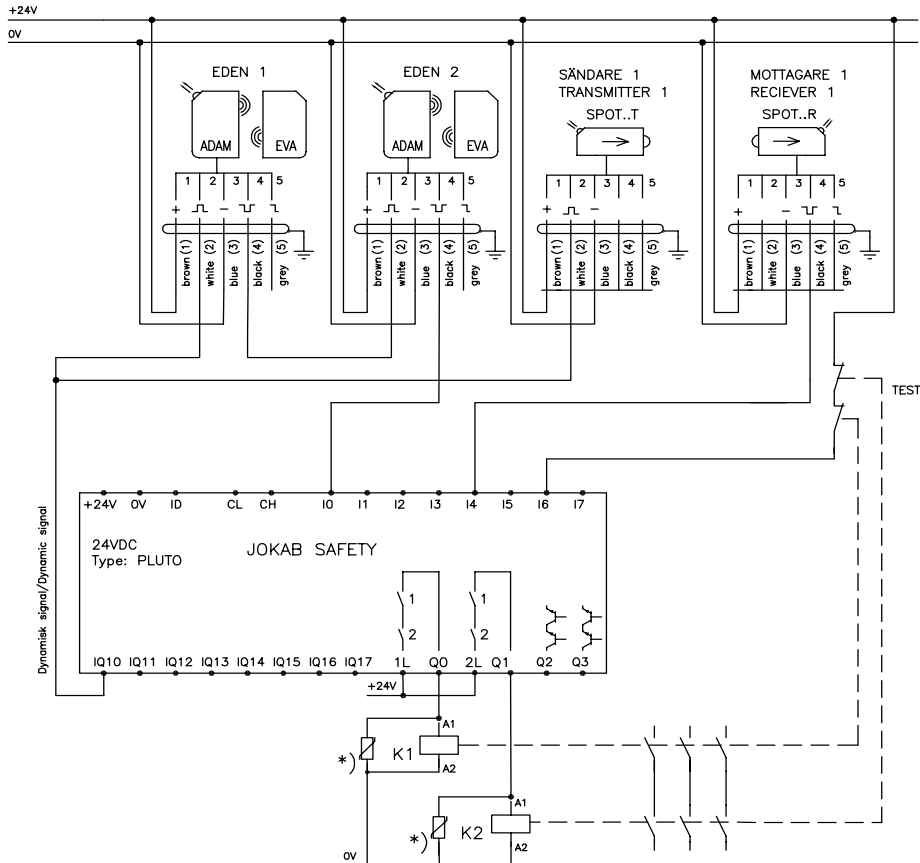
The DA2 mounting spacer **must be** used in order to physically protect Eden from damage. Four spacers are provided with each Adam and Eva.



DA1, protection plate 2,5 mm

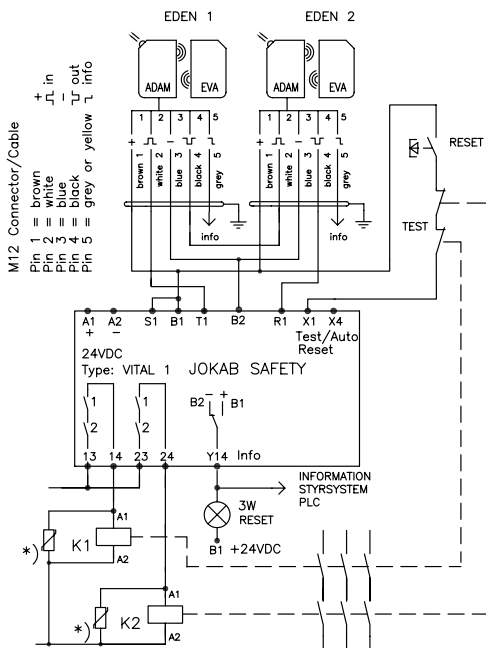
DA2

## Connection of Eden to Pluto



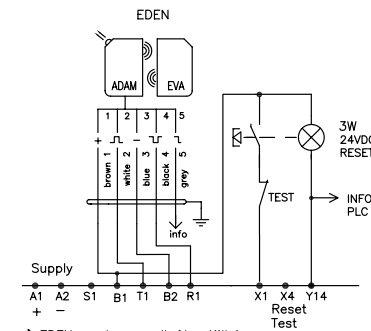
\*OBS: Använd alltid transient skydd t.ex. VDR!  
 \*)NOTE: Always use transient suppressors, e.g. VDR's!

## Connection of Eden to Vital 1

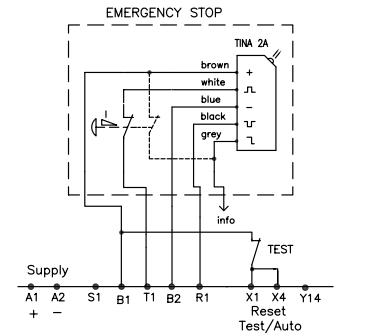


A) EDEN med manuell återställning samt övervakning av yttre kontakter/reläer  
 EDEN with manual reset and monitoring of external contactors/relays

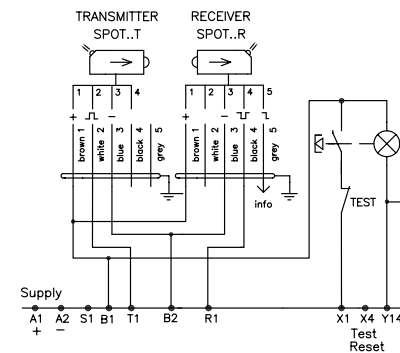
\*OBS: Använd alltid transient skydd t.ex. VDR!  
 \*)NOTE: Always use transient suppressors, e.g. VDR's!



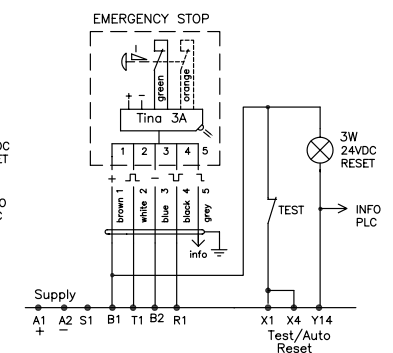
B) EDEN med manuell återställning  
 EDEN with manual reset



C) Nödstopp med TINA2A och aut. återställning.  
 Emergency stop with TINA2A and autom. reset.

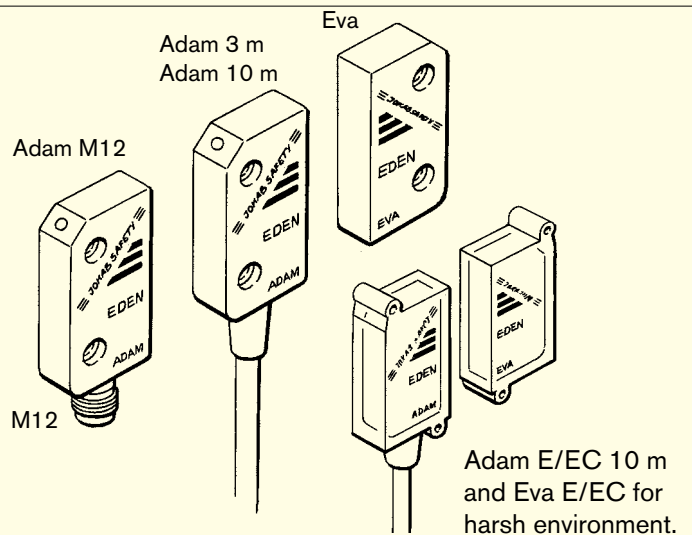
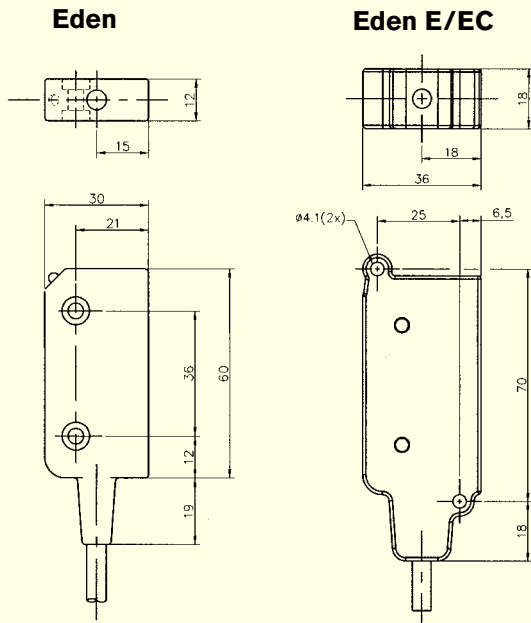


D) Ljusbom SPOT med manuell återställning  
 Safety Lightbeam SPOT with manual reset



E) Nödstopp med TINA3A och aut. återställning.  
 Emergency stop with TINA3A and autom. reset.

## Technical data - Eden



**Manufacturer** JOKAB SAFETY AB, Sweden  
**Ordering data** Adam M12, Adam 3 m Adam 10 m,  
 Adam E10 Adam EC,  
 Eva, Eva E and Eva EC  
 Note! Adam EC and Eva EC can only be ordered together.

**Safety category together with Vital or Pluto (according to EN 954-1)** 4  
**Colour** Yellow and black

**Weight** Adam M12: 30 g  
 Adam 3 m: 220 g incl. cable  
 Adam 10 m: 650 g incl. cable  
 Adam E10 m: 660 g incl. cable  
 Adam EC: 660 g incl. cable  
 Eva: 26 g  
 Eva E: 36 g  
 Eva EC: 36 g

**Power supply** 17 - 27 VDC, ripple max 10%  
**Power consumption** Adam: without info output 45 mA  
 with info output max 55 mA  
**Max cable length** see Vital technical data

**Ambient temperature** -40°C to + 70°C (operation)  
 -40°C to +70°C (stock)

**Protection class**  
 Eden IP67  
 Eden E/EC IP69K

**Mounting** 4 pcs M4 screws + DA2 spacer  
 max torque 0.5 Nm  
 Screws should be locked with loctite or similar.

**Detection distance max**  
 Adam/Eva 15 +/- 2 mm Flash 2 mm before red position.  
 Adam /Eva 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 to metal when there is metal on one or more sides.**

	One	More
Adam/Eva	0 mm	2.5 mm
Adam EC/Eva EC, Adam E/Eva E	0 mm	0 mm

**Minimum distance between Eden pairs** 50 mm  
**Life** >10<sup>7</sup> cycles

**Material** Macromelt (Based on polyamid)  
 Eden E and Eden EC is also covered by PU (polyurethan).

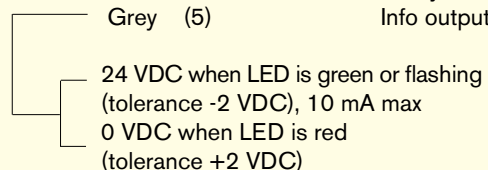
**Chemical resistance**  
 Macromelt: Cutting oils, vegetable and animal oils,  
 hydrogen peroxide, diluted acids and bases: good  
 Alcohol and strong acids: not recommended  
 PU (Eden E and Eden EC): Cutting oils, vegetable and animal  
 oils, hydrogen peroxide, diluted acids and bases, alcohols: 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 is within 2 mm from maximum sensing distance (door closed)

**Cable** 3 or 10 m, ø 5.7mm, black, PVC  
 5 x 0.34mm<sup>2</sup> + 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



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