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mTRONIC multisensor
Brief information regarding integration





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1. General

1.1. Product description

The mTRONIC multisensor is used to show the status of windows, doors, and large-scale units. To do so, a permanent magnet with dimensions $\text{Ø}5 \times 5$ mm is installed opposite the mTRONIC multisensor. The permanent magnet can either be installed on the connecting-rod of the hardware or on an immovable hardware component on the sash or directly on the sash.

This enables the mTRONIC multisensor to perform the following **functions**:

Opening monitoring:

The permanent magnet is fixed to the sash or an immovable hardware component on the sash. The mTRONIC multisensor is positioned in relation to the permanent magnet so that only the top reed contact is switched. Thus, only the opening modus of the sash can be queried.

I.e. "Open" and "Closed"

Locking monitoring:

The permanent magnet is installed directly on the connecting-rod of the hardware. The central locking system of the hardware must be positioned centrally and the mTRONIC multisensor with its central position notch must be positioned precisely opposite the permanent magnet. Thus the status of the connecting-rod can be queried.

I.e. "Locked", "Open" and "Tilted"

1.2. Place of use

The mTRONIC multisensor can be used on all standard window systems. Window materials such as timber and PVC are permissible.

It can be used wherever:

- opening monitoring on a window, door or large-scale unit,
- locking monitoring on a window or large-scale unit,
- combined opening and locking monitoring

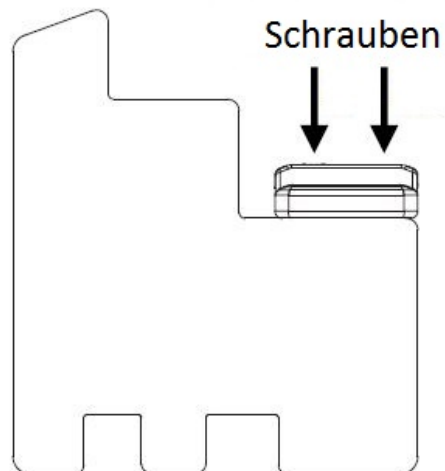
is required.

1.3. Installation

The mTRONIC multisensor is installed in the window rebate on the frame. A distinction is made here with regard to the window materials.

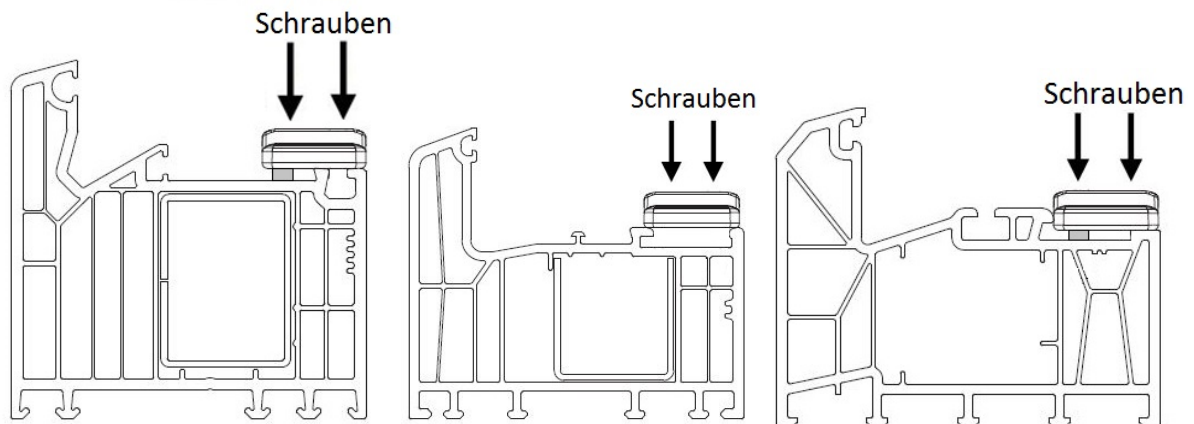
Timber windows:

In this case, the sensor rests fully on the window rebate and is installed with at least 2 screws.



PVC windows:

PVC windows vary widely in terms of the frame geometry. Therefore, a profile adjustment via an elongated PVC profile is envisaged. This would be needed in the heights 2 and 3 mm, and placed at the rear screw positions between the sensor and frame.

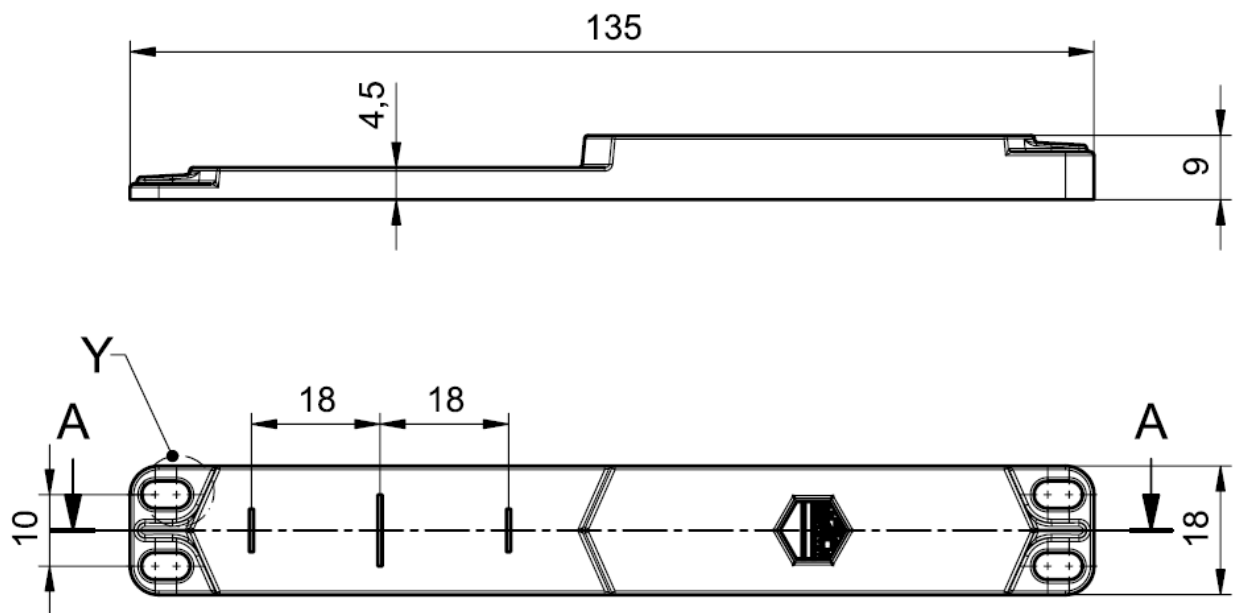


2. System component “casing, electronics and power supply”

2.1. Components

All the system components, such as electronics and power supply, are installed in a PVC casing.

The power supply is provided by a standard CR1632 battery which can be replaced without any tools.





2.2. Technical requirements

General and mechanical data:

Dimensions:

Width	18 mm
Height	9 mm
Length	135

Material:	Not specified
Mounting method:	4 x screws
Colour:	Light grey 7035

Temperature ranges:

Ambient temperature	- 20°C to + 60°C
Storage/transport	- 20°C to + 60°C
Fabrication	- 10°C to + 40°C
Air moisture	0% to 93% r.H.

Degree of protection:	IP54 and resistant against conventional cleaning agents and UV radiation
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Installation conditions:

The air gap in the window (air between sash and frame) should ideally be 12 mm. The setting range for a window is +/- 2 mm in all directions.

Therefore, the air gap tolerance must be between 10 and 14 mm.

This is the tolerance range in which the sensor works.



3. System component “Wireless”

3.1. wireless protocol EEP A5-14-0A

The wireless protocol is able to send the following statuses on the window:

Locked:

The window, door and large-scale unit are closed and mechanically locked.

Open:

The window, door and large-scale unit are open.

Tilted:

The window or large-scale unit is tilted.

Burglary/Vibration:

The mTRONIC automatically detects whether a burglary is in progress or the window was intentionally opened.

The automatic burglary detection function only works in the case of locking monitoring.

The following must be specified from the hardware side:

It must not be possible to shift the connecting-rod in the hardware. To do so, either the ESH drive gear (self-locking drive gear) or a window handle with key locking/locking button according to standard EN1627-1630 RC1-RC3 can be used.

Battery voltage:

The battery voltage is to be shown so that the batteries can be replaced in good time.



RORG	A5	4BS Telegram
FUNC	14	Multi-Func Sensor
TYPE	0A	Window/Door-Sensor with States Open/Closed/Tilt, Supply voltage monitor and Vibration detection

Submitter: EiMSIG eine Marke der EFP GmbH

Description

Door/window-sensor with states open/closed/tilt.
 Additional vibration-sensor for the detection of glass-breakage and supply voltage monitor.

Data exchange

Direction: unidirectional
 Addressing: broadcast
 Communication trigger: event- & time-triggered
 Communication interval: N/A
 Trigger event: timer and change on state
 Tx delay: N/A
 Rx timeout: -

Teach-in

Teach-in method: 4BS teach-in

Security

Encryption supported: yes
 Security level format: -

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	8	DB3.7...DB3.0	Supply voltage	SVC	Supply voltage / super cap. (linear)	0...250	0...5.0	V
8	20	DB2.7...DB0.4	Not Used (= 0)					
28	1	DB0.3	LRN Bit	LRNB	LRN Bit	Enum: 0: Teach-in telegram 1: Data telegram		
29	2	DB0.2...DB0.1	Contact	CT		Enum: 0b00: Closed 0b01: Tilt 0b10: Reserved 0b11: Open		
31	1	DB0.0	Vibration	VIB		Enum: 0b0: No vibration detected 0b1: Vibration detected		



3.2. Wireless range

In an unobstructed environment, the wireless signal achieves the following ranges (data from EnOcean GmbH):

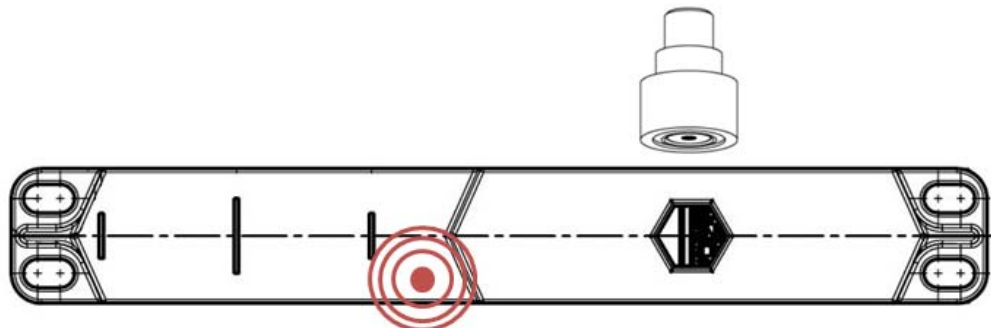
- For reinforced concrete 10 m range through max. 1 wall
- For brick – or aerated concrete walls 20 m range through max. 3 walls
- For Rigips walls or timber 30 m range through max. 5 walls
- For line of sight 30 m range in corridors/rooms








3.3. Teach-in function

The mTRONIC multisensor sends a teach-in signal by changing the monitoring mode.

3.4. Monitoring modes

The mTRONIC multisensor has 3 modes, which are defined as follows:



Modus 1 (Default Mode)	  	Verschlussüberwachung oben waagrecht. Alarmsignal in Verschluss
Modus 2 (2 x LED blinken)	  	Verschlussüberwachung unten waagrecht. Alarmsignal in Verschluss und Kipp
Modus 1 (3 x LED blinken)		Öffnungsüberwachung und Kippüberwachung. Kein Alarmsignal

LEGENDE:

-  DREHSTELLUNG
-  KIPPSTELLUNG
-  VERSCHLUSSTELLUNG
-  ALARMSIGNAL



3.5. Changing the monitoring modes

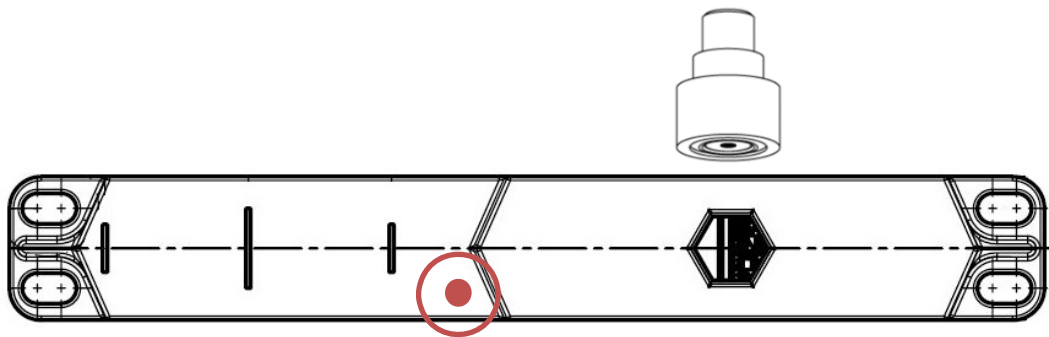
The modes are changed via a permanent magnet which is held on the MACO logo. When the magnet is removed, the monitoring mode is shifted up. The integrated LED flashes when the mode is changed.

If the LED flashes once, mode 1 is activated.

If the LED flashes twice, mode 2 is activated.

If the LED flashes three times, mode 3 is activated.

Mode 1 is pre-set on delivery.





4. Notes

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