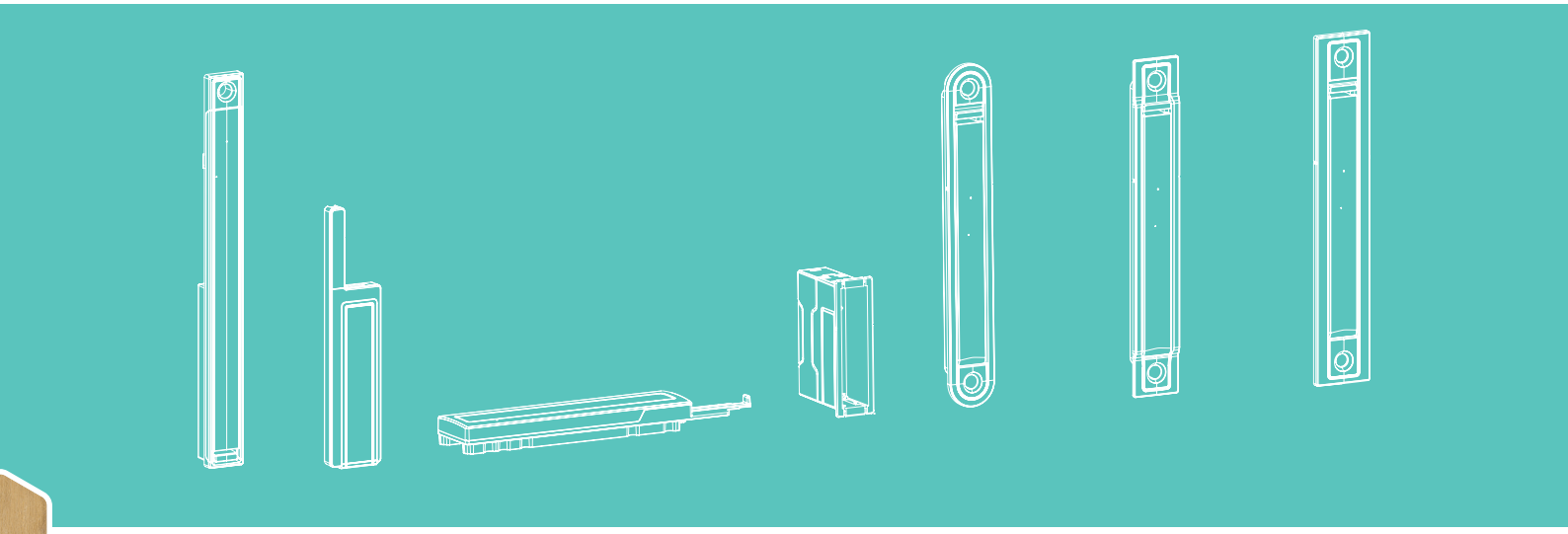
APPLICATION
ONLY FOR USE BY CERTIFIED SPECIALISTS!

SENSE BY MACO

SENSORS FOR SMART HOME APPLICATIONS



ASSEMBLY INSTRUCTIONS

HOLZ
PVC
ALU

matter

BUILT ON THREAD REQUIRES BORDER ROUTER

sense by MACO

maco.eu

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LED Signals

- LED off
- LED on
- LED flashes

Important information for use

1. General Information

This document contains important information regarding the planning, installation, commissioning, operation, and maintenance of products from the Sense by MACO family.
Please read this information carefully before starting any related activities.
Keep the installation manual in a safe place and ensure it is accessible to future users.
The manufacturer of the building component is responsible for ensuring compliance with the requirements outlined in this document.

You can find our current General Terms and Conditions in the download section of the MACO website:
https://www.maco.eu/en-GB/Terms-and-conditions

2. Target Audience

This installation manual is intended for professional users and describes the installation and setup of products from the Sense by MACO family.

3. Product Liability

In accordance with the liability defined in the Product Liability Act, the following information must be observed and passed on to the building owner or end user. Failure to comply with this requirement releases MACO from any liability. Improper installation, use that is not in accordance with the agreement or is unusual, the use of system accessories not explicitly approved by MACO, modifications or repair work not expressly authorised by MACO, as well as unprofessional servicing, may lead to malfunctions and must be avoided. Any actions not expressly approved by MACO will result in the loss of all liability, warranty, and any separately agreed guarantee claims.

4. Product Description and Terminology

Products from the Sense by MACO family are wireless sensors designed for concealed installation in the rebate area of window, sliding, and door systems made of PVC, wood, aluminium, or combinations of these materials.

Detects the locking status (open/closed) of the element. Designed for integration into smart home systems via the Matter-over-Thread protocol. A Thread border router and the proper functioning of the smart home system are essential prerequisites for the reliable operation of the wireless sensors – responsibility for this lies with the end user. The product is intended exclusively for use in residential areas, commercial premises, and small businesses.

Products from the Sense by MACO family are designed for seamless compatibility with fittings from the MACO Group. Compatibility with fittings from other manufacturers cannot be guaranteed. Sense by MACO products are sensitive electronic devices. To ensure proper operation, the rebate areas must be ventilated in such a way that the sensors are not exposed to direct moisture or condensation.

5. Intended Use

When planning windows, doors, or large surfaces for Sense by MACO products, please refer to MACO's planning specifications and all relevant international and national regulations, laws, standards, and guidelines.

In particular, please observe the following specifications and limitations during planning:

› The sensors are intended for installation in vertically mounted front doors, apartment doors, secondary entrance doors, windows, and sliding elements made of PVC, wood, aluminium, or steel, as well as combinations of these materials.

› For installation scenarios where a potential malfunction could pose a risk to life or limb, it is recommended to carry out a functional check of the Sense by MACO system at least once a month.

› The sensors are not suitable for use in rooms with high dust levels, corrosive atmospheres, high electrostatic charge, or damp environments.

› The sensors are not suitable for use in building elements made from acidic woods (e.g. Accoya).

Please observe the following instructions during installation:

› The installation of products from the Sense by MACO family requires special care and must therefore only be carried out by qualified, trained personnel in accordance with the installation manual. MACO accepts no liability or warranty for damage resulting from incorrect installation.

› Use only undamaged components. Do not install parts showing signs of damage or wear.

› After installation, the proper functioning of the Sense by MACO products must be verified using the installation manual provided by MACO.

› To ensure the proper functioning and operational safety of Sense by MACO products over the long term, the instructions in Chapter 8 (Maintenance, Cleaning & Care) must be strictly followed.

6. Safety Instructions

⚠ CAUTION

Magnetic Field!

Magnets can endanger and damage electronic and mechanical components.

› Remove such objects from the installation area.

⚠ CAUTION

Risk of Falling When Working at Heights!

There is a risk of falling during installation, cleaning, and maintenance work carried out at height. Do not install the product if the installation position is 1.50 m above the ground and you do not have a ladder.

› When working above 1.5 metres, use a ladder or step stool. Be sure to follow the safety instructions for the proper use of ladders and step stools.

⚠ CAUTION

Risk of injury due to unsuitable components!

Use only components approved for the intended application. The use of incorrect or incompatible parts may result in malfunction or personal injury.

› Use only original parts or components that meet MACO specifications.

⚠ CAUTION

Risk of Injury Due to Improper Handling of the Battery!

Improper handling of the battery may cause damage to the sensor and injury to the user. Use only the battery type specified for the respective model.

› Keep the battery area away from flames, sparks, or open fire. Do not burn the battery or expose it to temperatures beyond the permitted range.

› Do not attempt to cut open the battery or subject it to excessive pressure.

› Replace the battery immediately if any damage is detected.

7. Notes

NOTE

Risk of unauthorized access to the smart home system

An unsecured smart home system or outdated firmware makes unauthorised access easier. Always install the latest firmware to ensure security. Use a strong password and do not share it with third parties.

NOTE

Damage caused by environmental factors

Use in environments with heavy dust exposure, corrosive atmospheres, high electrostatic discharge, or high humidity will damage the product. Installation in components made of acid-containing woods (e.g. Accoya) is not permitted. Installation in rebate areas exposed to direct moisture or condensation is not permitted.

NOTE

Damage caused by contamination

Contamination by oil, grease, or dust as well as contact with water must be strictly avoided. If contaminated, clean the sensor carefully using a soft, lint-free cloth.

NOTE

Malfunction due to lack of maintenance of components

If components are not calibrated or maintained according to specifications, this may lead to issues with correct status detection or signalling. It is therefore recommended to have the respective component inspected or serviced by a qualified specialist before commissioning the sensor.

NOTE

Damage to the housing

Do not use power tools to fasten the sensor, as excessive tightening torque may damage the housing.

NOTE

Battery-powered device

The products in the Sense by MACO family are battery-powered. The average battery life is approximately 2 years and may vary depending on several factors, such as the battery manufacturer, the selected smart home ecosystem, or the number of operations performed on the element. To ensure proper operation, the battery level must be checked regularly. The sensor transmits its battery status to the respective smart home ecosystem. The way this information is displayed depends on the system provider and is beyond MACO's control.

8. Maintenance, Cleaning and Care

Your building component is equipped with a high-quality and durable MACO product. To ensure it remains functional and safe for many years, the maintenance instructions and specified intervals must be observed and followed. Perform regular functional checks (at least once per year; in safety-critical applications, at least once per month) to ensure they are functioning correctly. Check for unusual noises, signs of wear, or abrasion that may indicate malfunction.

9. Spare Parts, Customer Service and Disposal



Spare parts and customer service can be obtained from suppliers, manufacturers, or authorised service partners. A list of processors, dealers, and service partners can be found at www.maco.eu

The adjacent symbol indicates that this electrical or electronic device must not be disposed of with household waste at the end of its service life, in accordance with the Waste Electrical and Electronic Equipment (WEEE) Directive.

Free collection points for electronic waste are available near you. You can obtain the addresses from your local city or municipal authority.

Declaration of conformity

SCAN | CLICK

EU-Declaration of Conformity
Sense by MACO | Window T&T

SCAN | CLICK

EU-Declaration of Conformity
Sense by MACO | Door

SCAN | CLICK

EU-Declaration of Conformity
Sense by MACO | Window Pro T&T

SCAN | CLICK

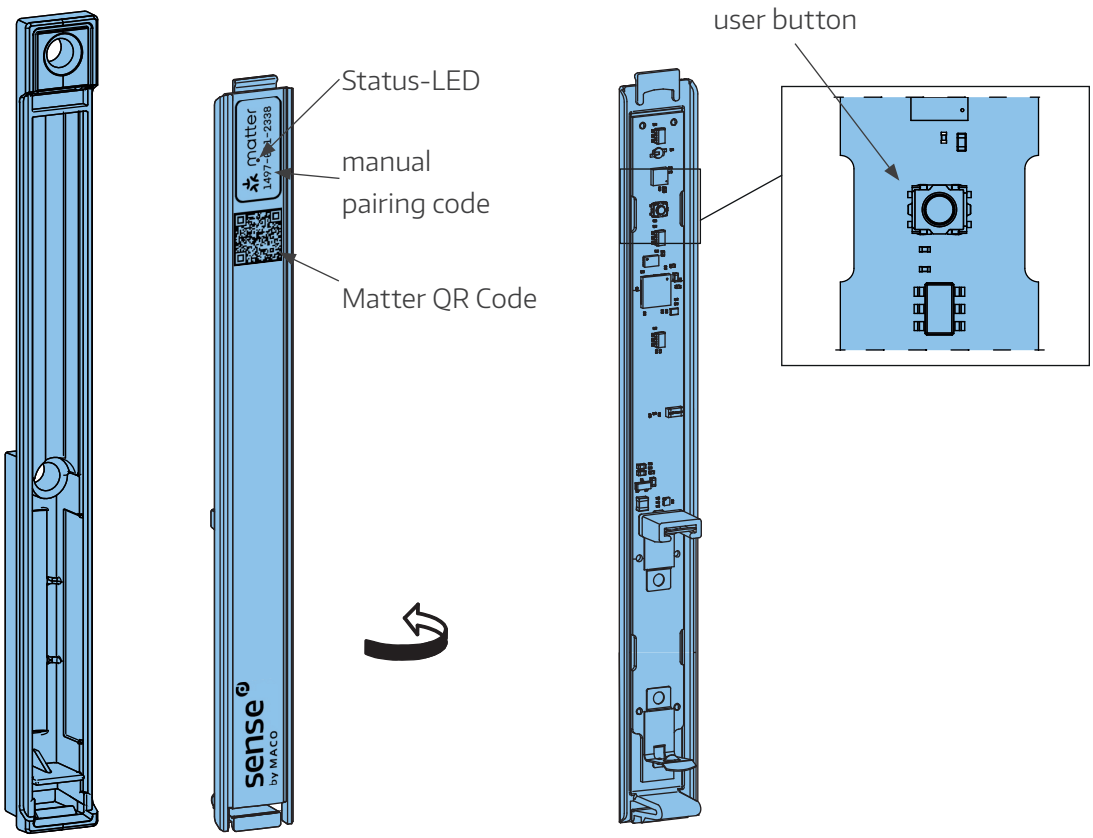
EU-Declaration of Conformity
Sense by MACO | Universal

SCAN | CLICK

EU-Declaration of Conformity
Sense by MACO | Casement

Sense by MACO | Window Pro T&T

Overview

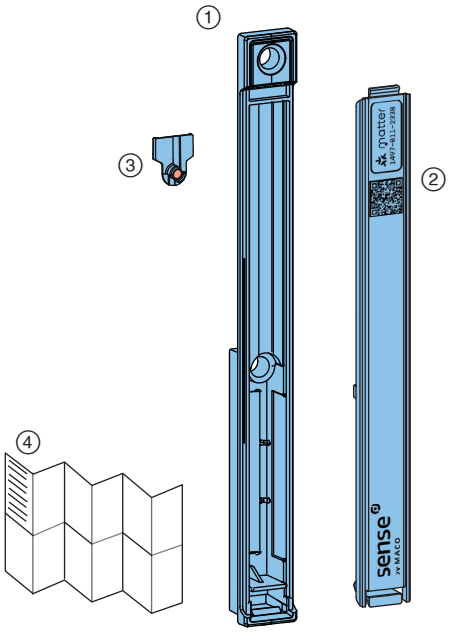


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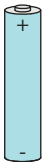
Package Contents

Pos. no.	Name	Qty.
①	Housing	1
②	Sense by MACO | Window Pro T&T	1
③	Magnet holder	1
④	Package insert	1



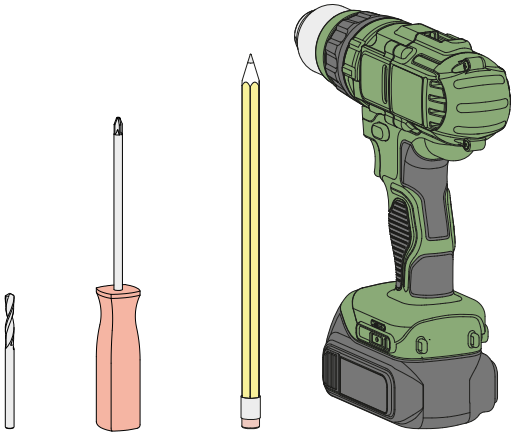
Required (not included in delivery)

Name	Qty.
Battery AAA 1.5 V	1



Tools

Name
Cordless drill
Drill bit Ø 3 mm
Screwdriver
Pencil



NOTE

Do not use power tools to fasten the sensor, as excessive tightening torque may damage the housing.

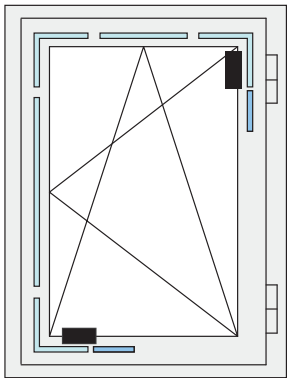
Mounting

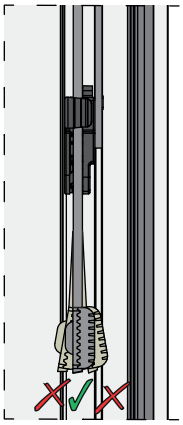
Mounting position

Sense by MACO | Window Pro T&T is connected to the last component of compatible MACO MULTI MATIC tilt and turn hardware. This requires either a corner drive or an extendable centre lock, as well as sufficient space in the hardware groove.

Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK





Legend

Fitting

Sense by MACO | Window Pro T&T

NOTE

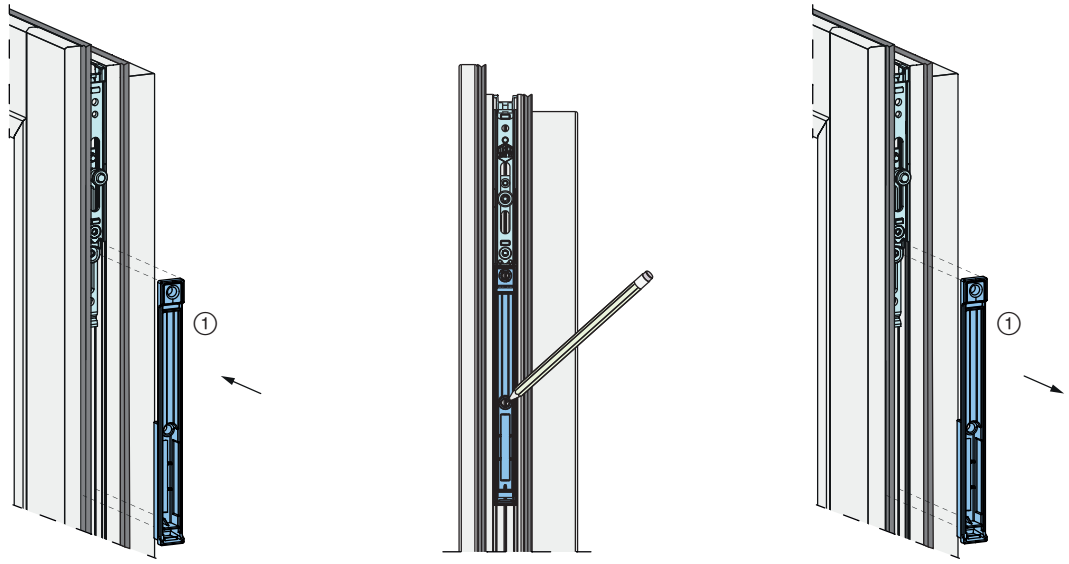
Examine the fitting at its intended mounting position.

It is essential to verify that the drive track operates with linear movement. A drive track that is overly bent at the mounting position risks damage to the sensor or can lead to incorrect operation.

To avoid sensor damage, ensure no section of the drive track protrudes beyond the support surface of the rebate within the fitting groove. Likewise, the drive track must not be bent too sharply into the fitting groove, as this can compromise the sensor's proper function. If necessary, carefully correct the extension movement of the drive track by hand.

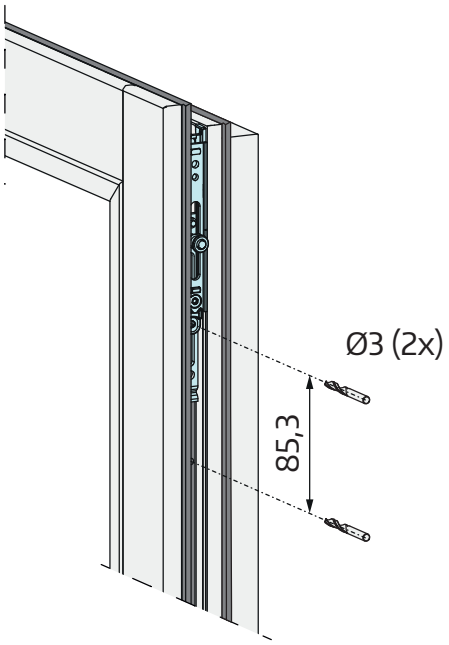
NOTE

Comprehensive locking monitoring is only ensured if the fitting is equipped with a mechanical incorrect-operation safeguard.

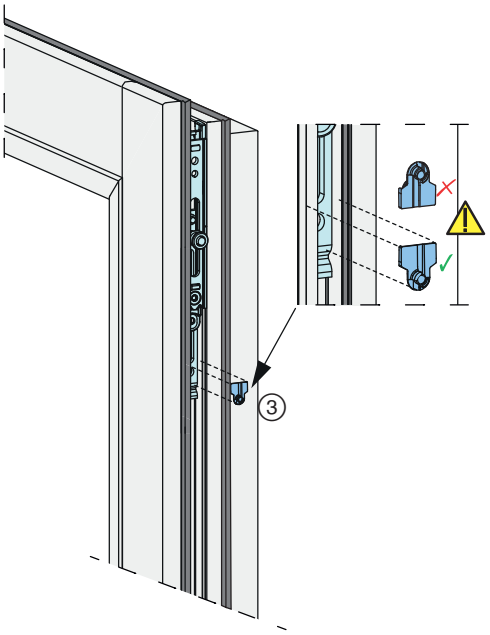


1 Position the housing on the open sash and mark the drill holes.

Mounting position (continued)



❷ Pre-drill the holes using a Ø3 mm drill bit.



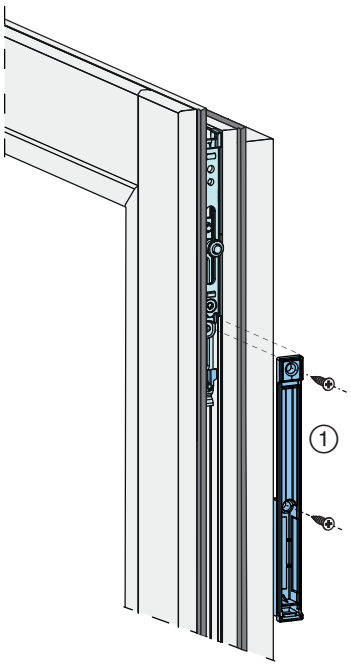
❸ Insert magnet holder ③ into the unused hole of the corner drive or the extendable centre lock. Ensure the magnet holder is positioned correctly– incorrect installation may lead to detection errors.

⚠ CAUTION

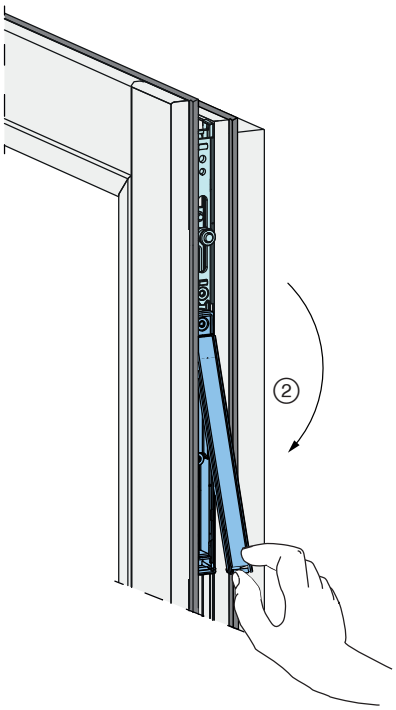
Magnetic Field!

Magnets can endanger and damage electronic and mechanical components.

› Remove such objects from the installation area.



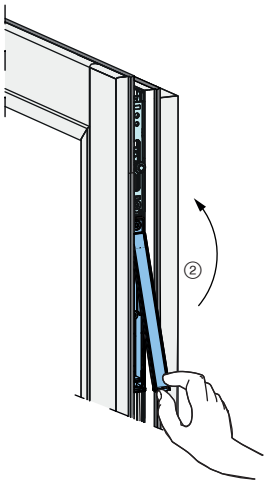
4 Reinsert housing ① into the fitting groove and fasten it using suitable screws (e.g. 4 x 28). Tighten the screws by hand only—do not overtighten.

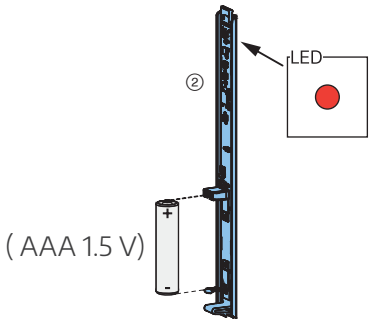


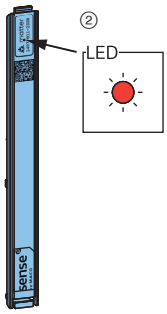
5 Close housing ① with sensor ② and check the proper mechanical function of the window. This completes the installation. All further steps are to be carried out by the end user.

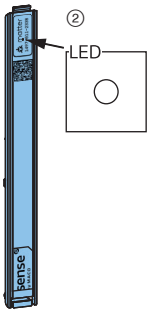
(Initial) Start-up

Insert the battery









Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing.

❷ **For battery replacement:** Insert a suitable AAA battery (1.5 V, not included) and close the housing.

For (Initial) Start-up: Insert the battery, leave the housing open and proceed to the next step.

After the battery is inserted, the LED will briefly light up.

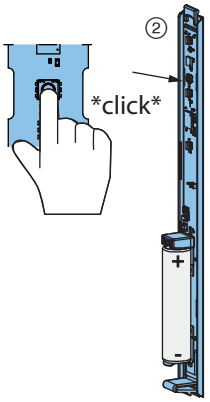
❸ The device automatically enters pairing mode, indicated by the blinking status LED.

NOTE

The sensor only enters pairing mode automatically during initial start-up or after a soft or hard reset. Re-pairing is not required after a battery replacement.

❹ Pair the sensor with your smart home ecosystem. Use the guide "Integration into the smart home System" on page 79 or follow the instructions provided by your smart home provider. Once pairing is successful, the status LED will turn off. In the app, the sensor status will be shown as "Open." Continue with the "Calibration" section.

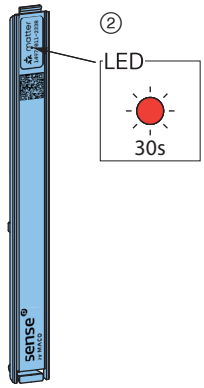
Calibration



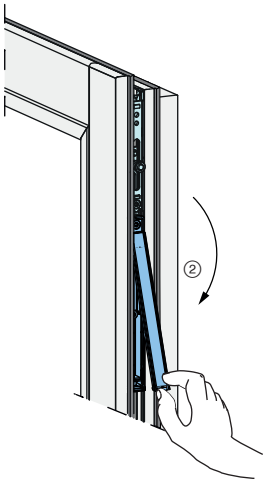
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Briefly press the user button. This process can be repeated at any time if required.



❷ The sensor will now enter calibration mode for 30 seconds. During this time, the status LED will flash.



❸ Place sensor ② back onto housing ①. Properly close and lock the sash within 30 seconds of pressing the user button. Wait until the sensor status is shown as "Closed" in the smart home app.

❹ Check whether all states of the component are correctly detected by the sensor. To do this, open and close the sash and verify the status in your smart home app.

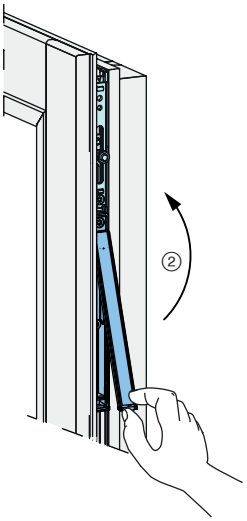
NOTE

An incorrectly or improperly calibrated device may transmit invalid status information to the smart home system. A failed calibration is indicated by the status LED blinking slowly three times.

Reset

Soft Reset

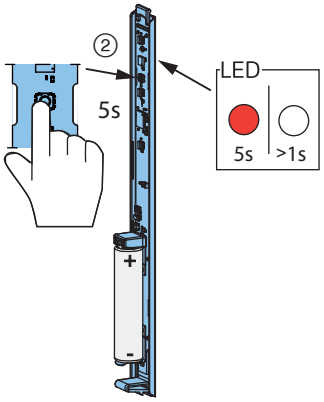
A soft reset restarts the device and then puts it back into pairing mode. This will remove any existing pairing with a smart home ecosystem, but the calibration settings will be retained.



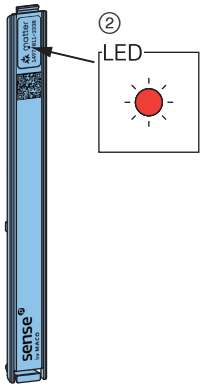
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing.



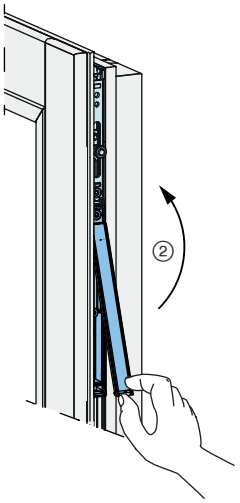
❷ Press and hold the user button for at least 5 seconds until the LED briefly turns off. Release the user button to perform the soft reset.



❸ Once the soft reset is complete, the product automatically enters pairing mode, indicated by the blinking status LED. Continue with step 4 in the "Initial Start-up" section. Re-calibration (see "Calibration" section) is possible but not strictly required.

Hard Reset

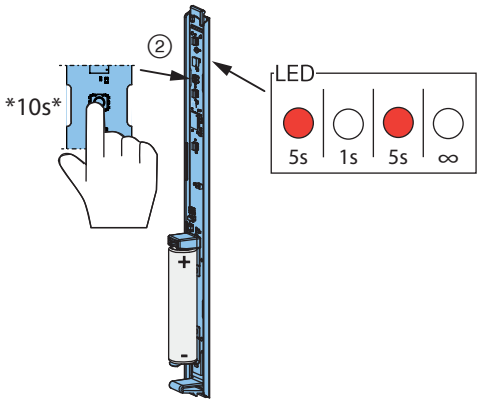
A hard reset fully restores the device to factory settings. This will erase any existing pairing with a smart home ecosystem as well as any previously performed calibration.



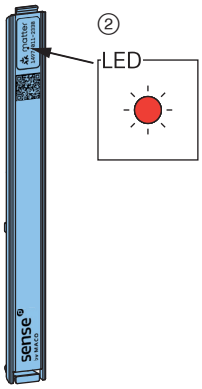
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing.



❷ Press and hold the user button for at least 10 seconds. After about 5 seconds, the status LED will briefly turn off and then light up again. Keep holding the button until the LED turns off completely. Release the user button to perform the hard reset.



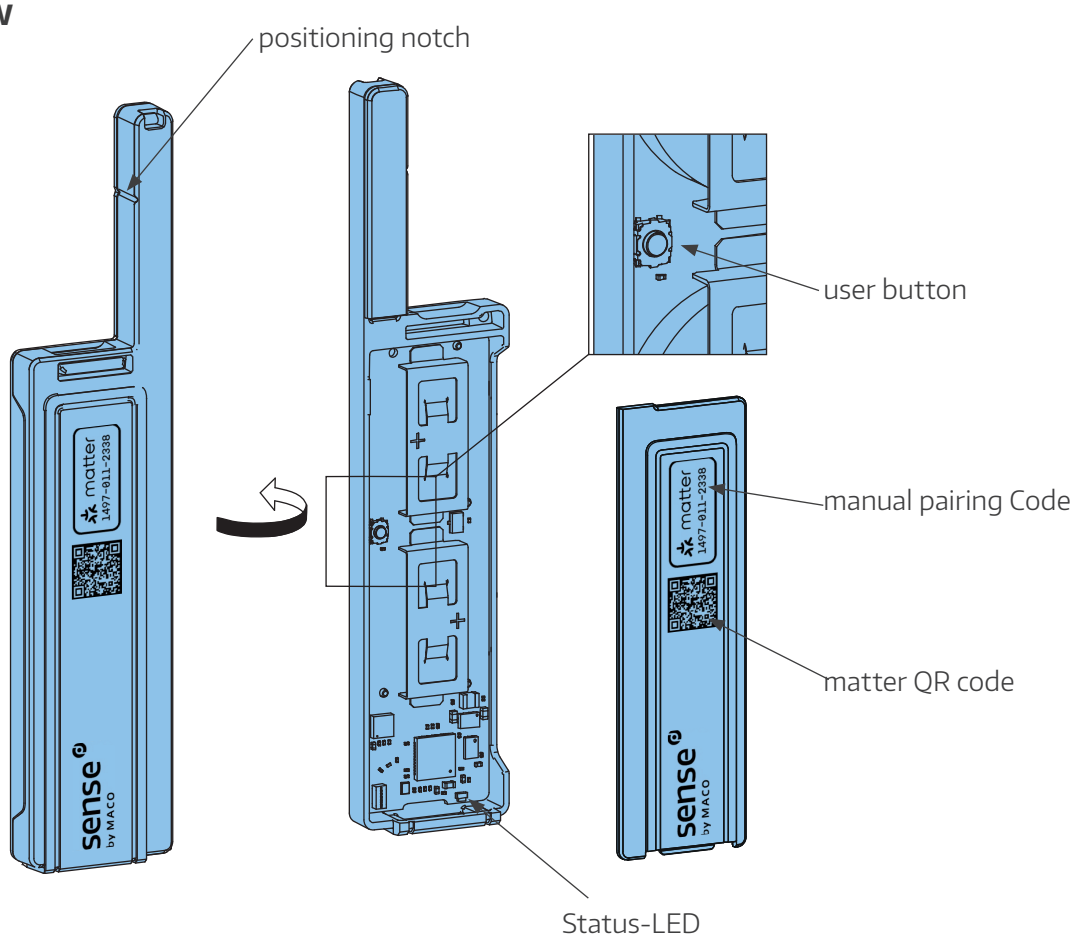
❸ Once the hard reset is complete, the product automatically enters pairing mode, indicated by the blinking status LED. Continue with step 4 in the "(Initial) Start-up" section.

Datasheet

Product Name	Sense by MACO | Window Pro T&T
Order Number	481961
Housing Material	PC/ABS
Colour	black
Dimensions	161.1 x 15.9 x 13.8 mm
Operating Temperature	-10 ... +55°C
Humidity	≤95%, non-condensing
Storage Temperature	-25 ... +70°C
User Groups	non-commercial users
Application Environment	fully enclosed indoor spaces
Frequency Bands	IEEE 802.15.4-2006 2400–2483.5 MHz
Transmission Power	Bluetooth: +8dBm Thread: +8dBm
Power Supply	1 x Battery AAA 1.5 V
Battery Life	approx. 2 years
Operating Voltage	1.5 V
User Interface	1x user button 1x status LED (red)
Communication Interface	Matter Bluetooth Thread
IP Rating	IP51 when installed
Certification	CE

Sense by Maco | Window T&T

Overview

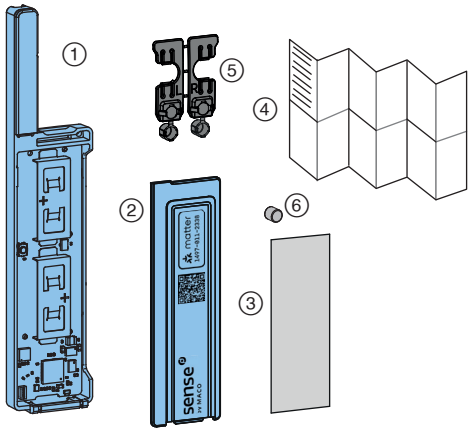


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Package Contents

Pos. no.	Name	Qty.
①	Sense by Maco | Window T&T	1
②	Housing cover	1
③	Magnet carrier L/R	1
④	Magnet	1
⑤	Adhesive strip	1
⑥	Package insert	1



⚠ CAUTION

Magnetic Field!

Magnets can endanger and damage electronic and mechanical components.

› Remove such objects from the installation area.

Required (not included in delivery)

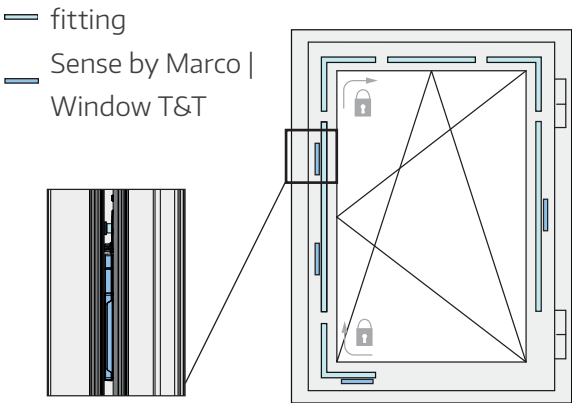
Name	Qty.
Battery CR2032 3 V	2



Installation of locking monitoring on MACO fittings with magnet holder

Position on the sash

With the Sense by MACO | Window T&T, locking monitoring is possible using the supplied magnetic holder.
The magnetic holder can be easily attached to any MACO i.S.-Z locking pin.
The magnetic holder is not suitable for other locking pins!



Fitting in locked position

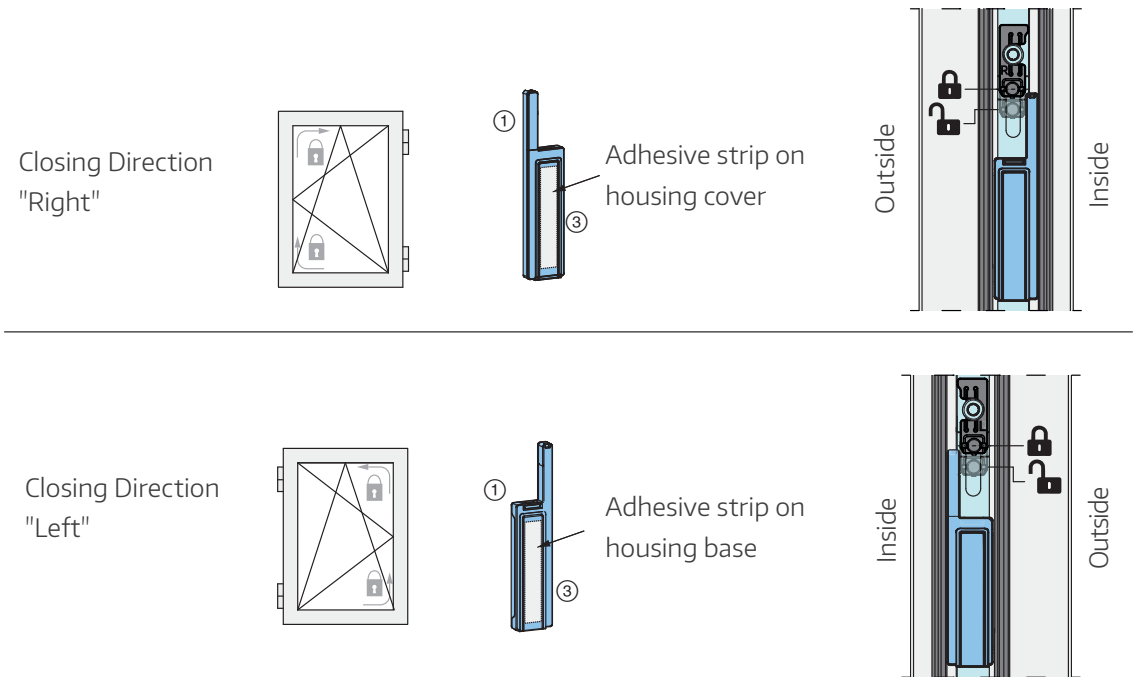
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Please select a suitable installation position for the Sense by Maco | Window T&T using the graphic provided.

Alignment on the Fitting

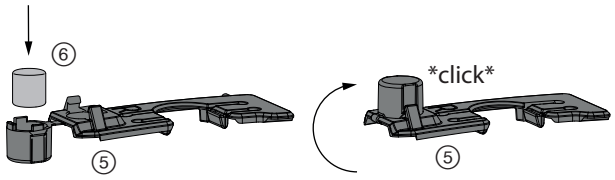
2. The installation position of the Sense by Maco | Window T&T depends on the sash closing direction, which determines whether the adhesive strip is applied to the housing base or cover:



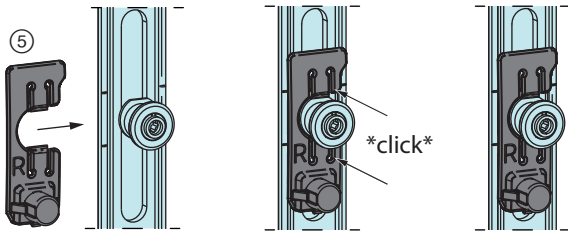
NOTE

The cam must move away from the Sense by Maco | Window T&T when closing.

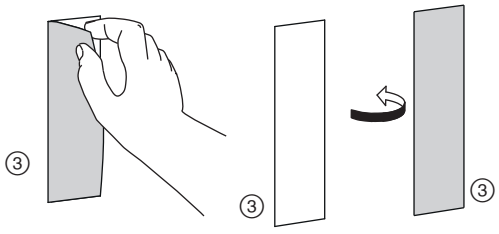
Mounting of Lock Monitoring with Magnet Carrier (Continued)



❸ Separate the magnet carriers. Take the magnet carrier required for your closing direction, insert the magnet, and close the cap.



❹ Attach the magnetic holder 5 to the MACO i.S. locking pin at the mounting position.
To do this, first slide the magnetic holder laterally under the movable pin sleeve.
Then press the two retaining lugs under the collar of the locking pin.



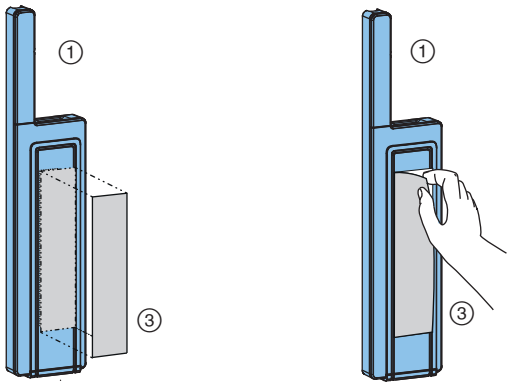
❸ Clean the designated adhesive surfaces on the fitting and the Sensor. Ensure they are free of grease and oil.

❹ Remove a protective film from the adhesive strip ⑤ and stick it centrally onto the Sense by Maco | Window T&T. ①.

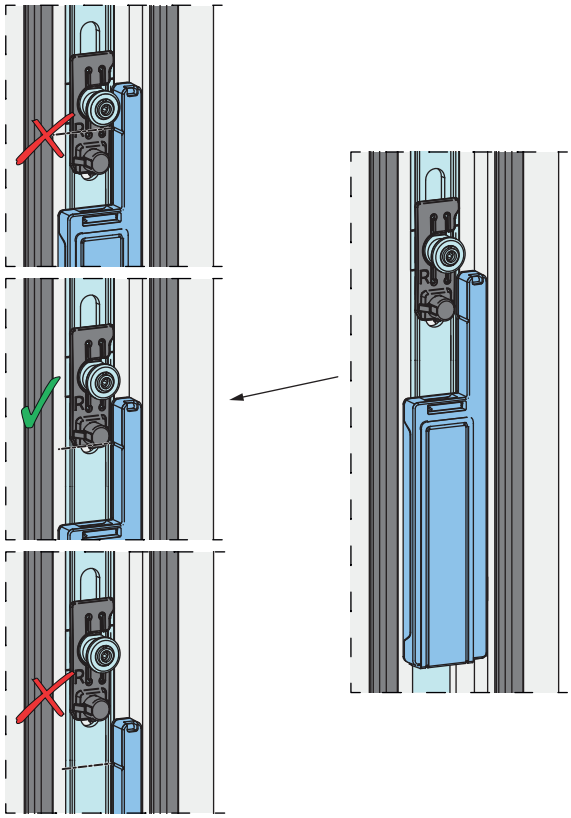
Mounting of Lock Monitoring with Magnet Carrier (Continued)

NOTE

The mounting is shown for the "right" closing direction.



5 Remove the protective film from the other side of adhesive tape ⑤.



6 Position sensor ① so that the positioning notch of the sensor is flush with the bottom edge of the magnet carrier when open. Lightly press on the sensor housing for a few seconds.

7 If necessary, close the housing with the cover and check the proper mechanical function of the sash. The mounting is now complete. All further steps will be carried out by the end customer.

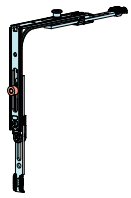
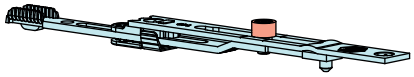
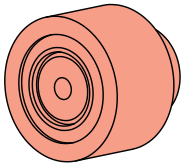
NOTE

During mounting, ensure that the sensor body cannot collide with the striker plate when closing. Otherwise, material damage may occur.

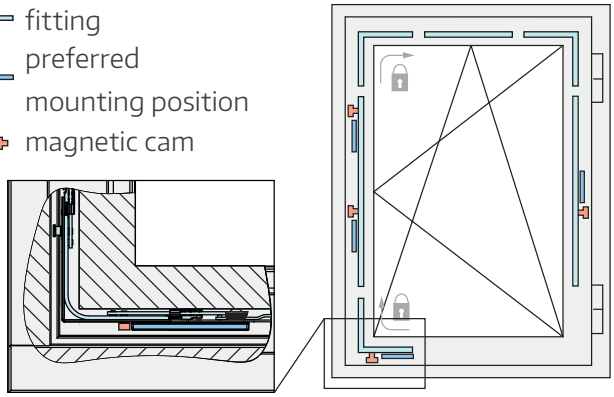
Installation of locking monitoring on MACO fittings with magnetic pin

Position on the sash

The Sense by Maco | Window T&T sensor enables reliable lock monitoring in conjunction with fitting components that feature magnetic cams. The supplied magnet carrier is not required.

MACO-TRONIC MM Corner Element	MACO-TRONIC MM faceplate extension	MACO Magnetic Cam
		
Art.-Nr. 206190	Art.-Nr. 201755	Art.-Nr. 228503 & 228504

fitting
preferred mounting position
magnetic cam

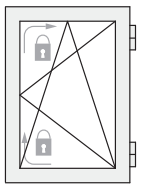


❶ Mount the fitting component or magnetic cam according to the instructions and install the fitting. Determine the closing direction to ensure correct sensor mounting.

Alignment on the Fitting

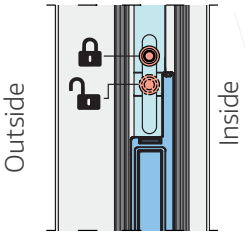
❷ The installation position of the Sense by Maco | Window T&T depends on the sash closing direction, which determines whether the adhesive strip is applied to the housing base or cover:

Closing Direction "Right"

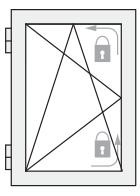


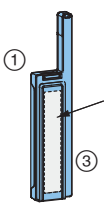


Adhesive strip on housing cover

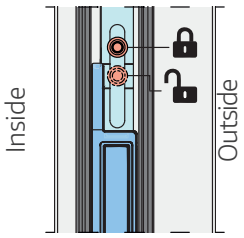


Closing Direction "Left"





Adhesive strip on housing base



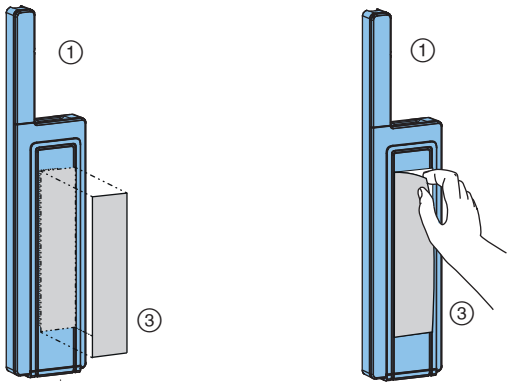
NOTE

The cam must move away from the Sense by Maco | Window T&T when closing.

Mounting of Lock Monitoring with Magnetic Cam (Continued)

NOTE

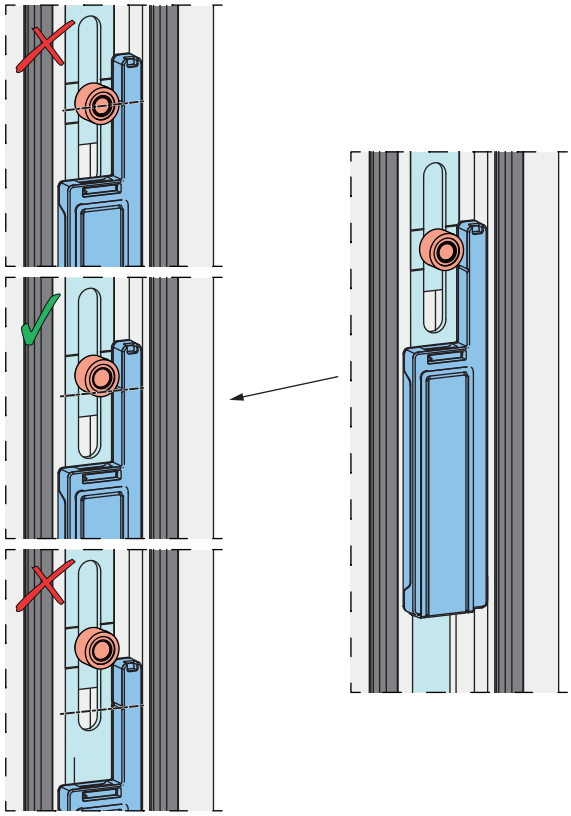
The mounting is shown for the "right" closing direction.



3. Remove a protective film from adhesive strip ⑤ and stick it centrally onto the Sense by Maco | Window T&T ①.

4. Clean the designated adhesive surfaces on the fitting and the sensor. Ensure they are free of grease and oil.

5. Remove the protective film from the other side of adhesive tape ⑤.



6. Position sensor 1 so that the magnetic cam is in the front area of the sensor when open. Note the positioning notch on sensor 1 or the longitudinal grooves, which will assist you with mounting. Lightly press on the sensor housing for a few seconds.

7. If necessary, close the housing with the cover and check the proper mechanical function of the sash. The mounting is now complete. All further steps will be carried out by the end customer.

NOTE

During mounting, ensure that the sensor body cannot collide with the striker plate when closing. Otherwise, material damage may occur.

Mounting of Opening Monitoring with Adhesive Magnet

Position am Flügel

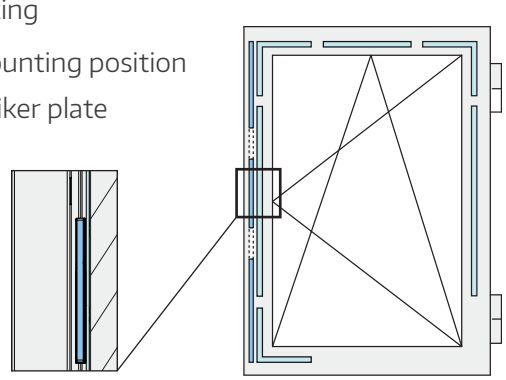
In conjunction with the MACO M-TS adhesive magnet (Art. No. 373147) or the screw-on magnet (item no. 482729, item no. 455428), straightforward opening monitoring can be achieved on sashes.

Montage

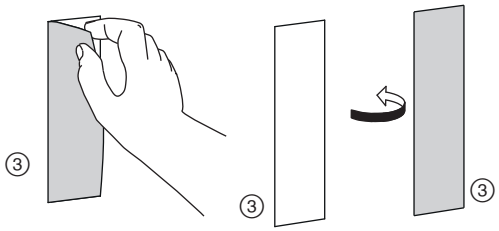
fitting

mounting position

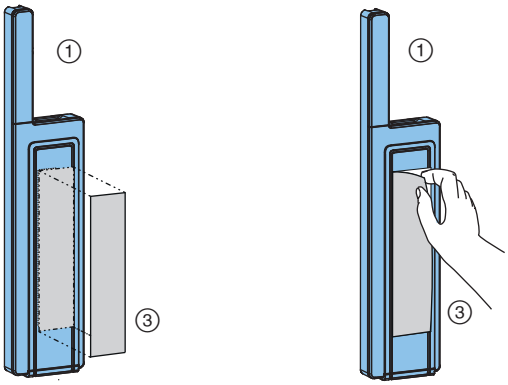
striker plate



1. Please select a suitable mounting position for the Sense by Maco | Window T&T using the enclosed graphic. Note that mounting must only be carried out on the gear side in positions where there is no cam or striker plate.



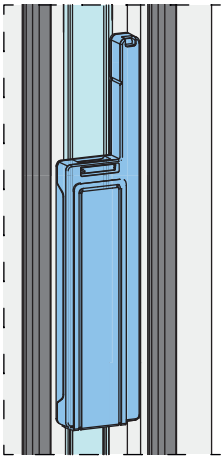
2. Remove a protective film from adhesive strip ⑤ and stick it centrally onto the Sense by Maco | Window T&T ①.



3. Clean the designated adhesive surfaces on the fitting and the sensor. Ensure they are free of grease and oil.

4. Remove the protective film from the other side of adhesive tape ⑤.

Mounting of Opening Monitoring with Adhesive Magnet (Continued)



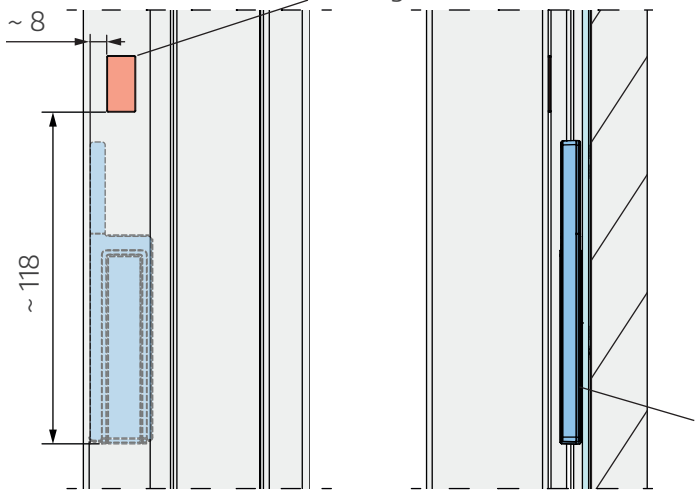
6. Position the sensor at a suitable mounting position on the faceplate of the tilt-and-turn fitting. Ensure there is sufficient space on the frame side for mounting the adhesive magnet. Lightly press on the sensor housing for a few seconds.

7. If necessary, close the housing with the cover.

NOTE

During mounting, ensure that the sensor body cannot collide with the striker plate when closing. Otherwise, material damage may occur.

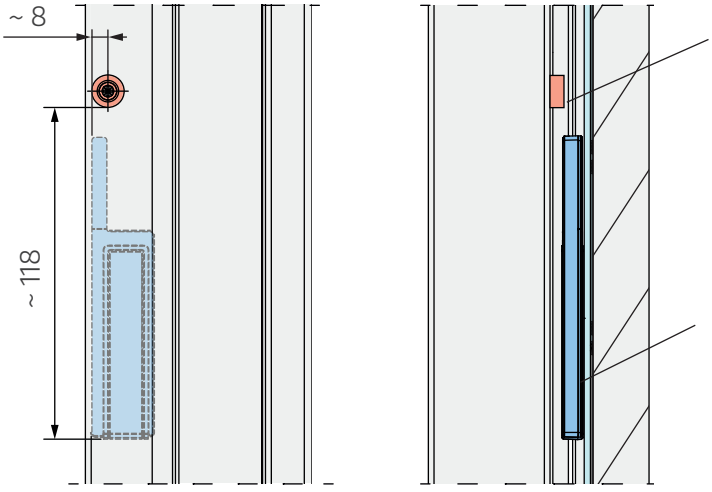
Adhesive magnet



MACO M-TS Adhesive magnet (Art.-Nr. 373147)
Mounting on the frame

Sense by Maco | Window T&T
Mounting on the sash

Screw-on magnet



MACO Screw-on magnet (Art.-Nr. 455429)
Mounting on the frame

Sense by Maco | Window T&T
Mounting on the sash

Mounting on uneven surfaces with MACO fittings

The preferred mounting positions specified in the chapters are generally designed with flat surfaces, allowing installation to be carried out as described.
In some cases, however, installation at these positions may not be possible. In such situations, mounting the sensor is still possible.
At non-preferred mounting positions, the following uneven features may occur, for example:

- Riveted joints
- Screw connections
- Longitudinal grooves
- Gearbox housing

To fasten the sensor flush to the fitting, uneven areas can be compensated by applying additional material.
Up to 2 mm of material may be bonded on to create a flat surface.
For this purpose, 3M GPH-110GF adhesive tape, with a tape thickness of 1 mm, is suitable.
If required, the adhesive tape can be applied in multiple layers to achieve the necessary material thickness.

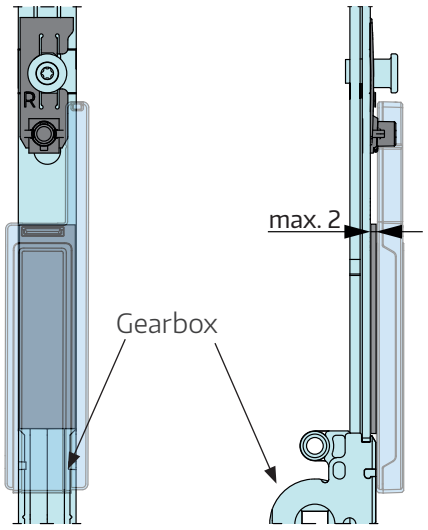
NOTE	Ideally, always use the mounting position in which the sensor rests flush, provided this position is present and available.

1. Inspect the fitting location

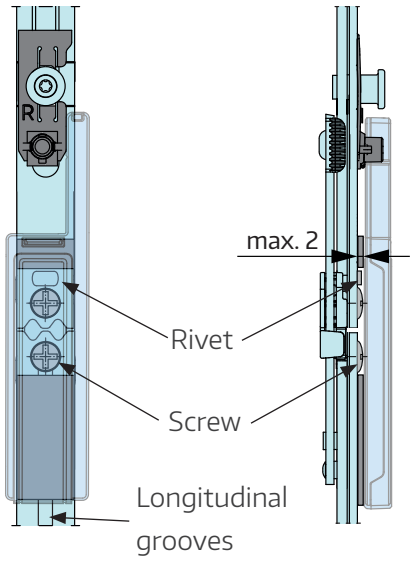
2. Cut the adhesive strip to size so that the uneven areas are compensated. Apply a maximum material thickness of 2 mm to the fitting.

3. Continue mounting the sensor according to your application.

Gearbox



Screws, Rivets, Longitudinal grooves



NOTE	Depending on the adhesive tape used, this may reduce the durability or holding strength of the adhesive bond.

Mounting on third-party fittings

NOTE

› Comprehensive locking monitoring is only ensured if the fitting is equipped with a mechanical incorrect-operation safeguard.

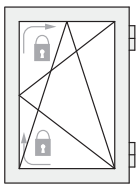
› When used with third-party fittings, proper function must always be checked independently and thoroughly by the fabricator. This inspection must be carried out before delivery to the end customer.

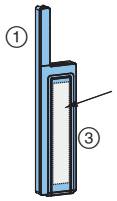
› Illustration in locking direction "right".

Orientation on the fitting

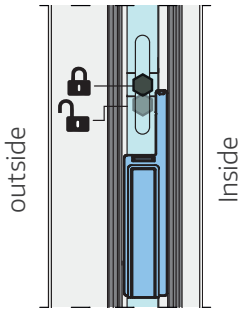
The installation orientation of Sense by MACO | Window T&T depends on the sash locking direction, which is why adhesive strip ③ is applied either to the housing base or the housing cover.

Locking direction "right"

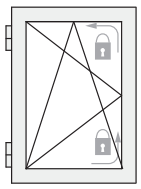


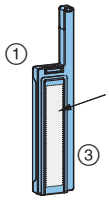


Adhesive strip on housing cover

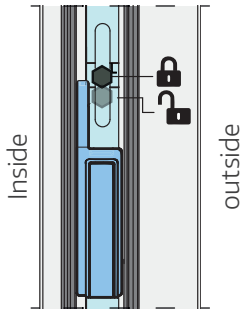


Locking direction "left"





Adhesive strip on housing base



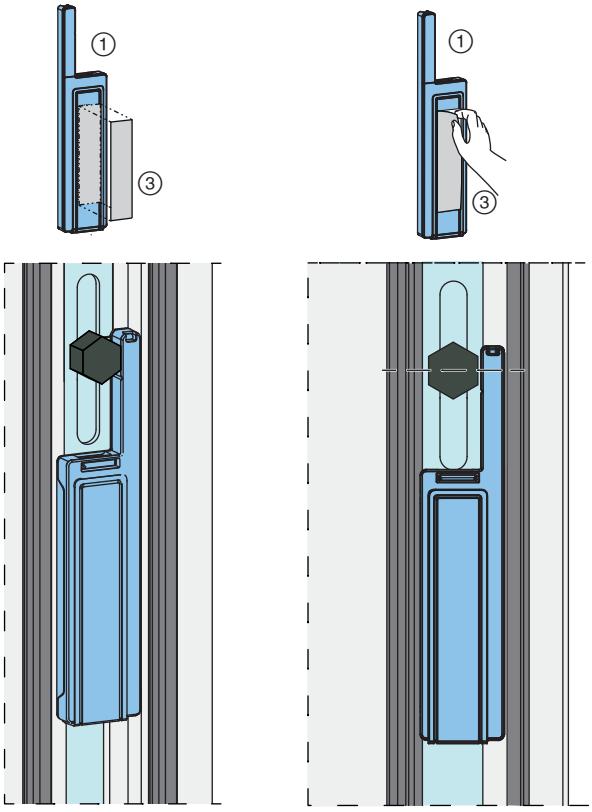
Fittings with magnetic pin

Sense by MACO | Window T&T can in principle also be used for locking monitoring of tilt-and-turn fittings from other manufacturers (e.g. Roto, Siegenia, or Winkhaus).
The prerequisite is that these fittings are equipped with a magnetic locking pin.

Tested third-party fittings

Manufacturer and product line	Fitting	Order No.
WINKHAUS aktivPilot Concept	Corner drive with magnetic contactor E1.VS.KG.F	4994391
WINKHAUS aktivPilot Concept	GEBER VS.KG.06-4	5001348
Roto NT	MVS NT corner drive	292121
SIEGENIA TITAN AF	Top corner AF VSO UE	TEUL4100-100010

Flat surface



1. If available, always use a flat surface to mount the Sense by MACO | Window T&T.
   Clean the designated adhesive areas on the fitting and on the sensor.
   Ensure that these areas are free of grease and oil.

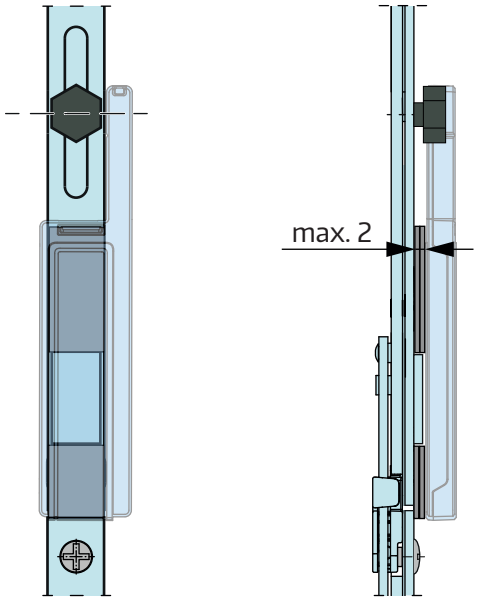
2. Use the supplied adhesive strip.
   Attach one side of the adhesive strip to the sensor, then mount the sensor together with the adhesive strip on the fitting as shown.
   The locking pin must be positioned centrally between the tip of the sensor and the positioning notch when in the open position.
   Then press the sensor firmly onto the fitting for several seconds.

3. If required, close the housing with the cover and check the proper mechanical function of the sash.
   The installation process is complete. All further steps are carried out by the end customer.

Uneven surface

NOTE	Depending on the adhesive tape used, this may reduce the durability or holding strength of the adhesive bond.

Siegenia



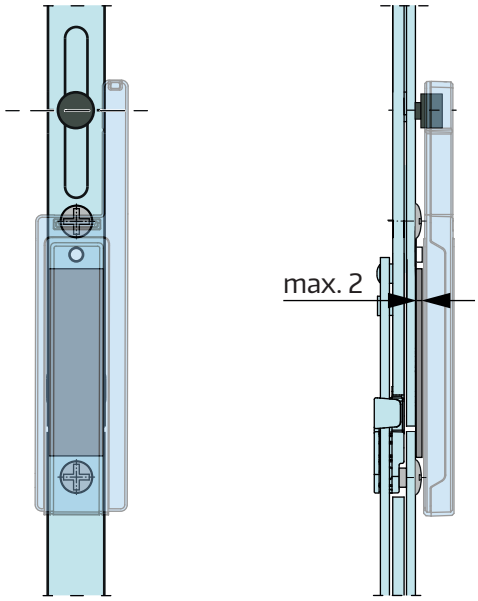
To mount the sensor on an uneven surface, you may bond up to 2 mm of material onto the fitting.
For this purpose, for example, use 3M GPH-110GF adhesive tape with a tape thickness of 1 mm.
If required, the adhesive tape can also be applied in multiple layers to achieve the necessary material thickness.

1. Clean the designated mounting area on the fitting and on the sensor.Ensure that these areas are free of grease and oil.

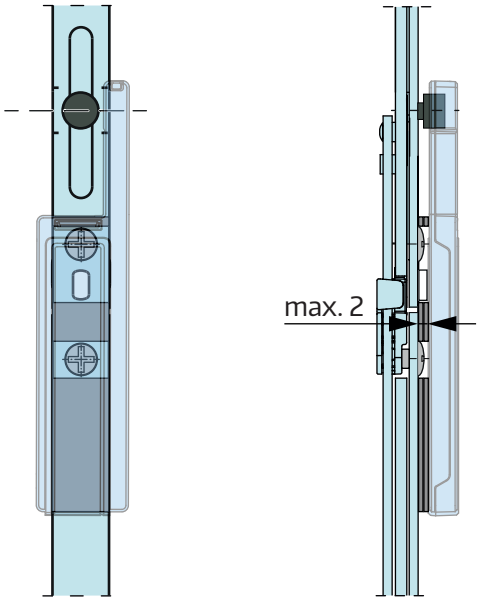
2. Apply the customer-supplied adhesive tap to the fitting.
   The uneven areas must be left free in accordance with the illustrations so that a uniform contact surface is created.

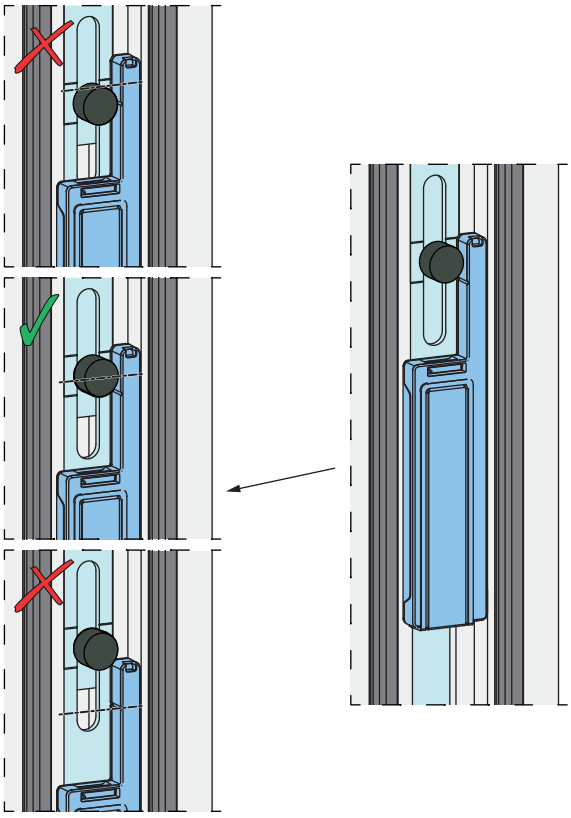
Uneven surface

Winkhaus



Roto





❸ Place the sensor on the fitting as shown.
In the open position, the locking pin must be centered between the tip of the sensor and the positioning notch.
Use the grooves as an aid for correct positioning.
Press the sensor lightly against the fitting for several seconds.

❹ If required, close the housing with the cover and verify correct mechanical operation of the sash.
The installation process is complete. All subsequent steps are performed by the end customer.

NOTE

During installation, ensure that the sensor body cannot collide with the striker when closing. Otherwise, material damage may occur.

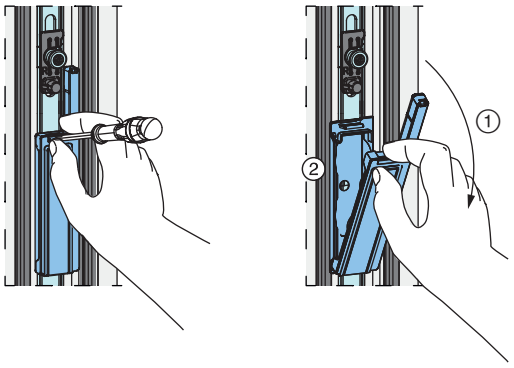
Fittings without magnetic locking pins

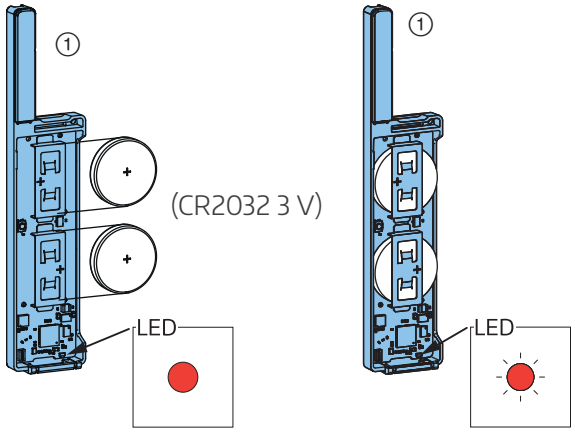
For fittings that do not support the use of a magnetic locking pin, opening monitoring can be implemented as an alternative.

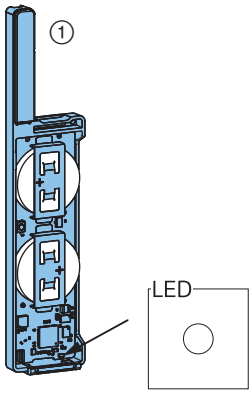
A description of this function can be found on pages 24 and 25

(Initial) Start-up

Insert the battery







Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Open the housing. To do this, use a flat object (e.g., a screwdriver) to push the housing tab upwards and carefully pull at the recess. Depending on the mounting position, remove either sensor ① or the housing cover ②.

2. **For battery replacement:** Insert a suitable batteries (CR2032 3 V, not included) and close the housing.

   For (Initial) Start-up: Insert the batteries, leave the housing open and proceed to the next step.

   After the battery is inserted, the LED will briefly light up.

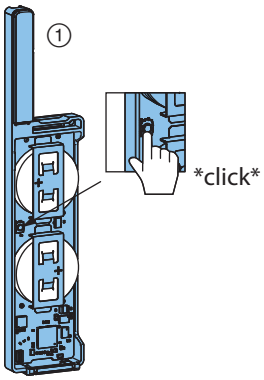
3. The device automatically enters pairing mode, which is indicated by a flashing of the status LED.

NOTE

The sensor only enters pairing mode automatically during initial start-up or after a soft or hard reset. Re-pairing is not required after a battery replacement.

4. Pair the sensor with your Smart Home ecosystem. To do this, use the "Integration into the Smart Home System" guide on page 79 or the Smart Home ecosystem provider's guide. After successful pairing, the status LED will turn off. In the app, the sensor's status will be displayed as "Open." Continue with the "Calibration" chapter.

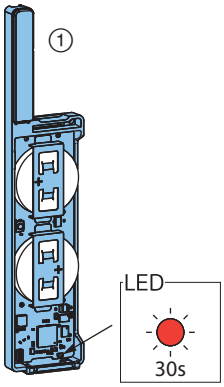
Calibration



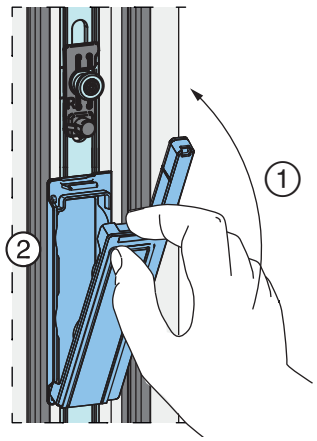
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Briefly press the user button. This process can be repeated at any time if needed.



❷ The Sensor ① now enters calibration mode for 30 seconds, during which the status LED will flash.



❸ Place sensor ② back onto housing ①. Close and lock the sash properly within 30 seconds of pressing the user button. Wait until the sensor's status is displayed as "Closed" in the Smart Home app.

❹ Check whether all statuses of the component are correctly detected by the sensor. To do this, open and close the sash and check the status in your Smart Home app.

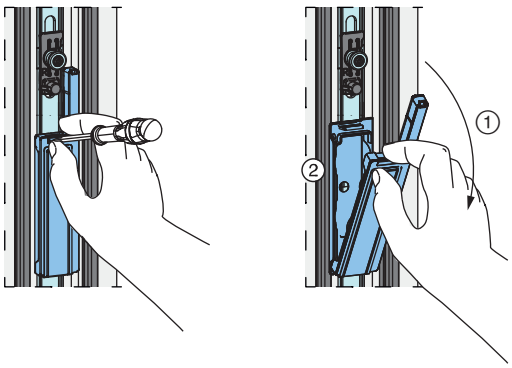
NOTE

An incorrectly or improperly calibrated device may transmit invalid status information to the smart home system. A failed calibration is indicated by the status LED blinking slowly three times.

Reset

Soft Reset

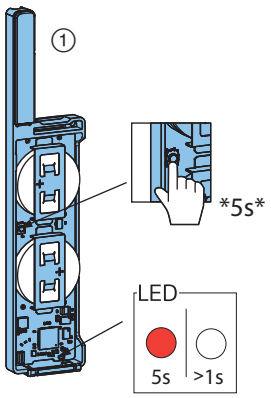
The soft reset restarts the product, deletes the connection with the smart home system and puts it into pairing mode. The calibration data is retained.



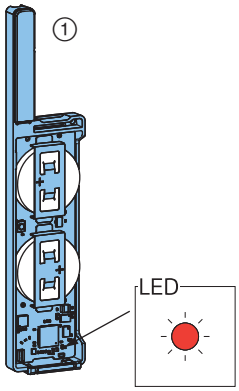
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing. To do this, use a flat object (e.g., a screwdriver) to push the housing tab upwards and carefully pull at the recess. Depending on the mounting position, remove either sensor ① or the housing cover ②.



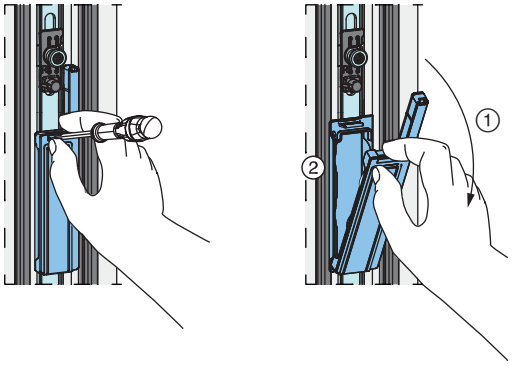
❷ Press the user button for at least 5 seconds until the LED briefly turns off. Release the user button to perform the soft reset.



❸ Once the soft reset is complete, the product automatically enters pairing mode. This is indicated by a flashing status LED. Continue with the "(Initial) Start-up" chapter. A renewed calibration (see chapter "Calibration") is possible, but not strictly necessary.

Hard Reset

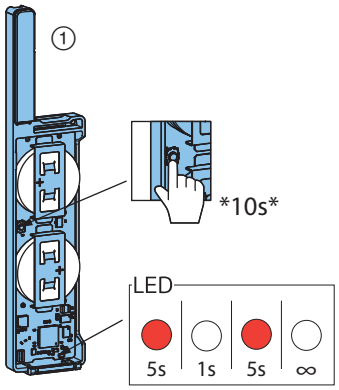
The hard reset resets the product to factory settings, deletes the calibration data as well as the connection with the smart home system and puts it into pairing mode.



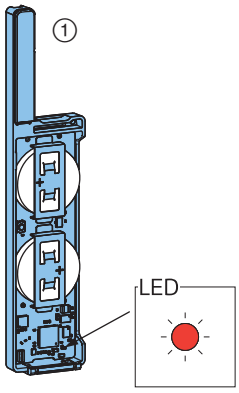
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing. To do this, use a flat object (e.g., a screwdriver) to push the housing tab upwards and carefully pull at the recess. Depending on the mounting position, remove either sensor ① or the housing cover ②.



❷ Press the user button for at least 10 seconds. After approx. 5 seconds, the status LED will briefly turn off and then light up again. Continue to hold the user button until the LED turns off permanently. Release the user button to perform the hard reset.



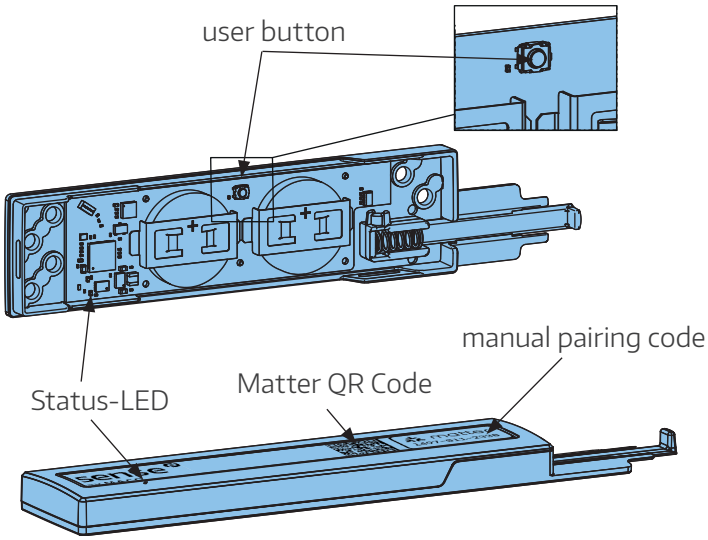
❸ Once the hard reset is complete, the product automatically enters pairing mode. This is indicated by a flashing status LED. Continue with the "(Initial) Start-up" chapter.

Datasheet

Product Name	Sense by Maco | Window T&T
Order Number	481962
Housing Material	PC/ABS
Colour	black
Dimensions	107.4 x 22.7 x 7.5 mm
Operating Temperature	-10 ... +55°C
Humidity	≤95%, non-condensing
Storage Temperature	-25 ... +70°C
User Groups	non-commercial users
Application Environment	fully enclosed indoor spaces
Frequency Bands	IEEE 802.15.4-2006 2400–2483.5 MHz
Transmission Power	Bluetooth: +8dBm Thread: +8dBm
Power Supply	2x Battery CR2032 3V
Battery Life	approx. 2 years
Operating Voltage	6 V
User Interface	1x user button 1x status LED (red)
Communication Interface	Matter Bluetooth Thread
IP Rating	IP50 when installed
Certification	CE

Sense by MACO | Casement

Overview

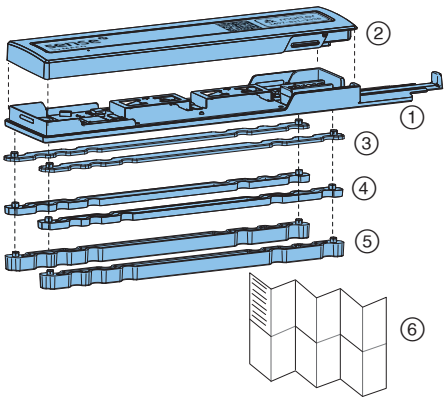


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Package Contents

Pos. no.	Name	Qty.
①	Sense by MACO | Casement	1
②	Housing cover	1
③	Spacer 1 mm	2
④	Spacer 2 mm	2
⑤	Spacer 4 mm	2
⑥	Package insert	1



CAUTION

Magnetic Field!

Magnets can endanger and damage electronic and mechanical components.

› Remove such objects from the installation area.

NOTE

Never operate the slider by hand. Otherwise the sensor will be damaged.

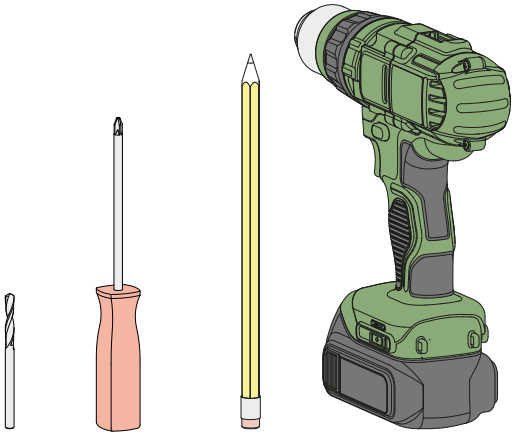
Required (not included in delivery)

Name	Qty.
Battery CR2032 3 V	2



Tools

Name
Cordless drill
Drill bit Ø 2
Screwdriver
Pencil

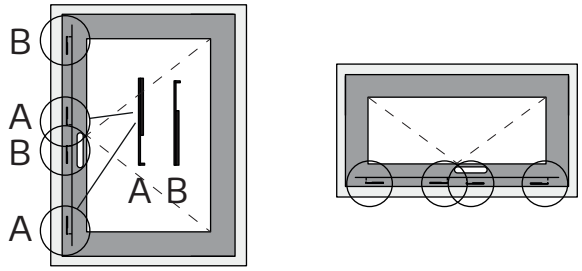


NOTE

Do not use power tools to fasten the sensor, as excessive tightening torque may damage the housing.

Mounting

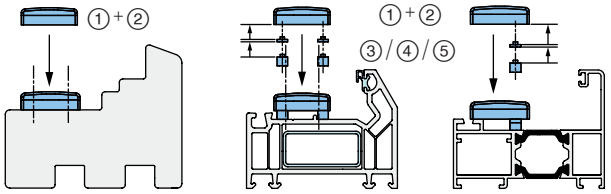
Sense by MACO | Casement is compatible with MACO ESPAGS hardware for outward-opening windows and is mounted on the frame next to a striker plate with mushroom cam locking. For horizontal installation, the sensor can be mounted either to the left or right of the striker plate. For vertical installation, it's best to position the sensor above the striker plate; only use the position below if necessary. Use the included spacers to ensure the sensor is aligned properly with the profile and the slider sits flush in the striker plate.



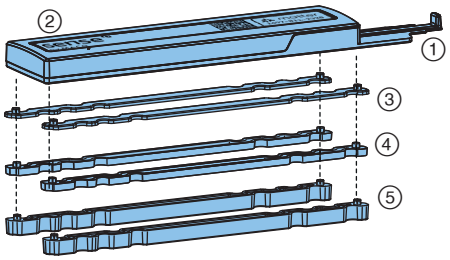
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

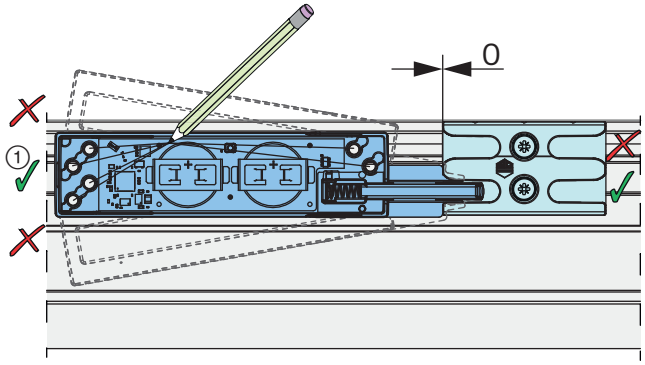
1. Refer to the graphic to determine the recommended installation position for the Sense by MACO | Casement. Position A is the preferred choice for vertical installation.



2. Select the appropriate spacers (③, ④, ⑤) according to the installed profile. These can be stacked if necessary.

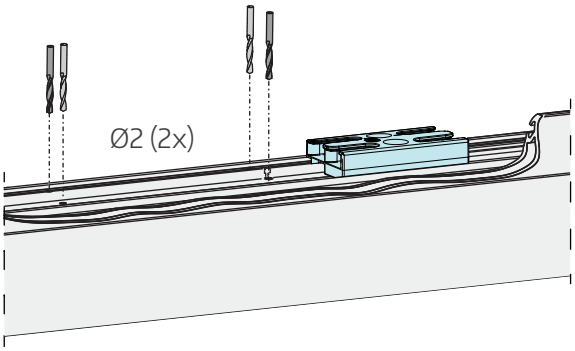


3. Clip the required spacers (③, ④, ⑤) onto sensor ①. Arrange the spacers to create a stable base for the sensor.

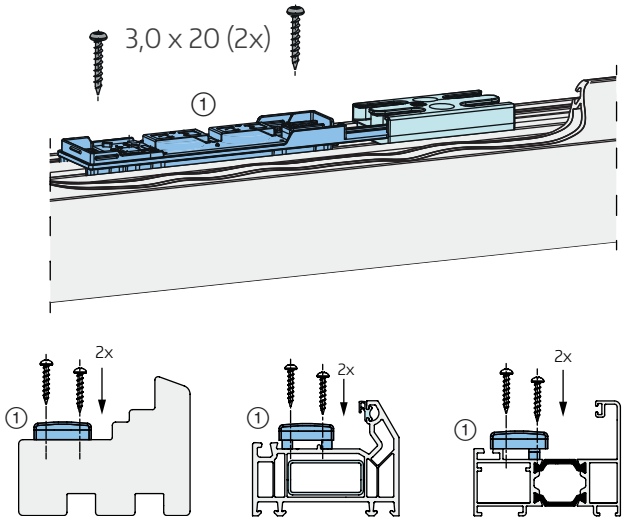


4. Position housing at striker plate as shown and mark two diagonal holes.

Mounting (Continued)



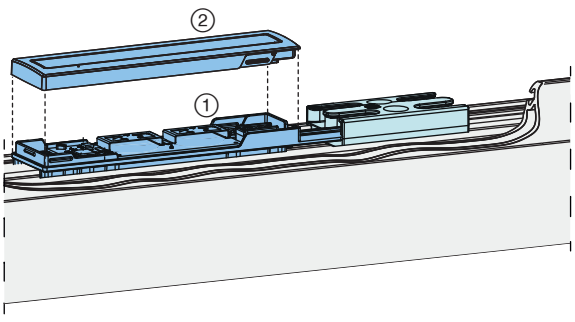
5 Pre-drill two diagonal holes using a Ø 2 drill bit.



6 Fasten sensor ① diagonally with 2 screws (3.0 x 20). Tighten the screws by hand (<1 Nm). Ensure the slider moves parallel into the striker plate.

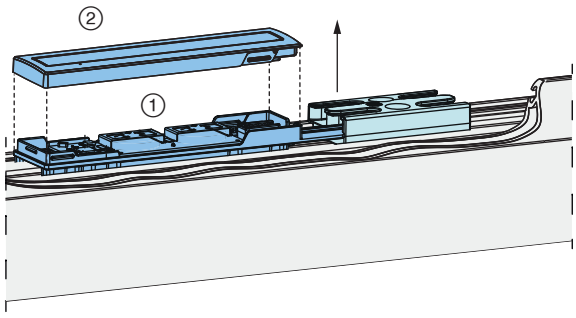
NOTE

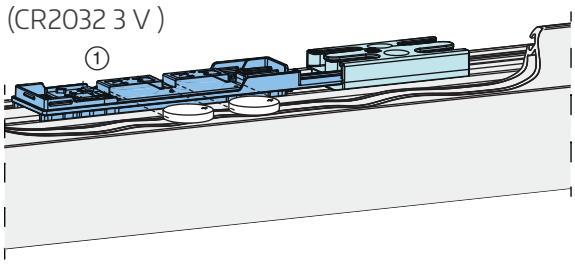
Never operate the slider by hand. Otherwise the sensor will be damaged.

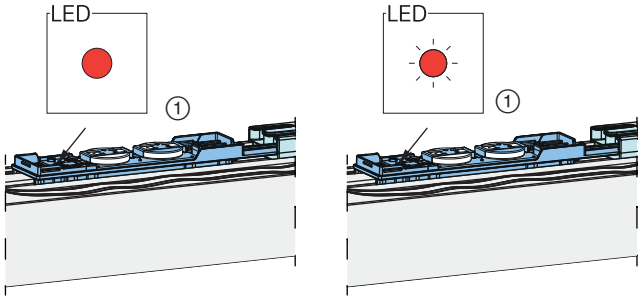


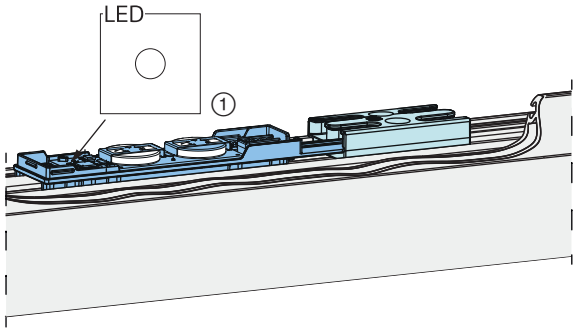
7 Close sensor ① with cover ② and check the correct mechanical function of the window. Mounting is now complete. All further steps will be carried out by the end customer.

(Initial) Start-up
Insert the battery









Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Open the housing ②.

2. **For battery replacement:** Insert suitable batteries (CR2032, 3 V, not included) and close the housing.

   For (Initial) Start-up: Insert the batteries, leave the housing open and proceed to the next step.

   After the batteries are inserted, the LED will briefly light up.

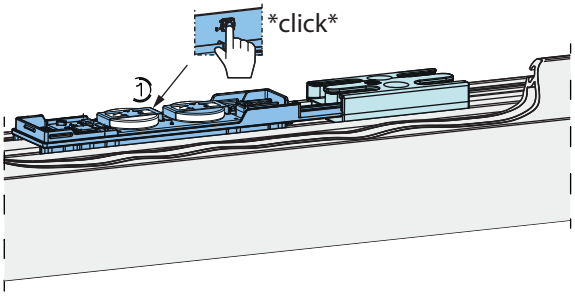
3. The device will automatically enter pairing mode, indicated by a flashing status LED.

NOTE

The sensor only enters pairing mode automatically during initial start-up or after a soft or hard reset. Re-pairing is not required after a battery replacement.

4. Pair the sensor with your smart home ecosystem. Refer to the "Integration into the smart home System" guide on page 79 or the instructions provided by your smart home ecosystem supplier. Once pairing is successful, the status LED will turn off. The sensor status will be displayed as "Open" in the app. Proceed with the "Calibration" chapter.

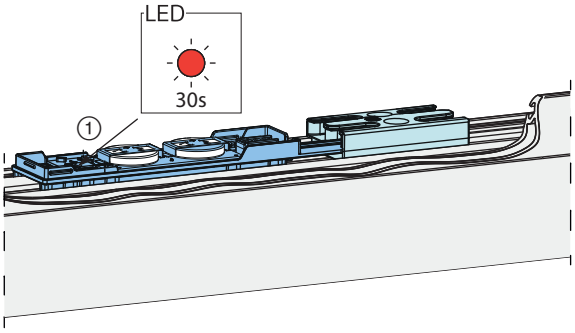
Calibration



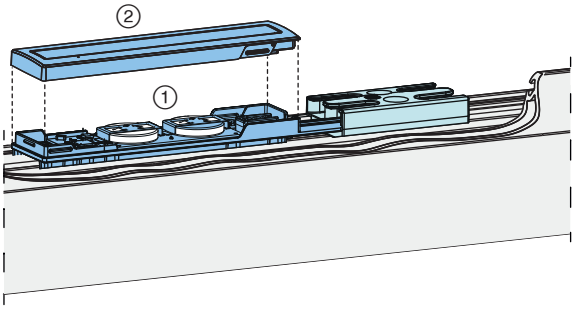
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Briefly press the user button. This process can be repeated at any time if required.



❷ The sensor ② will now enter calibration mode for 30 seconds. During this time, the status LED will flash.



❸ Close the sensor. Close and lock the sash properly within 30 seconds of pressing the user button. Wait until the status of the sensor is displayed as 'Closed' in the smart home app.

❹ Check whether all states of the component are correctly detected by the sensor. To do this, open and close the sash and verify the status in your smart home app.

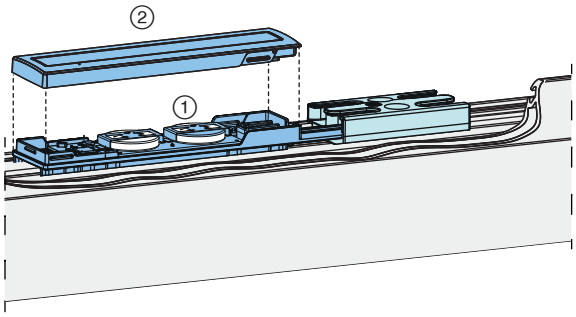
NOTE

An incorrectly or improperly calibrated device may transmit invalid status information to the smart home system. A failed calibration is indicated by the status LED blinking slowly three times.

Reset

Soft Reset

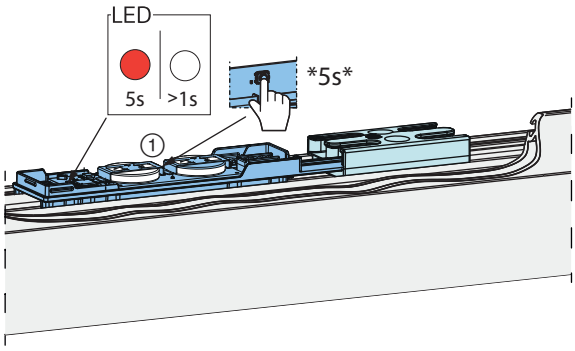
The soft reset restarts the product, deletes the connection with the smart home system and puts it into pairing mode. The calibration data is retained.



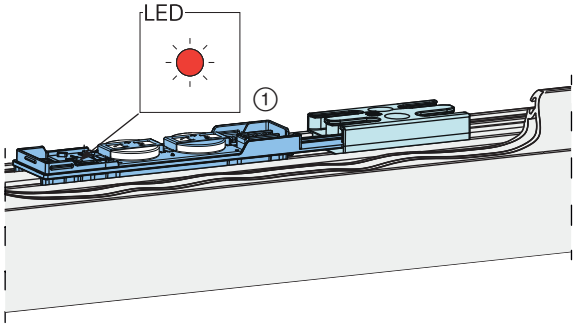
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing ②.



❷ Press and hold the user button for at least 5 seconds until the LED shortly turns off. Release the user button to start the soft reset.

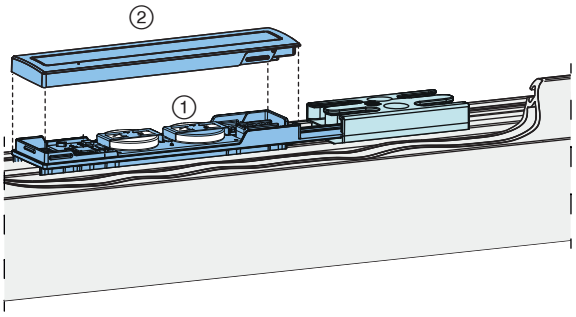


❸ Once the soft reset is completed, the product will automatically enter pairing mode. This is indicated by a flashing status LED. Continue with step 4 in chapter „Start-up“. Recalibration (see chapter „Calibration“) is possible, but not necessary.

Reset

Hard Reset

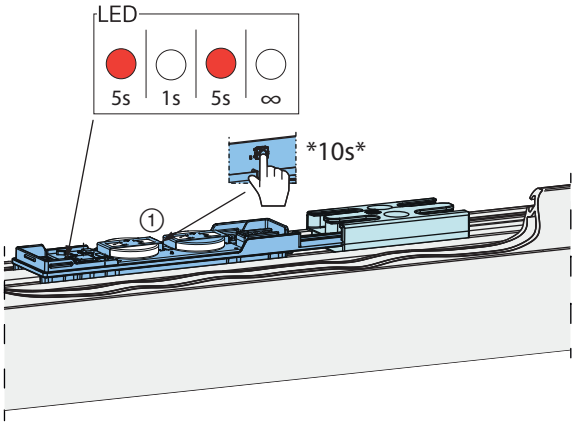
The hard reset resets the product to factory settings, deletes the calibration data as well as the connection with the smart home system and puts it into pairing mode.



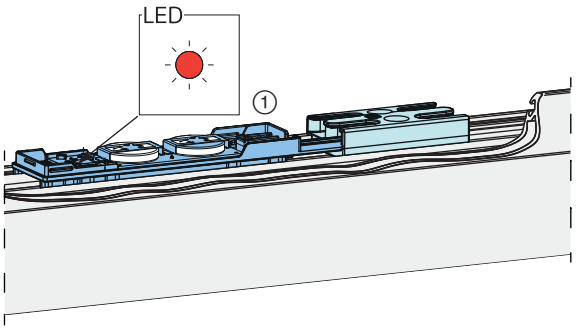
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing ②.



❷ Press and hold the user button for at least 10 seconds. After 5 seconds, the status LED will briefly switch off and then lights up again. Continue to push the user button until the LED turns off permanently. Release the user button to start the hard reset.



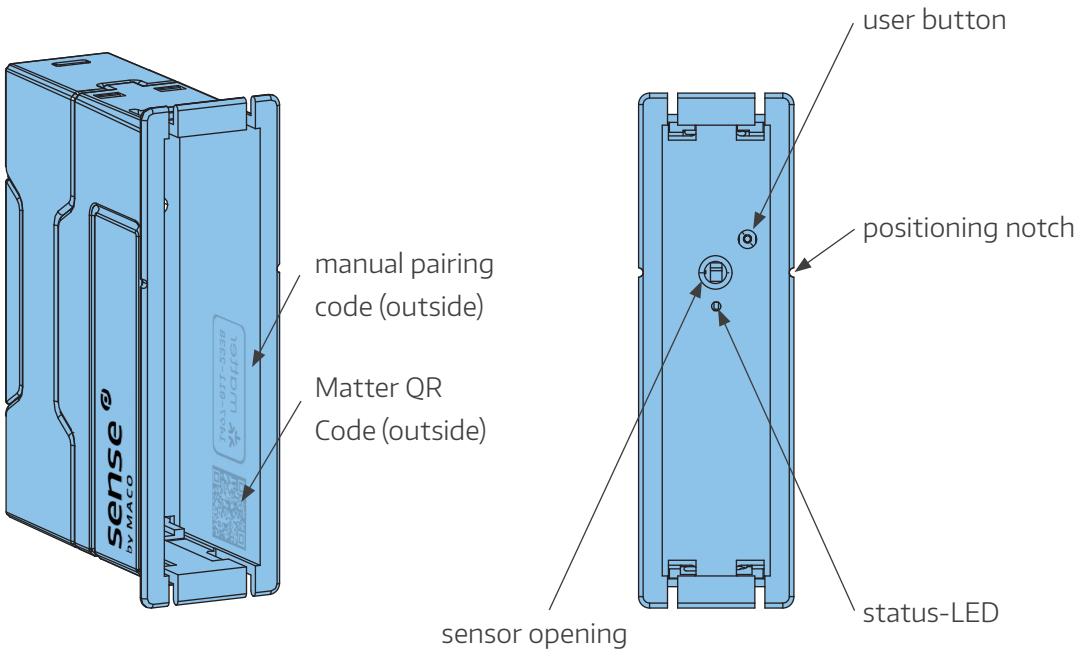
❸ Once the hard reset is completed, the product will automatically enter pairing mode. This is indicated by a flashing status LED. Continue with step 4 in chapter „Start-up“.

Datasheet

Product Name	Sense by MACO | Casement
Order Number	481963
Housing Material	PC/ABS
Colour	black
Dimensions	131.3 x 26.1 x 8.0 mm
Operating Temperature	-10 ... +55°C
Humidity	≤95%, non-condensing
Storage Temperature	-25 ... +70°C
User Groups	non-commercial users
Application Environment	fully enclosed indoor spaces
Frequency Bands	IEEE 802.15.4-2006 2400–2483.5 MHz
Transmission Power	Bluetooth: +8dBm Thread: +8dBm
Power Supply	2x Battery CR2032 3V
Battery Life	approx. 2 years
Operating Voltage	6 V
User Interface	1x user button 1x status LED (red)
Communication Interface	Matter Bluetooth Thread
IP Rating	IP50 when installed
Certification	CE

Sense by MACO | Door

Overview

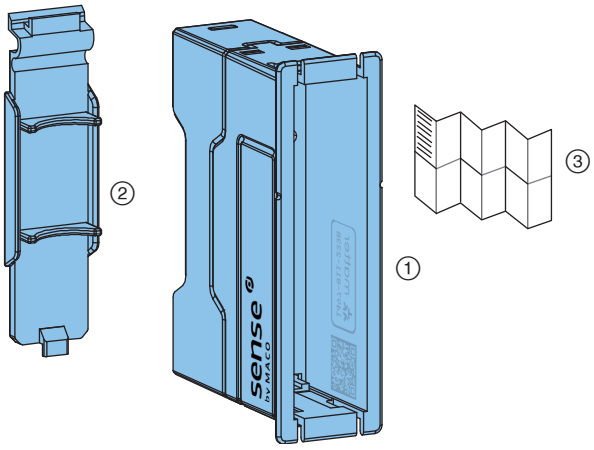


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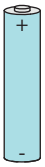
Package Contents

Pos. no.	Name	Qty.
①	Sense by MACO | Door	1
②	Battery cover	1
③	Package insert	1



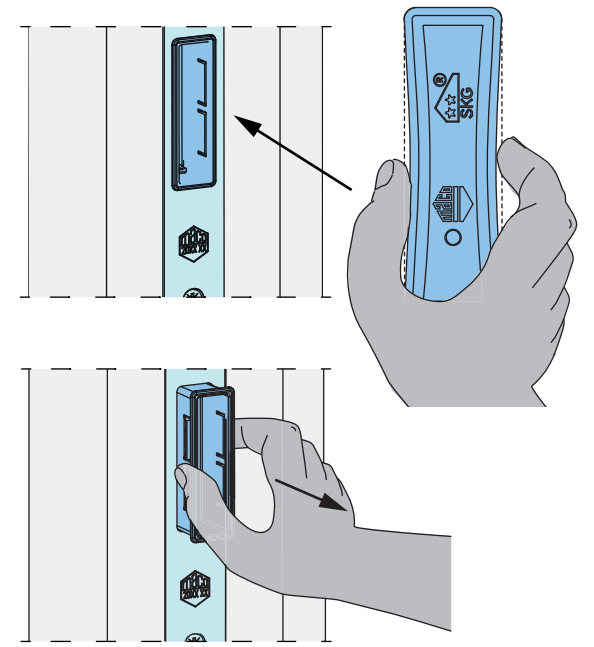
Required (not included in delivery)

Name	Qty.
Battery AAA 1.5 V	1



Installation with MACO locks & strike plates

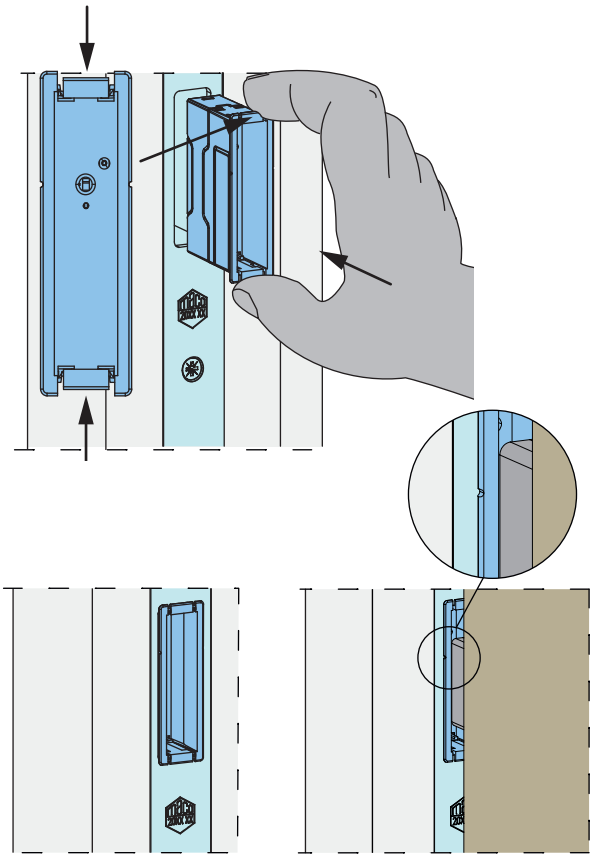
The existing routing cover in the frame will be replaced with the Sense by MACO | Door product. De-mounting and mounting can be done without tools.



Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Press the existing routing cover together as shown in the graphic to release the retaining tabs from their recess. Now, pull the routing cover straight out.



2. Take product ① and press the tabs at the top and bottom together as shown in the graphic. Slide the sensor into the recess for the routing cover. Note the two different installation options for the sensor that vary depending on the door lock. Ensure that the routing depth is sufficient and that the positioning notches cover the deadbolt of the door lock.

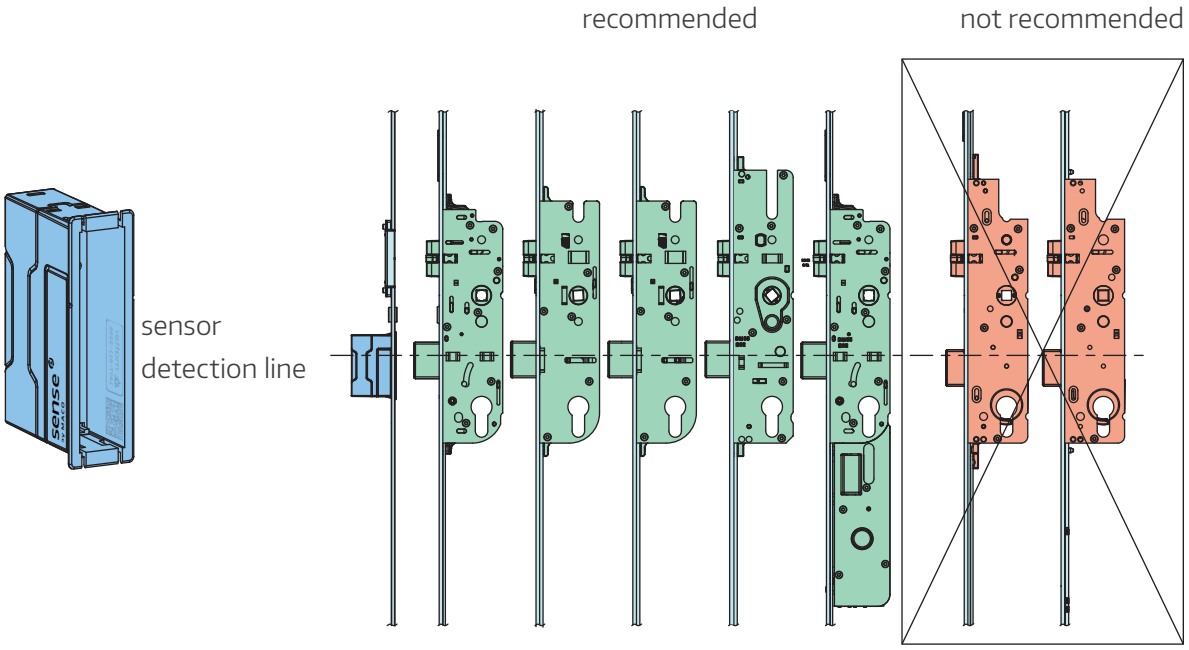
NOTE

The Matter pairing code is printed directly on the side of the Sense by MACO | Door. If this information is lost or damaged, the sensor may become unusable. Secure this information and always mount and demount the Sense by MACO | Door with care.

Aligning the sensor

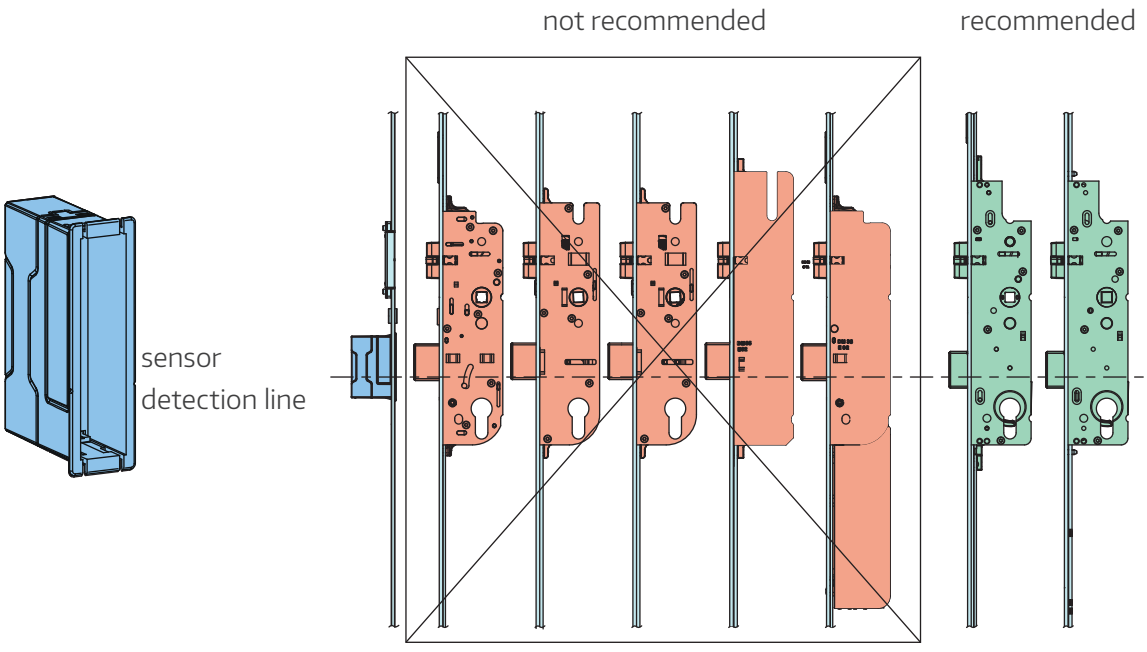
Installation Option A

Positioning notches in the upper third



Installation Option B

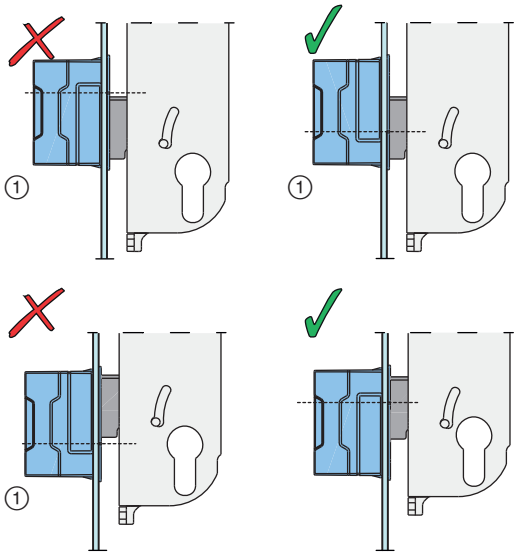
Positioning notches in the lower third

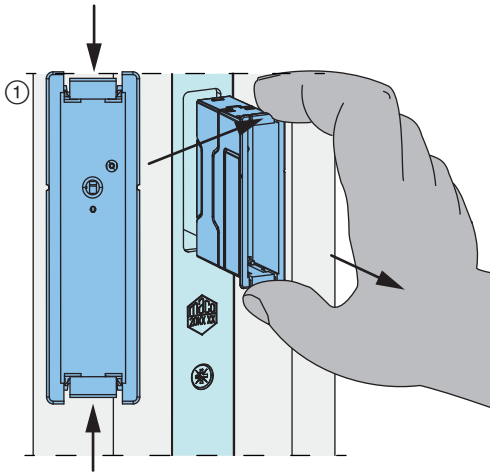


Alignment correction

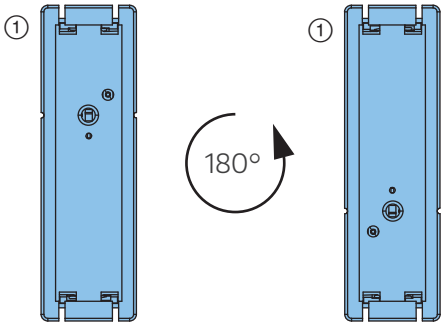
NOTE

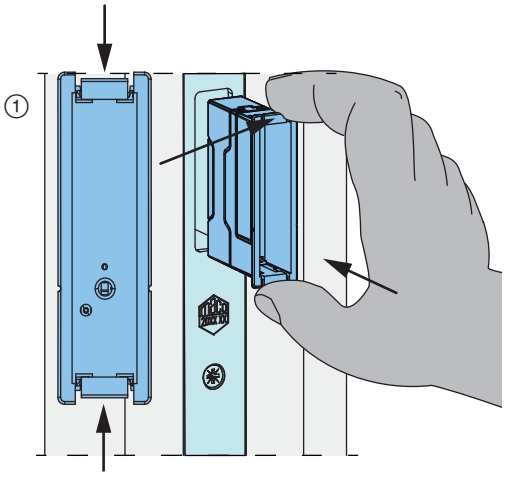
Depending on the door lock variant or due to on-site tolerances, the position of the deadbolt may be outside the sensor range. In this case, Sense by MACO | Door must be rotated by 180° so that the deadbolt is detected.





❶ Carefully press the tabs at the top and bottom of the housing and pull sensor ① out of the recess.





❷ Rotate sensor ① by 180° and squeeze the tabs at the top and bottom as shown in the graphic. Slide it back into the recess. Ensure that the positioning notches are level with the deadbolt of the door lock. Check the mechanical function of the door. Mounting is now complete. All further steps will be carried out by the end customer.

Installation with locks & strike plates from third party manufacturers

Sense by MACO | Door can be combined with locks from other manufacturers (e.g. FUHR, G-U, Roto, Siegenia, or Winkhaus).
Compatible and detectable are deadbolts with a classic electro-galvanized or chrome-plated surface.
The projection depth of the deadbolt must be at least 14 mm and no more than 20 mm.

To ensure proper function, the following conditions must be met:

› the sash-mounted lock is correctly positioned in relation to the frame-mounted strike plate

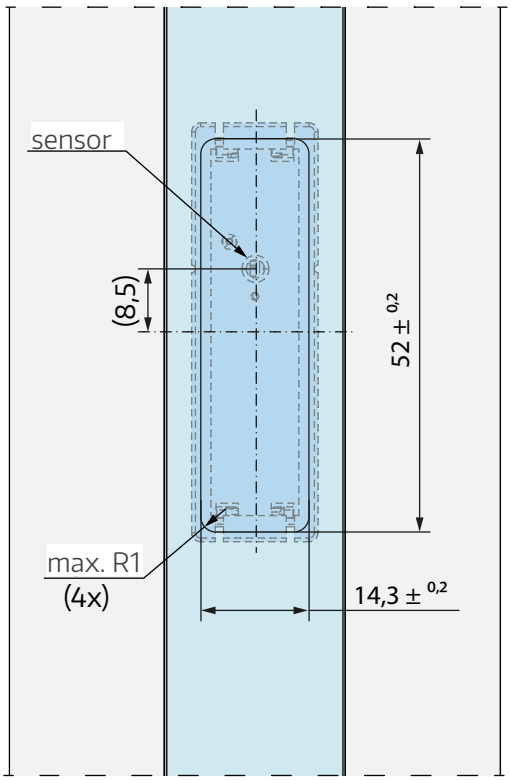
› The front face of the locking bolt reliably enters the sensor detection area

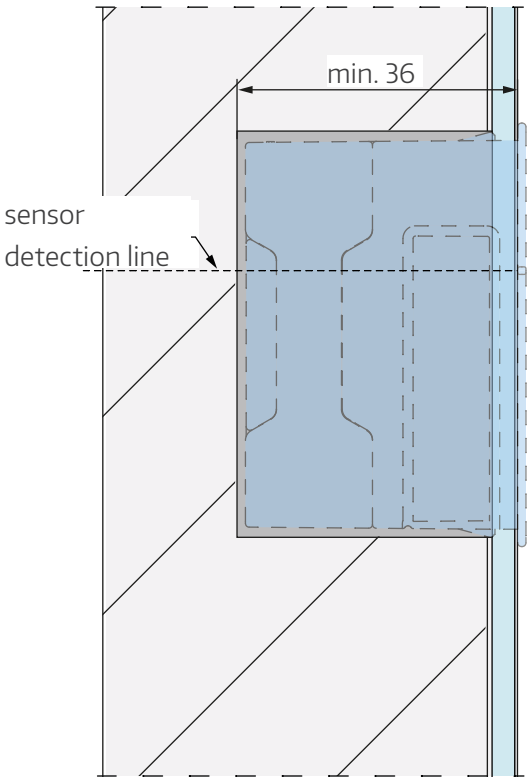
› the material thickness of the strike plate is 2 mm or 3 mm (other material thicknesses are not permitted)

NOTE

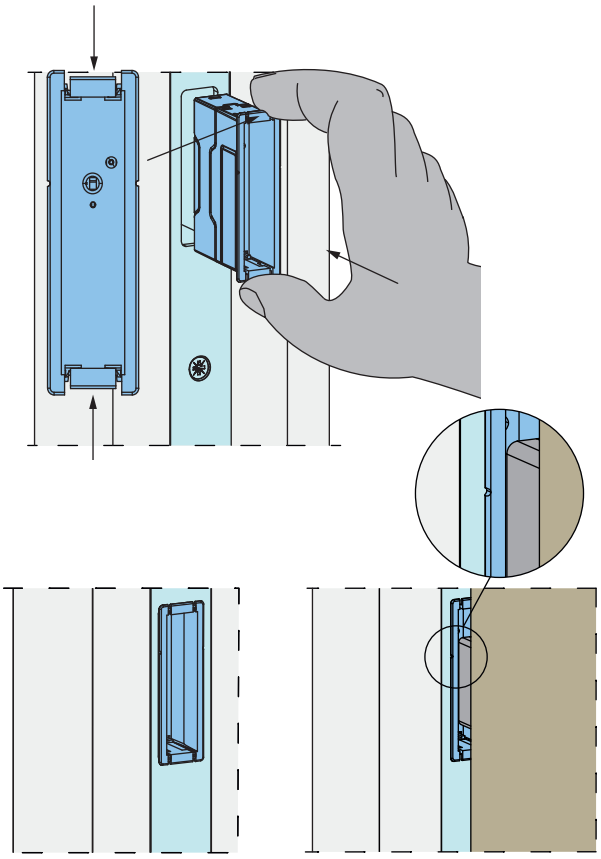
In such applications, the fabricator must ensure that the product functions correctly before delivery to the end customer.

Routing contour





Sensor installation



1. Hold product ① as shown in the illustration.
2. Press the upper and lower tabs together as shown in the illustration.
3. Slide the sensor into the recess.

NOTE

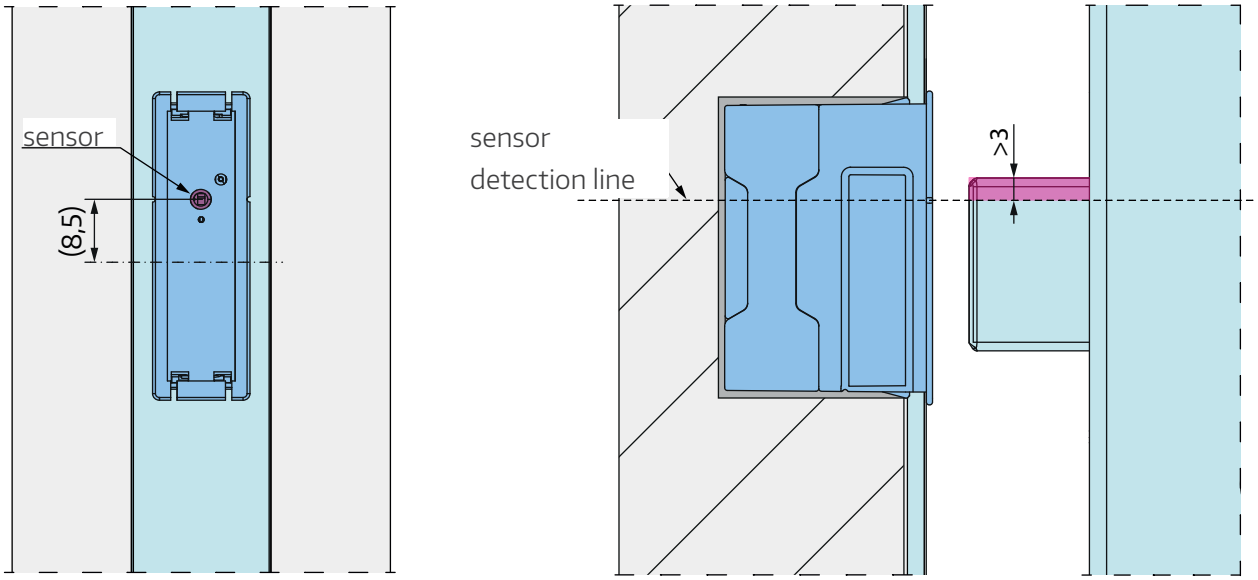
Different installation variants are available, depending on the door lock used.

- Ensure that the routing depth is sufficient.
- Ensure that the lateral positioning notches are aligned with the height of the door lock deadbolt.
- The Matter access data are printed directly on the Sense by MACO | Door. Loss or damage of this information may render the sensor unusable. Secure this information and handle Sense by MACO | Door with care during installation and removal.

Aligning the sensor

To ensure proper sensor function, the locking bolt must overlap the detection line by a minimum of 3 mm.

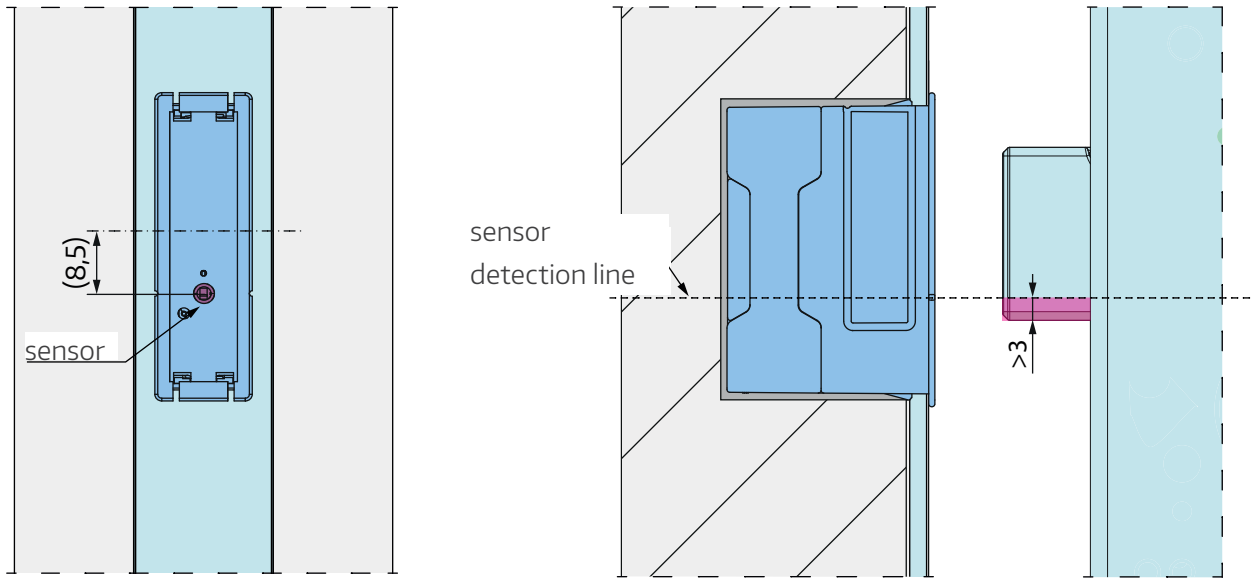
Standard



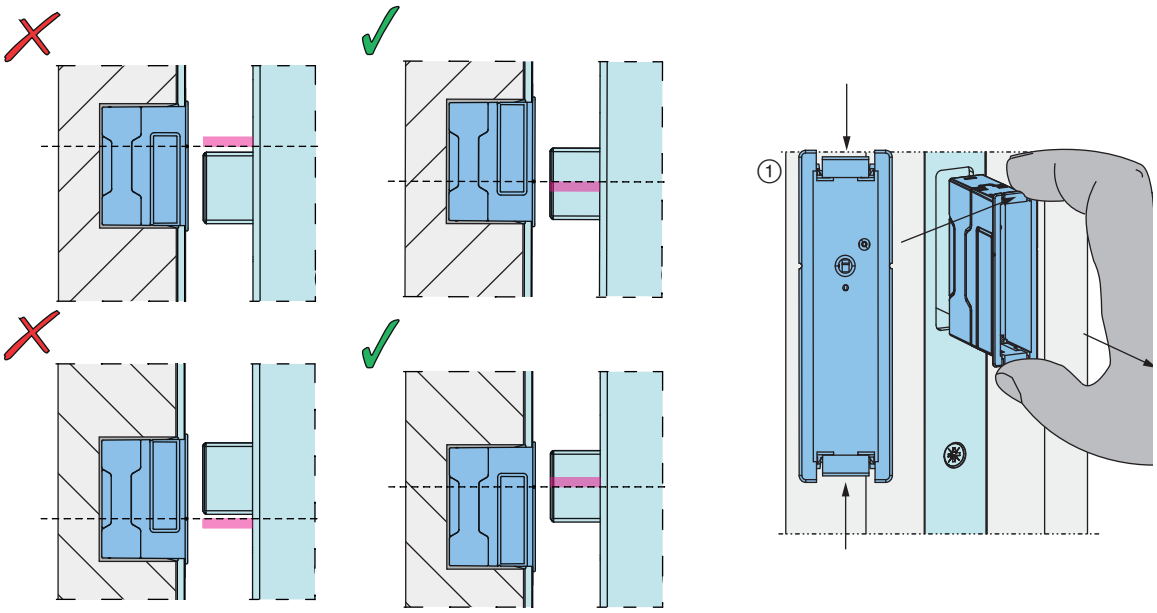
NOTE

Depending on the door lock variant, the position of the locking bolt may be outside the sensor area. In this case, rotate Sense by Maco | Door by 180° to ensure the locking bolt is detected.

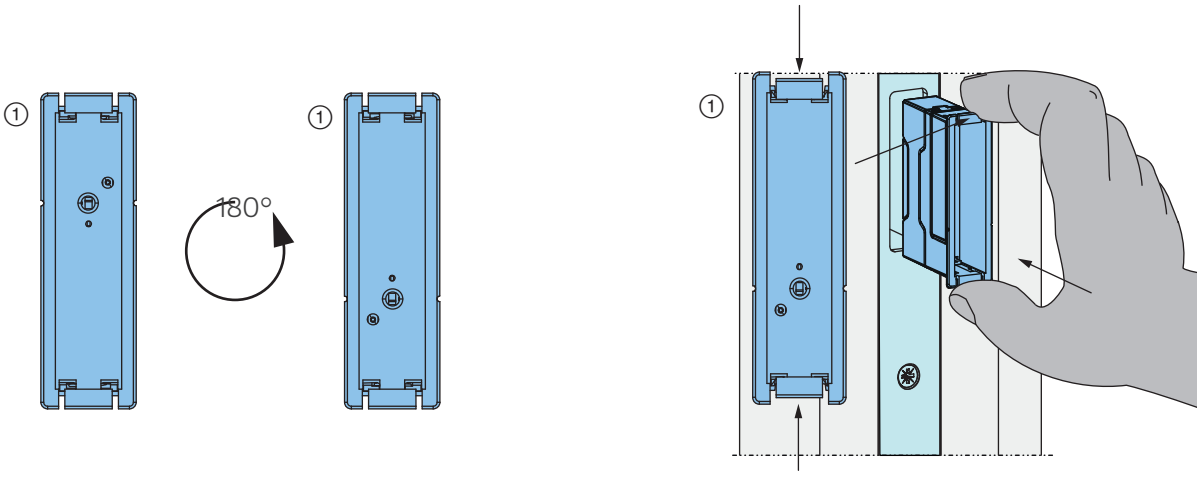
rotated by 180 degrees



Alignment correction



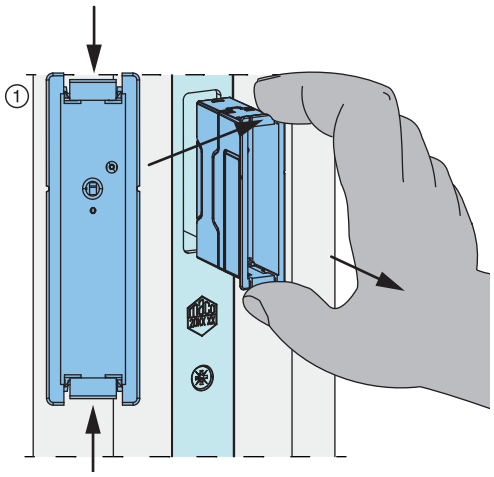
❶ Carefully press the tabs at the top and bottom of the housing, then pull sensor 1 out of the recess.



❷ Turn sensor 1 by 180°. Press the tabs at the top and bottom together as shown in the diagram, then slide it back into the recess.Make sure the side positioning notches are correctly aligned. They must be level with the deadbolt of the door lock.Check the mechanical function of the door.
Installation is now complete. All further steps are carried out by the end customer.

(Initial) Start-up

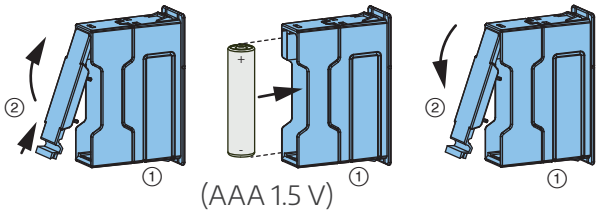
Insert the battery



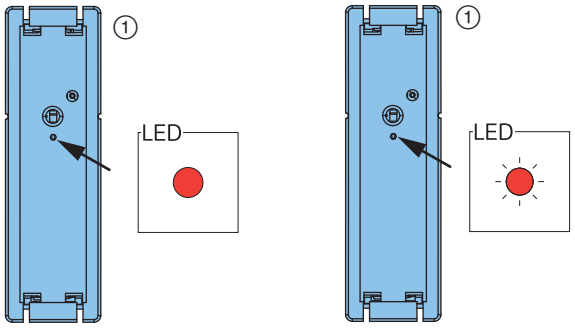
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Carefully release the sensor by pressing in the tabs at the top and bottom of the housing, and then pull it out. Note the current installation position and lateral positioning notches.



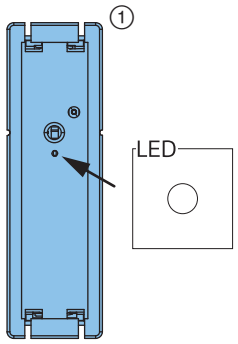
❷ Open the battery compartment ②.
Insert a suitable battery (AAA 1.5 V, not included). The LED lights up briefly. Close the battery compartment.



❸ The device will automatically enter pairing mode, indicated by the flashing of the status LED. Close the battery compartment.

NOTE

The sensor only enters pairing mode automatically during initial start-up or after a soft or hard reset. Re-pairing is not required after a battery replacement.

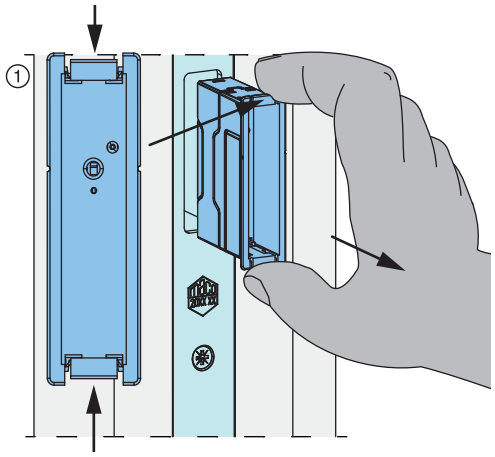


❹ Re-insert the sensor into the component. Pair the sensor with your smart home ecosystem. Refer to the "Integration into the smart home System" guide on page 79 or the instructions provided by your smart home ecosystem supplier. Once pairing is successful, the status LED will turn off. The sensor status will be displayed as "Open" in the app. Proceed with the "Calibration" chapter.

Calibration

Note:
A video tutorial is available. Scan or click the QR code.

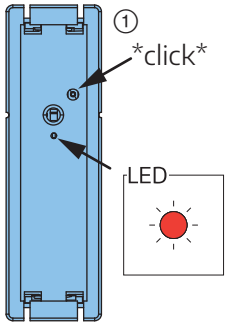
SCAN | CLICK



1. To make pressing the user button easier, carefully release the sensor by pressing in the tabs at the top and bottom of the housing and pull it out if necessary.

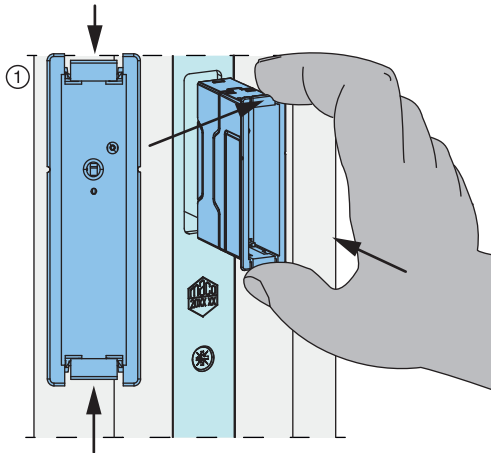
NOTE

Risk of Material Damage
The sensor has several openings. Ensure that you insert the object into the correct opening. Otherwise, the sensor will be damaged.



2. Briefly press the user button. Use a small, pointed object for this purpose (e.g., a bent paperclip or a ballpoint pen). This process can be repeated at any time if needed.

3. The sensor will now enter calibration mode for 30 seconds. During this time, the status LED will flash.



4. Reinsert the sensor into the striker. To insert the sensor, carefully press in the tabs at the top and bottom of the housing. Ensure that the installation position and lateral positioning notches are correct. These must be at the height of the deadbolt of the door lock. Due to on-site tolerances, the position of the deadbolt may be outside the sensor area when installed as described. In this case, Sense by MACO | Door must be rotated by 180°. Lock the door properly within 30 seconds of pressing the user button. Wait until the status of the sensor is displayed as „Closed“ in the smart home app.

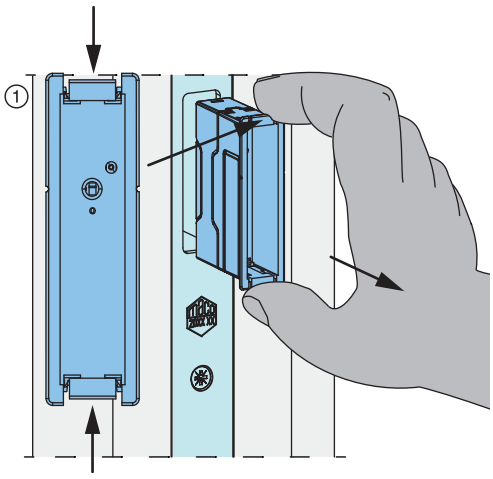
NOTE

An incorrectly or improperly calibrated device may transmit invalid status information to the smart home system. A failed calibration is indicated by the status LED blinking slowly three times.

Reset

Soft Reset

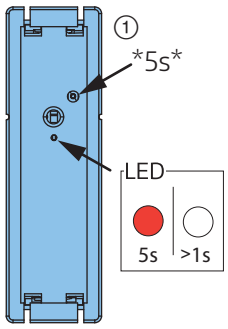
The soft reset restarts the product, deletes the connection with the smart home system and puts it into pairing mode. The calibration data is retained.



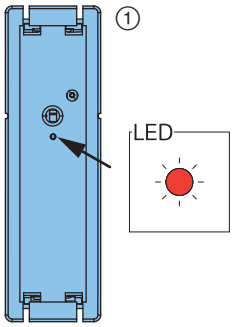
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. To make pressing the user button easier, carefully release the sensor by pressing in the tabs at the top and bottom of the housing and pull it out if necessary.



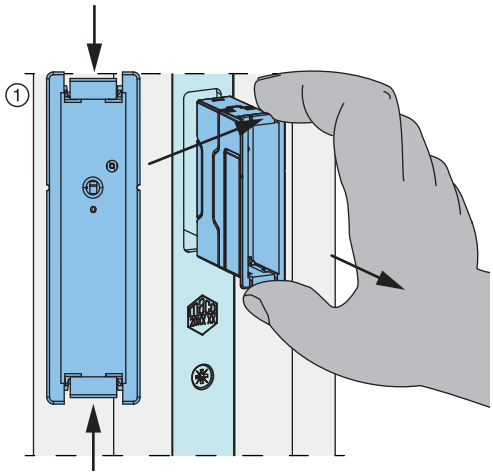
2. Press and hold the user button for at least 5 seconds until the LED turns off briefly. Release the user button to perform the soft reset.



3. Once the soft reset is completed, the product will automatically enter pairing mode. This is indicated by a flashing status LED. Continue with step 5 in chapter „Start-up“. Recalibration (see chapter „Calibration“) is possible, but not necessary.

Hard Reset

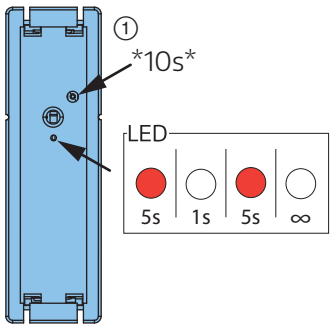
The hard reset resets the product to factory settings, deletes the calibration data as well as the connection with the smart home system and puts it into pairing mode.



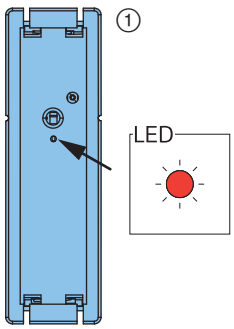
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ To make pressing the user button easier, carefully release the sensor by pressing in the tabs at the top and bottom of the housing and pull it out if necessary.



❷ Press and hold the user button for at least 10 seconds. After 5 seconds, the status LED will turn off and then lights up again. Continue to push the user button until the LED turns off permanently. Release the user button to start the hard reset.



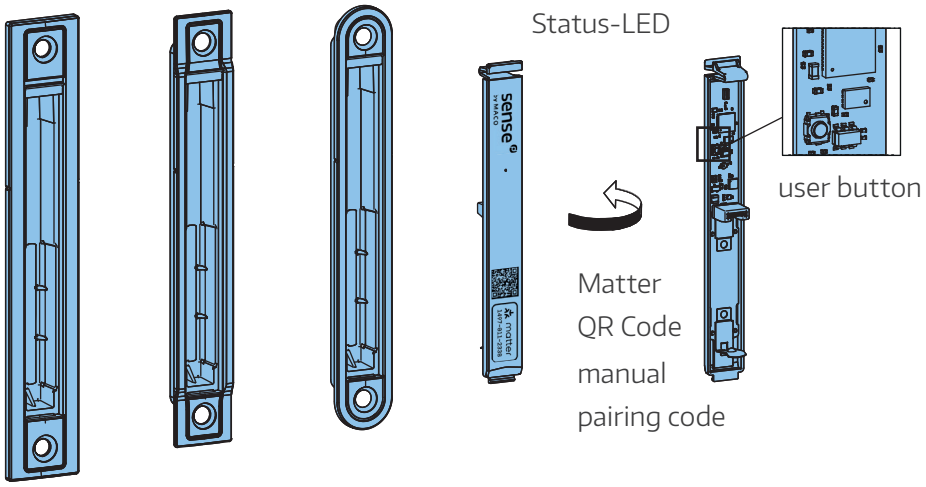
❸ Once the hard reset is completed, the product will automatically enter pairing mode. This is indicated by a flashing status LED. Continue with step 5 in chapter „(Initial) Start-up“.

Datasheet

Product Name	Sense by MACO | Door
Order Number	481964
Housing Material	PC/ABS
Colour	black
Dimensions	56.0 x 17.0 x 37.1 mm
Operating Temperature	-10 ... +55°C
Humidity	≤95%, non-condensing
Storage Temperature	-25 ... +70°C
User Groups	non-commercial users
Application Environment	fully enclosed indoor spaces
Frequency Bands	IEEE 802.15.4-2006 2400–2483.5 MHz
Transmission Power	Bluetooth: +8dBm Thread: +8dBm
Power Supply	1 x Battery AAA 1.5 V
Battery Life	approx. 2 years
Operating Voltage	1.5 V
User Interface	1x user button 1x status LED (red)
Communication Interface	Matter Bluetooth Thread
IP Rating	IP51 when installed
Certification	CE

Sense by MACO | Universal

Overview

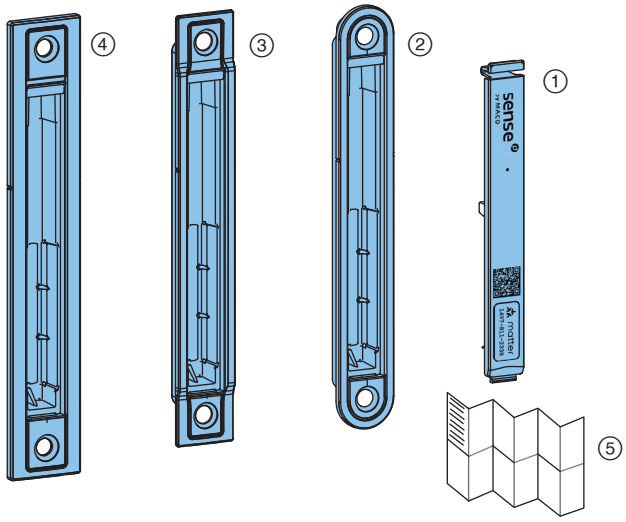


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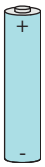
Package Contents

Pos. no.	Name	Qty.
①	Sense by MACO | Universal	1
②	Round cover plate	1
③	Square cover plate for eurogroove	1
④	Square cover plate 24 mm	1
⑤	Package insert	1



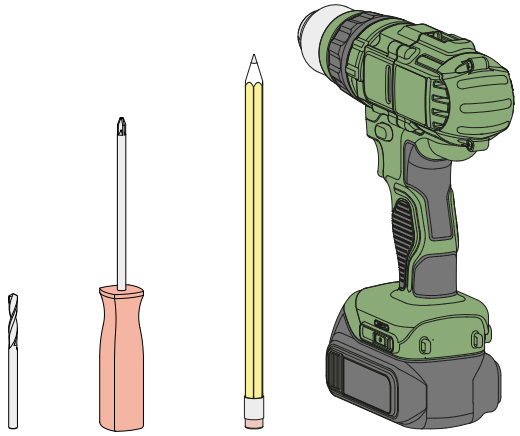
Required (not included in delivery)

Name	Qty.
Battery AAA 1.5 V	1



Tools

Name
Cordless drill
Drill bit Ø 4.2
Screwdriver
Pencil



NOTE

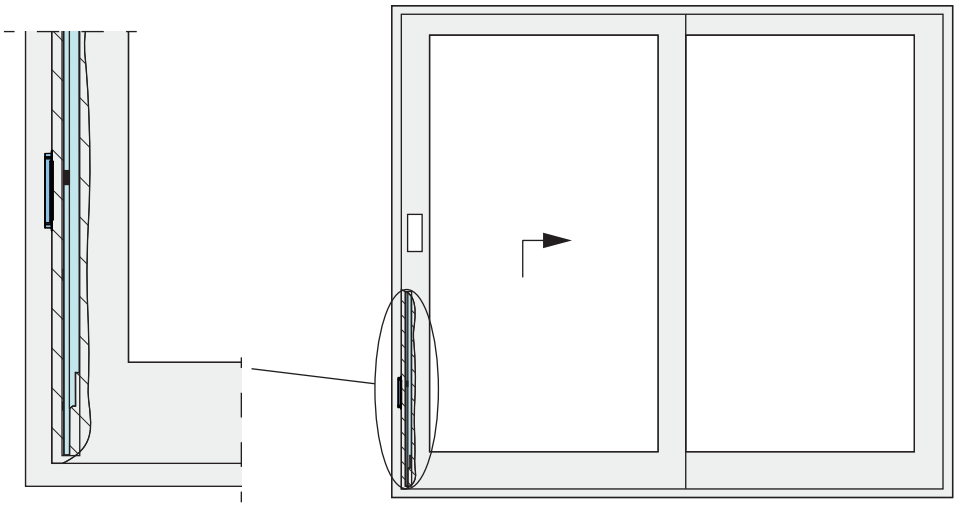
Do not use power tools to fasten the sensor, as excessive tightening torque may damage the housing.

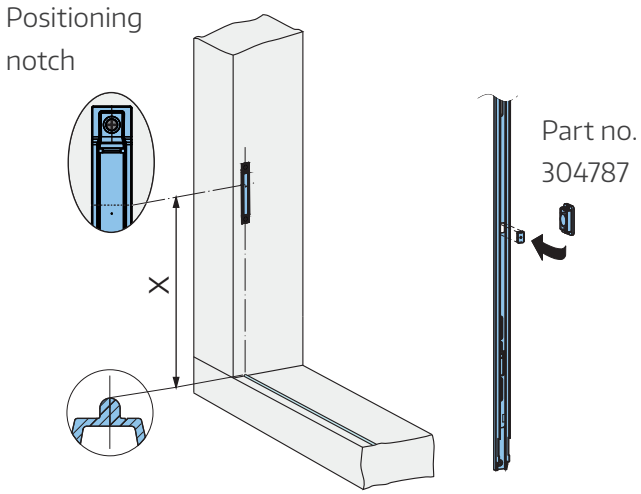
Application as Opening or Lock monitoring

Sense by MACO | Universal is versatile and can be used in various applications. Depending on the installation situation, the sensor can be used either for lock monitoring in lift-and-slide elements or for opening and lock monitoring in other elements.

Lift-and-slide lock monitoring with magnet holder

The magnet holder (part no. 304787) enables simple mounting at the drive gear and ensures precise and reliable lock monitoring. The sensor reacts to the magnet in the drive gear and checks whether the element is correctly closed. A suitable mounting position for the magnetic holder is already provided in all drive gears of the MACO hardware family.



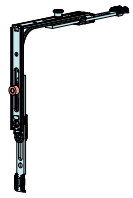
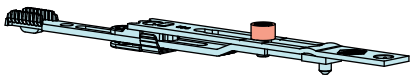
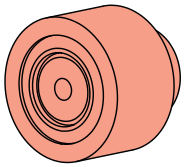


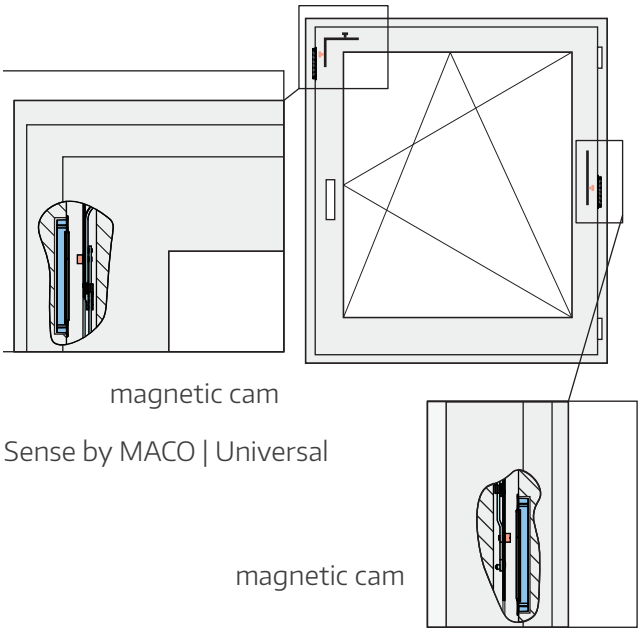
Drive Gear	Dimension X
RAIL HS Sz. 1 and Sz. 2	668 mm
RAIL HS Sz. 3 and above	430 mm
ATRIUM HS Sz. 180	816 mm
ATRIUM HS Sz. 210 and above	464 mm

1. Clip the magnetic holder (part no. 304787, not included in the delivery) into the corresponding recess of the drive gear and mount the drive gear according to its instructions.
2. Select the appropriate cover plate for the profile system, position the sensor opposite the magnet, and rout the required clearance into the frame according to the "Router contour" chapter on page 68.Pre-drill 2x Ø 4.2.
3. Mount the cover plate according to the "Mounting" chapter on page 69.
4. Check that all the states of the building element are correctly detected by the sensor. Open and close the sash and check the status in your smart home app.

Lock monitoring for MACO fittings with magnetic pins

Lock monitoring on a window is possible in conjunction with a magnetic cam. MACO offers various products with magnetic cam. Select the appropriate component and mount it according to its instructions.

Corner element standard with magnetic cam	Faceplate extension MM, extendable with magnetic cam	Magnetic cam
		
Part no. 206190	Part no. 201755	Part no. 228503 & 228504



magnetic cam

Sense by MACO | Universal

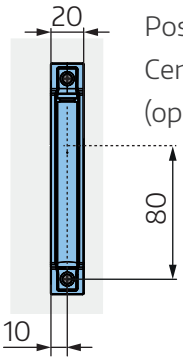
magnetic cam

Sense by MACO | Universal

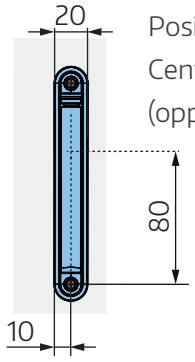
1. Mount the fitting or the magnetic cam according to its instructions and install the fitting.
2. Determine the position of the magnetic cam when closed.
3. Select a suitable cover plate. Rout the contour for the selected cover plate according to the "Router contour" chapter on page 68.The position of the magnetic cam when closed must align with the "Position Magnetic Cam" point in the "Position of the Magnet" illustration on page 63.
4. Mount the cover plate according to the "Mounting" chapter on page 69
5. Check that all the states of the building element are correctly detected by the sensor. Open and close the sash and check the status in your smart home app.

Position Magnetic Cam

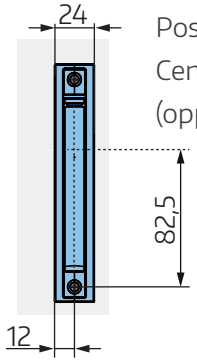
Square 20 mm



Round 20 mm

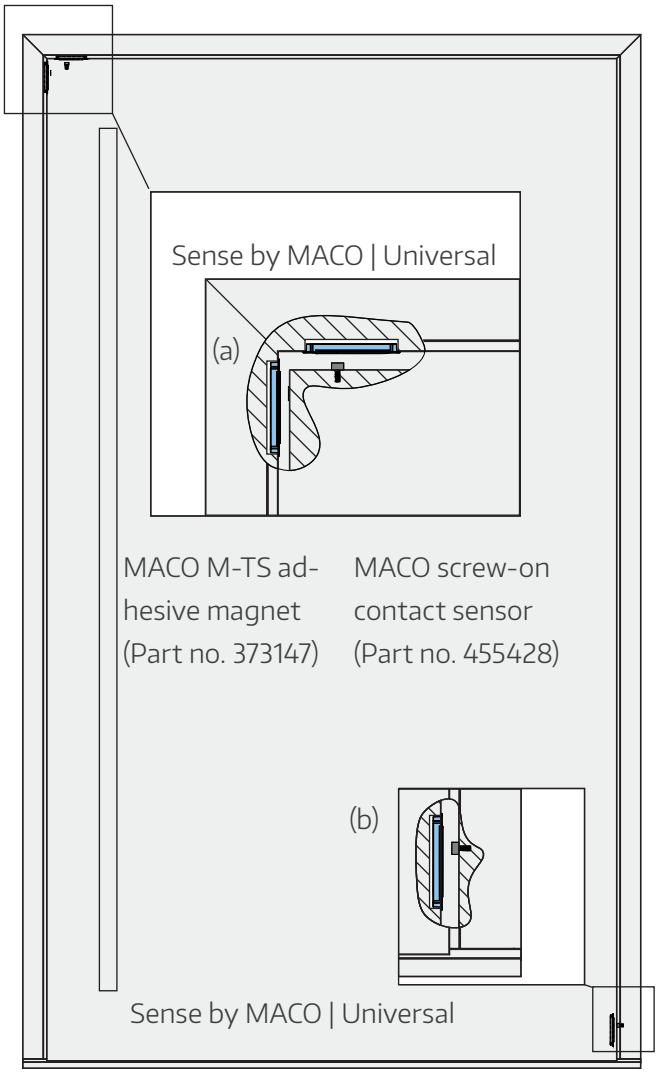


Square 24 mm



Door opening monitoring

In conjunction with the MACO M-TS adhesive magnet (Part no. 373147) or the Maco screw-on contact sensor (Part no. 455428 or 455429) door opening monitoring can be implemented.

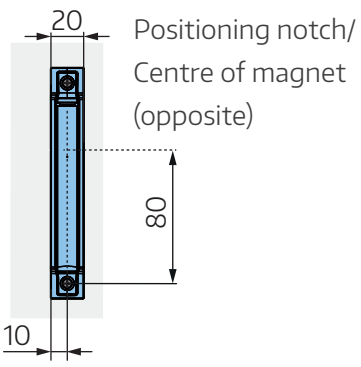


For opening monitoring, Sense by MACO | Universal can be installed in either the door frame (a) or the door leaf (b).

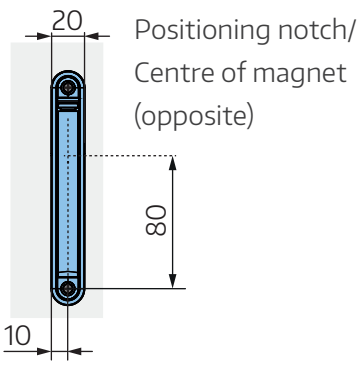
1. Choose a suitable sensor position based on the profile geometry.
2. Rout the contour for your selected cover plate according to the "Router contour" chapter on page 68
3. Mount the cover plate according to the "Mounting" chapter on page 69
4. Using the "Position of the Magnet" illustration, determine the position for your chosen magnet and mount it on the opposing element.
5. Check that all the states of the building element are correctly detected by the sensor. Open and close the sash and check the status in your smart home app.

Position Magnet

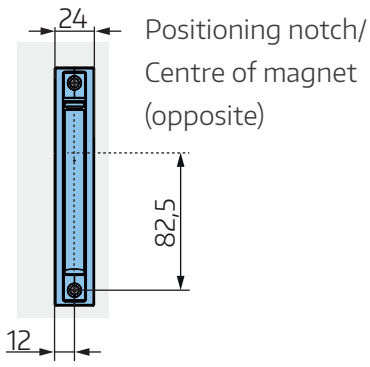
Square 20 mm



Round 20 mm

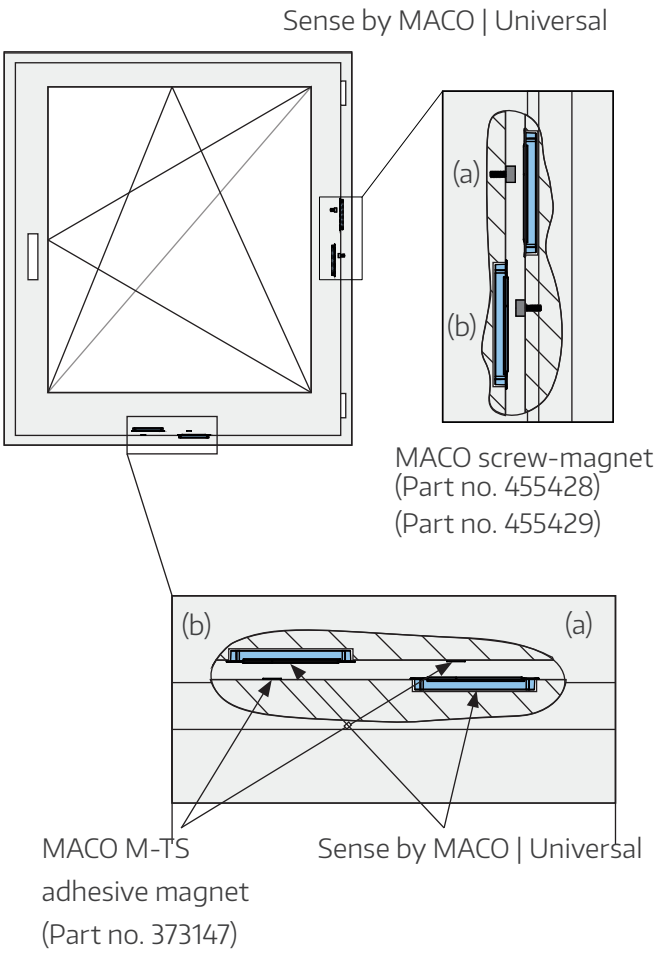


Square 24 mm



Sash opening monitoring

In conjunction with the MACO M-TS adhesive magnet (Part no. 373147) or the MACO screw-on contact sensor (Part no. 455428 or 455429) window opening monitoring can be implemented.

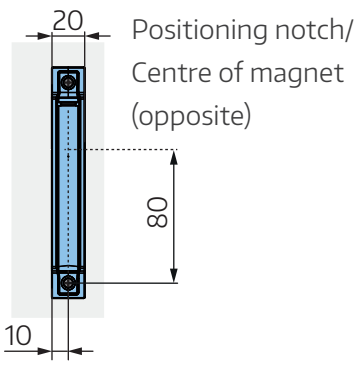


For opening monitoring, the Sense by MACO | Universal can be installed in either the frame (a) or the sash (b), but installation in the sash is recommended if possible.

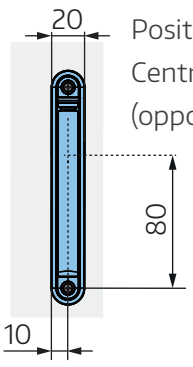
1. Choose a suitable sensor position based on the profile geometry.
2. Rout the contour for your selected cover plate according to the "Router contour" chapter on page 68.
3. Mount the cover plate according to the "Mounting" chapter on page 69.
4. Using the "Position Magnet" illustration on page 63, determine the position for your chosen magnet and mount it on the opposing element.
5. Check that all the states of the building element are correctly detected by the sensor. Open and close the sash and check the status in your smart home app.

Position Magnet

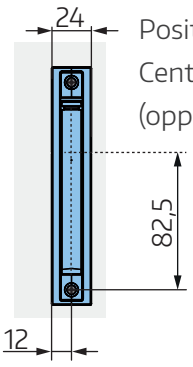
Square 20 mm



Round 20 mm



Square 24 mm



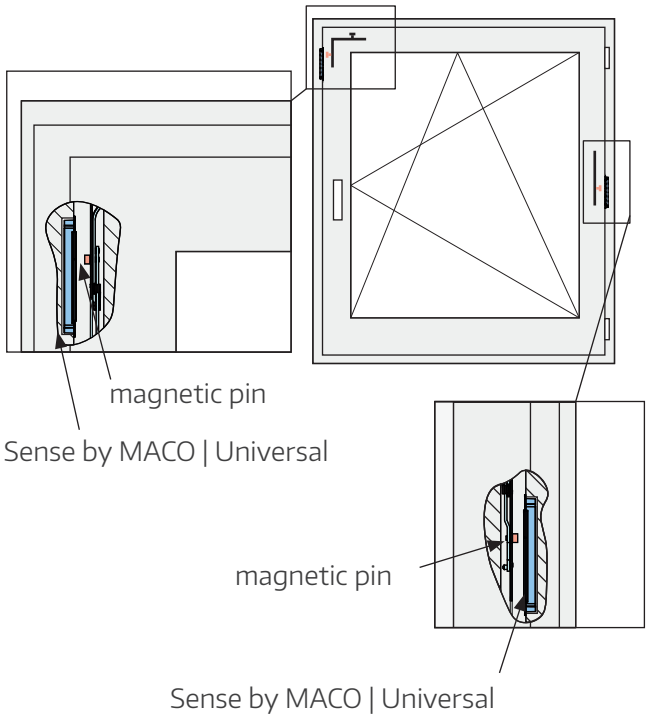
Lock monitoring on other fittings with magnetic pins

Sense by MACO | Universal can also be used for locking status monitoring on tilt-and-turn fittings from other manufacturers (e.g. Roto, Siegenia or Winkhaus), provided these are equipped with a magnetic pin from the respective manufacturer.

NOTE

The fabricator must ensure proper operation before delivering the product to the end customer.

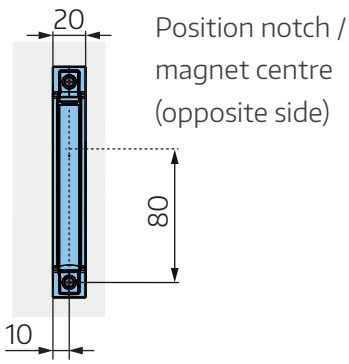
Mounting



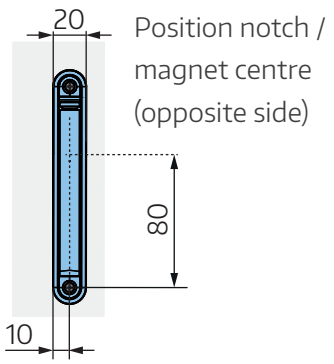
1. Install the fitting component or the magnetic pin in accordance with the instructions, then install the fitting.
2. Determine the position of the magnetic pin when the fitting is closed.
3. Machine the routing profile for the selected cover plate as described in the "Routing Profile" section on page 68. Ensure that, when closed, the magnetic pin aligns with the position notch indicated in the "Magnet Position" illustration, or with the centre of the magnet.
4. Install the cover plate as described in the "Installation" section on page 69.
5. Check that the sensor is functioning correctly.

Magnet Position

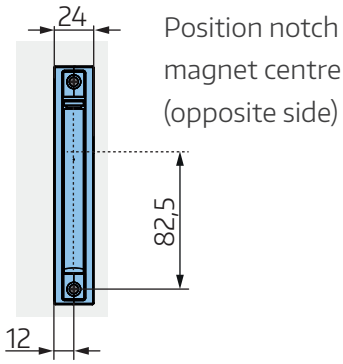
Square 20 mm



Round 20 mm



Square 24 mm



Tested fittings from other manufacturers

Manufacturer and product line	Fitting	Order No.
WINKHAUS aktivPilot Concept	Corner drive with magnetic contactor E1.VS.KG.F	4994391
WINKHAUS aktivPilot Concept	GEBER VS.KG.06-4	5001348
Roto NT	MVS NT corner drive	292121
SIEGENIA TITAN AF	Top corner AF VSO UE	TEUL4100-100010
GU Uni-Jet	UNI-JET Eckumlenkung m. Aufn. Magnetzapf	6-32093-01-0-1
GU Uni-Jet	Set Magnetkontakt VdS C, EN50131-1 4m	K-14970-03-0-1

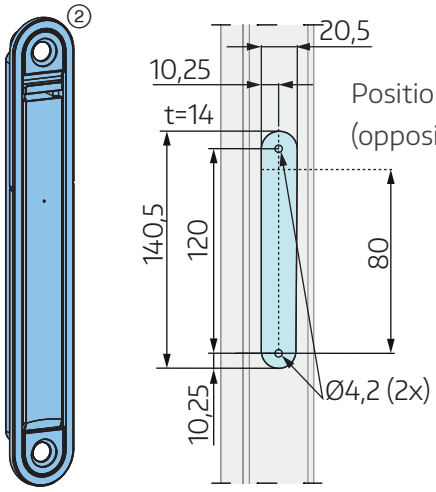
Fittings without a magnetic pin

For fittings that do not provide an option for using a magnetic pin, an alternative opening-monitoring solution can be implemented.

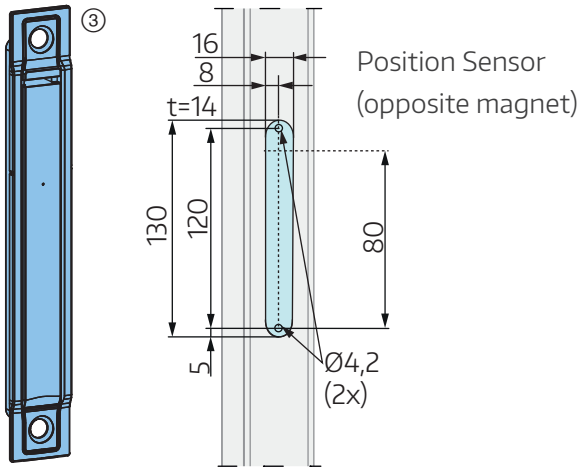
A description of this solution can be found on pages 64 and 65.

Mounting
Router contour

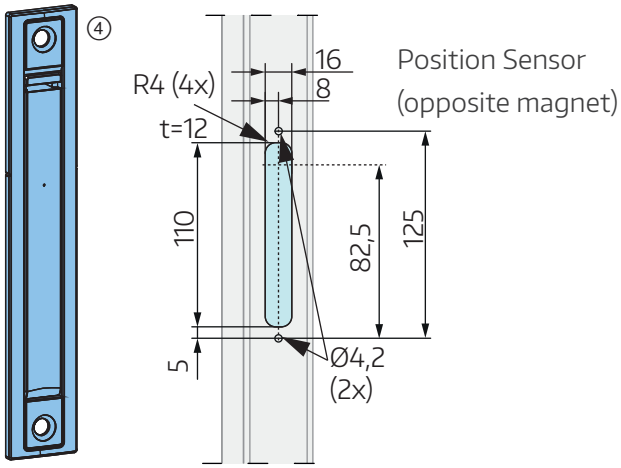
Round 20 mm



Square 20 mm



Square 24 mm

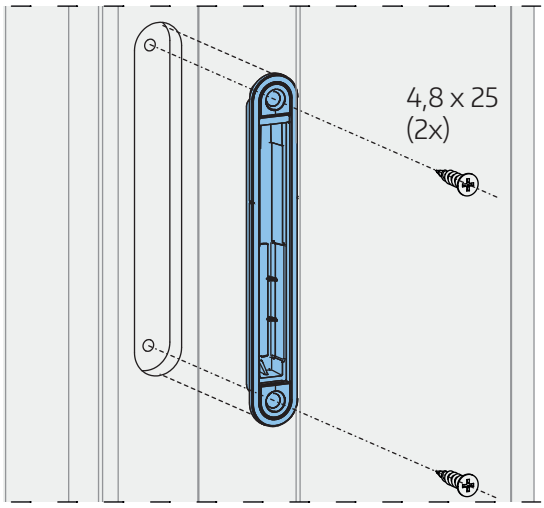


Note:
A video tutorial is available. Scan or click the QR code.

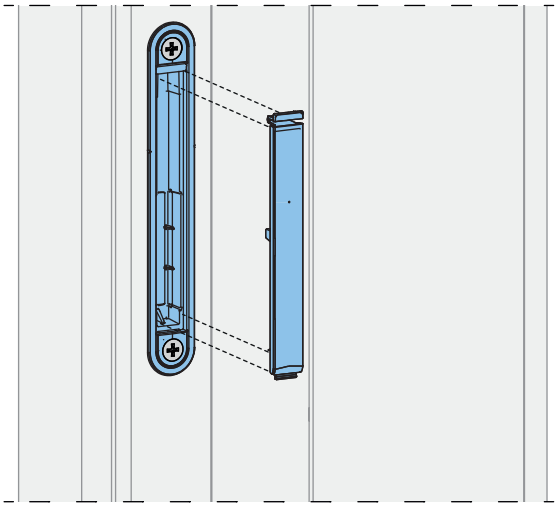
SCAN | CLICK

1. Select the appropriate cover plate for the profile system, position the sensor opposite the magnet, and rout the necessary clearance in the frame. Pre-drill 2x Ø 4.2.

Mounting

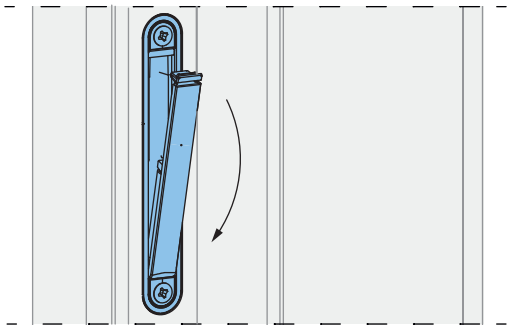


1. Screw the housing in place using 4.8 x 25 (2x).



2. Close the housing with the cover and check the mechanical function. Mounting is now complete; all further steps are the responsibility of the end customer.

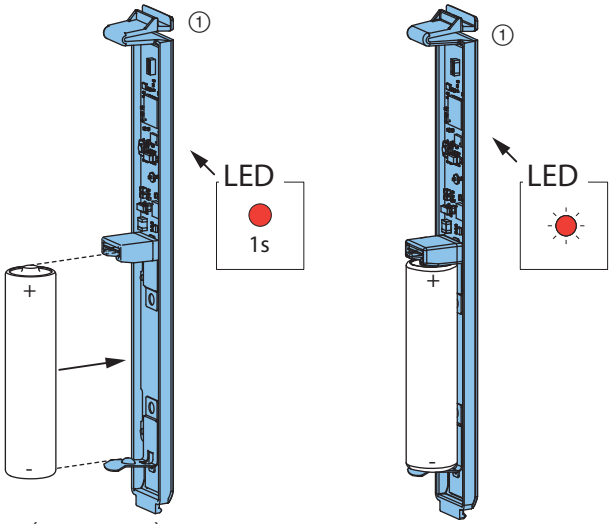
(Initial) Start-up
Insert the battery



Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

❶ Open the housing.



(AAA 1.5 V)

❷ **For battery replacement:** Insert a suitable AAA battery (1.5 V, not included) and close the housing.

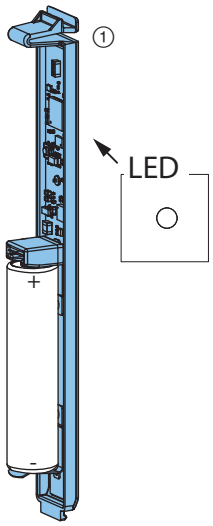
For (Initial) Start-up: Insert the battery, leave the housing open and proceed to the next step.

After the battery is inserted, the LED will briefly light up.

❸ The device automatically enters pairing mode, indicated by the blinking status LED.

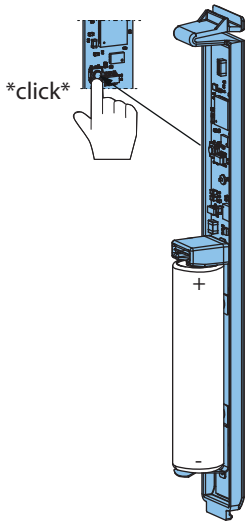
NOTE

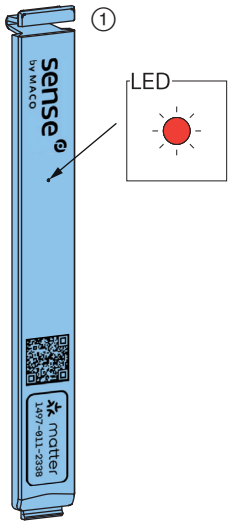
The sensor only enters pairing mode automatically during initial start-up or after a soft or hard reset. Re-pairing is not required after a battery replacement.

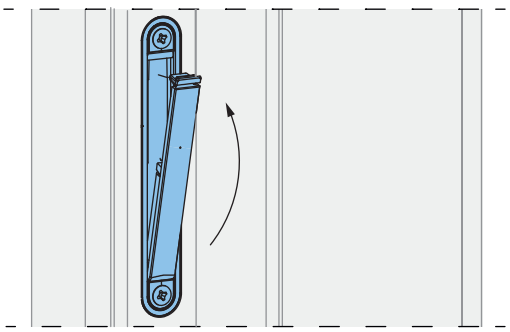


❹ Pair the sensor with your smart home ecosystem. Use the guide "Integration into the smart home System" on page 79 or follow the instructions provided by your smart home provider. Once pairing is successful, the status LED will turn off. In the app, the sensor status will be shown as "Open." Continue with the "Calibration" section.

Calibration







Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Briefly press the user button. This process can be repeated at any time if required.

2. The sensor ① will now enter calibration mode for 30 seconds. During this time, the status LED will flash.

3. Place sensor ① back onto housing ②. Properly close and lock the sash within 30 seconds of pressing the user button. Wait until the sensor status is shown as "Closed" in the smart home app.

4. Check whether all states of the component are correctly detected by the sensor. To do this, open and close the sash and verify the status in your smart home app.

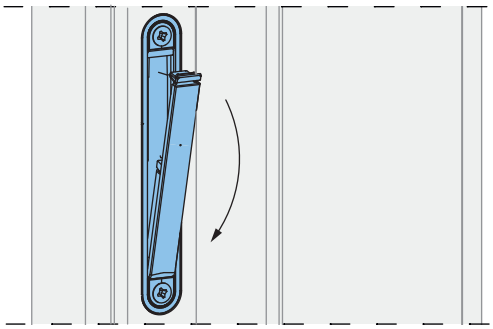
NOTE

An incorrectly or improperly calibrated device may transmit invalid status information to the smart home system. A failed calibration is indicated by the status LED blinking slowly three times.

Reset

Soft Reset

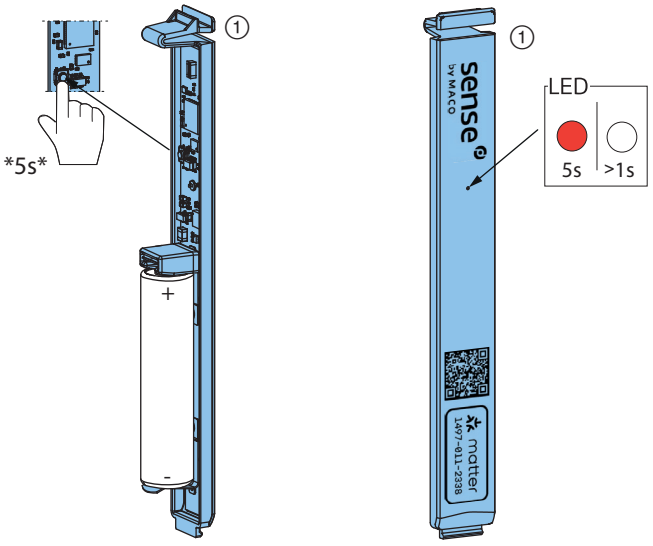
A soft reset restarts the device and then puts it back into pairing mode. This will remove any existing pairing with a smart home ecosystem, but the calibration settings will be retained.



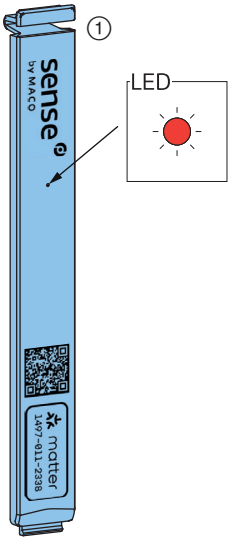
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Open the housing.



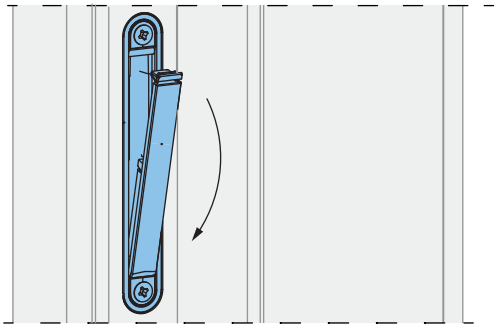
2. Press and hold the user button for at least 5 seconds until the LED briefly turns off. Release the user button to perform the soft reset.



3. Once the soft reset is complete, the product automatically enters pairing mode, indicated by the blinking status LED. Continue with step 4 in the "(Initial) Start-up" section. Re-calibration (see "Calibration" section) is possible but not strictly required.

Hard Reset

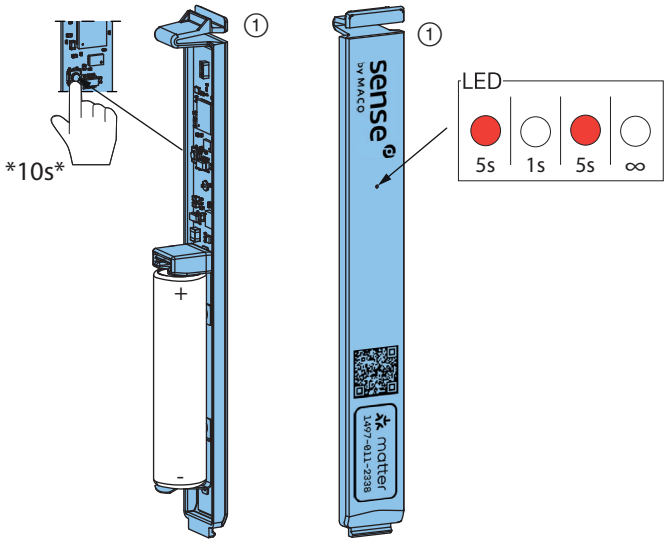
A hard reset fully restores the device to factory settings. This will erase any existing pairing with a smart home ecosystem as well as any previously performed calibration.



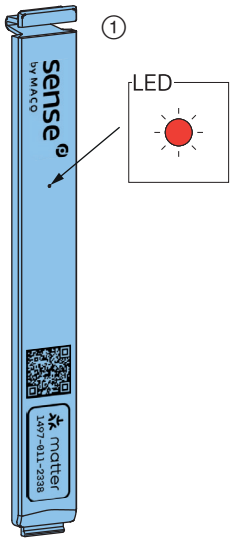
Note:
A video tutorial is available. Scan or click the QR code.

SCAN | CLICK

1. Open the housing.



2. Press and hold the user button for at least 10 seconds. After about 5 seconds, the status LED will briefly turn off and then light up again. Keep holding the button until the LED turns off completely. Release the user button to perform the hard reset.



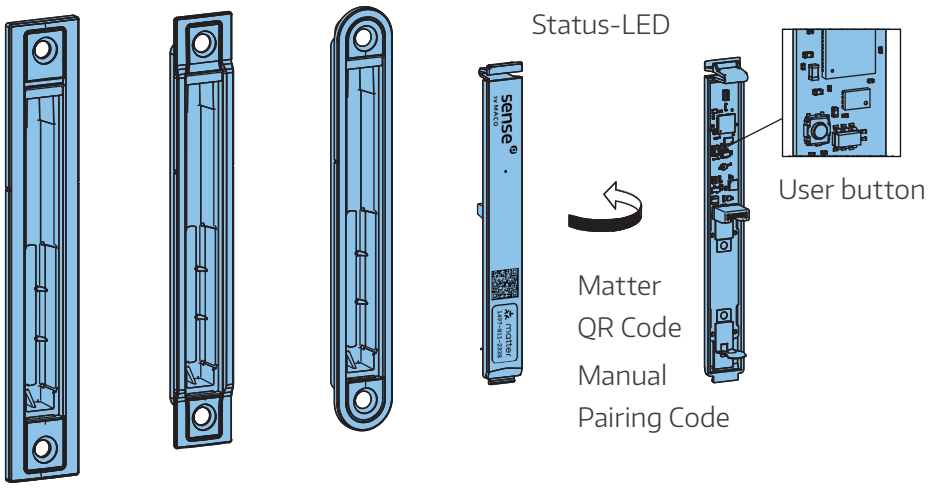
3. Once the hard reset is complete, the product automatically enters pairing mode, indicated by the blinking status LED. Continue with step 4 in the "(Initial) Start-up" section.

Sense by Maco | Universal

Special application: Closed signal in tilt position

NOTE	A tilted window provides no effective intruder protection and is easily compromised from the outside.

Overview



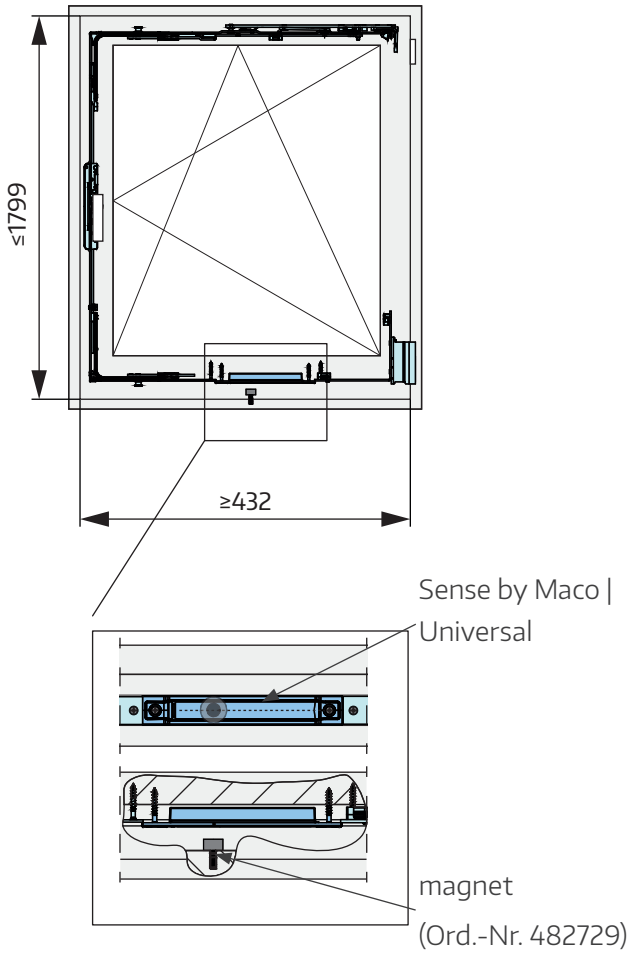
Content

Overview **74**
Opening monitoring without signaling in tilted position 75
Calibration for tilt status without signaling 77
Datasheet **78**

NOTE	This chapter only explains the deviations specific to the special application. For all steps not mentioned (mounting, software routine, and reset), the descriptions from the preceding chapter apply.

Opening monitoring without signaling in tilted position

The sensor can be configured so that tilted and fully closed elements are equally recognized as closed. The Sense by MACO Universal thus offers reliable opening monitoring from a sash width of 432 mm – ideal when the element needs to be tilted without triggering a function. For mounting, the magnet (Art. No. 482729) is used.



For sash heights up to 1799 mm, the sensor must be mounted horizontally in the lower area of the element. Mounting the sensor is possible either without milling in the sash or with milling in the frame. The alignment must always be directed toward the handle side or the pivot hinge.

1. Determine a horizontal mounting position in the lower area of the element.

2. **When mounting in the sash:**
   Place the sensor into the hardware groove and mark the drill holes with a pencil, then pre-drill with a Ø4.2 bit. Mount the sensor according to the "Installation" chapter on page 69.

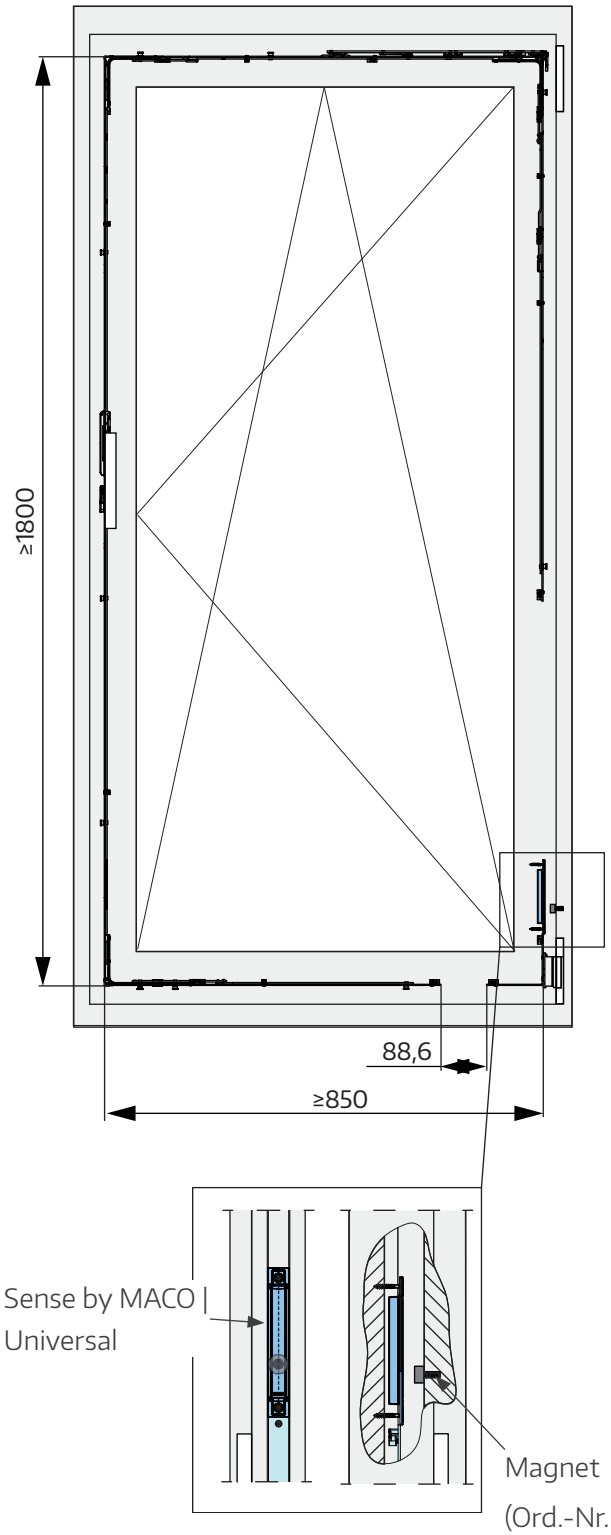
   When mounting in the frame:
   Mill the contour for your selected cover plate according to the "Milling contour" chapter on page 68, and mount the cover plate according to the "Installation" chapter on page 69

3. Determine the position for the magnet using the "Position of the magnet" diagram on page 63, and mount it onto the opposite element.

4. Adjust the sensor according to the instructions "Adjustment for tilt status without signaling" on page 77.

5. Perform a functional test on the element.

For elements with a sash rebate height (FFH) of 1800 mm or greater



For tilt-and-turn windows and doors with a sash rebate height of 1800 mm or more, install the sensor on the hinge side in the lower area of the unit. The sensor can be mounted either without routing in the sash or with routing in the frame. Position the sensor marking as low as possible, close to the bottom hinge.

1. Select a mounting position on the hinge side in the lower area of the element.

2. **Bei Montage im Flügel:**
   Place the sensor in the hardware groove, mark the drilling holes with a pen, and pre-drill them using a Ø 4.2 mm drill bit. Install the sensor as described in the chapter"Installation" on page 69

   For installation in the frame:
   Route the profile for the selected cover plate as described in the chapter"Routing Profile" on page 68 and install the cover plate as described in the chapter"Installation" on page 69.

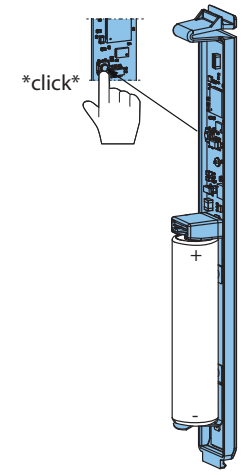
3. Determine the position for the selected magnet using the diagram "Calibration for tilt status without signaling" on page 63, and install it on the corresponding component.

4. Adjust the sensor according to the instructions in "Calibration for Tilt Status Without Signaling" on page 77.

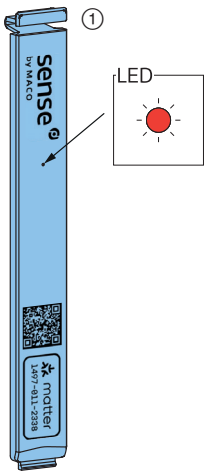
5. Check that the element operates correctly.

Calibration for tilt status without signaling

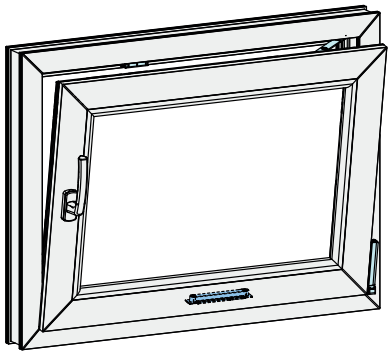
NOTE	Only perform this calibration if the "closed" signal is required in the tilt position. A combined calibration is not possible.



1. Briefly press the user button on the sensor ①. This process can be repeated at any time if necessary.



2. Sensor ① will be in calibration mode for 30 seconds. The status LED flashes during this period.



3. Close the sensor. Close the sash and move it into the tilted position within 30 seconds of pressing the user button. Wait until the sensor status is displayed as "Closed" in the smart home app.

4. Verify that the sensor correctly detects all states of the component. To do this, open and close the sash and check the status in your smart home app.

NOTE	A tilted window provides no effective intruder protection and is easily compromised from the outside.

Datasheet

Product Name		Sense by MACO | Universal
Order Number		481965
Material (housing)		PC/ABS
Colour		black
Dimension	round square square 24 mm	140.0 x 20 x 13.8 mm 138.5 x 20 x 13.8 mm 143.5 x 24 x 13.8 mm
Operating temperature		-10 ... +55°C
Air humidity		≤95%, non-condensing
Storage temperature		-25 ... +70°C
User groups		non-commercial users
Utilisation environment		fully enclosed indoor spaces
Frequency bands		IEEE 802.15.4-2006 2400–2483.5 MHz
Transmission power		Bluetooth: +8dBm Thread: +8dBm
Power supply		1 x Battery AAA 1.5 V
Battery life		approx. 2 years
Operating voltage		1.5 V
User interface		1x user button 1x status LED (red)
Communication interface		Matter Bluetooth Thread
IP-Class		IP51 when installed
Certificate		CE

Integration into the Smart Home System

Integration into the smart home ecosystem is done via the Matter standard. Therefore, no additional application needs to be installed, but you will need a "Thread Border Router" in your network. This is integrated, for example, into the Amazon Echo (4th generation), Apple HomePod (2nd generation), or Google Nest Hub (2nd generation). Separate devices are also available. Please check your smart home devices, as integration is not possible without a "Thread Border Router".

The process of adding smart home devices may vary depending on the smart home system. If you encounter difficulties, please contact the manufacturer of your smart home system for information on adding Matter-compatible devices.

▶ Note: A video tutorial is available. Scan or click the QR code.	SCAN | CLICK

1. Open the app of your Matter-compatible smart home system.
2. Click "Add device".
3. Select "Matter-compatible device".



Matter Logo

NOTE	This option may be named differently depending on your smart-home-system. If necessary, look for the Matter logo.

4. Scan the Matter QR code on the device. Alternatively, you can use the 11-digit code for setup without a QR code.

Example Code:



NOTE	This code is unique and cannot be recovered. Protect it from loss or damage.

5. Wait until the setup is complete and the device appears in your smart home application.

Specific FAQs for Sense by MACO sensors

The status LED on the sensor does not light up after the battery is inserted for the first time:

› Check that the battery is installed with the correct polarity.

› Check the battery voltage.

› Check whether a protective film or warning label is still attached to the battery (e.g. Child Secure Duracell batteries).

The status LED on the sensor lights up only briefly once after the battery is inserted for the first time, but does not continue flashing:

› Check whether the sensor has already been paired with a smart home system. If it has, you can generate a new setup code via the corresponding smart home system.
If required, you can remove the pairing by performing a soft reset or restore the sensor to its factory settings with a hard reset.

›

The sensor cannot be paired with the smart home system:

› Check whether the sensor is powered and in pairing mode, which is indicated by a flashing status LED. Please note that pairing mode remains active for only 15 minutes. Once this period has expired, a soft reset must be performed to restart pairing mode. Alternatively, you can remove the battery and then reinsert it to activate pairing mode again.

› Check whether the sensor has already been paired with another smart home system. If it has, you can generate a new setup code through that smart home system. If necessary, you can remove the existing pairing by performing a soft reset or restore the sensor to its factory settings with a hard reset.

› Check whether the sensor has previously been connected to the same smart home system and, if necessary, remove it from the system before attempting to pair it again.

› Ensure that your smartphone is connected to the same Wi-Fi network as your border router.

› Verify that your Matter-compatible smart home hub supports Thread or can function as a Thread Border Router. If you are unsure, contact your hub manufacturer's support team. A list of compatible Thread Border Routers is available from hub manufacturers and other sources.

› To rule out signal issues or wireless interference, move the sensor closer to the border router. Thread devices should be located within 5–20 m of at least one router-capable device, such as a smart plug. If required, place a repeater nearby to improve coverage.

› Restart the border router or your smartphone and try pairing the sensor again.

The sensor is paired with the smart home system but is displayed as “not reachable”:

› Check the battery voltage.

› Move the sensor closer to the border router to check the signal strength and rule out possible wireless interference.

› Place additional permanently powered Matter-over-Thread devices to strengthen the Thread network and take advantage of its mesh functionality.

› Restart the border router or your smartphone. Please note that it may take up to 10 minutes for the sensor status to update in the smart home system. If in doubt, wait for this period to elapse before troubleshooting further.

› Restart the sensor by removing the batteries and reinserting them. Please note that it may take up to 10 minutes for the sensor status to update in the smart home system. If in doubt, wait for this period to elapse before taking any further action.

› Repeat the commissioning process by removing the pairing from the smart home system and then pairing the sensor with the smart home system again.

The sensor reports an incorrect status during operation:

› Move the sensor closer to the border router to check the signal strength and rule out possible wireless interference.

› Delays in the Thread network can occasionally cause status changes to be reported with a delay. If necessary, wait a few minutes and then check again whether the status has updated and matches the actual state.

› Check that the sensor has been installed in the correct mounting position as described in the installation instructions if the status is still displayed incorrectly after more than 10 minutes.

› Repeat the adjustment process if the status is still displayed incorrectly after checking the mounting position or if it remains incorrect after more than 10 minutes.

The sensor reports an incorrect status after the batteries have been replaced

› After replacing the batteries, it may take up to 10 minutes for the sensor status to update in the smart home system. If in doubt, wait for this period to elapse before taking any further action.

› Check the correct mounting position of the sensor using the installation instructions if the status is still not displayed correctly after more than 10 minutes.

› Repeat the adjustment process if the status is still not displayed correctly even after checking the mounting position or after more than 10 minutes.

The sensor cannot be calibrated:

Sense by MACO | Window Pro T&T / Sense by MACO | Casement / Sense by MACO | Universal:
Check that the magnet is in the correct position according to the installation instructions, and repeat the calibration process.

Sense by MACO | Door:
Check that the locking bolt is correctly positioned relative to the sensor. If necessary, reinsert the sensor into the striker plate rotated by 180°.

What is the lifespan of the battery?

› Depending on the sensor variant, the theoretical battery life is approximately 1.5–2 years. Actual battery life depends on several factors, including the quality and capacity of the batteries used, the number of operating cycles, and the selected smart home system. Running the sensor simultaneously in multiple smart home systems can significantly reduce the actual battery life.

What is the range of Sense by MACO products?

› Sense by MACO sensors typically have an indoor range of approximately 5–20 m. The actual range depends on the building structure, including the design and thickness of walls, ceilings, and similar elements. As Sense by MACO products are installed concealed within the element, the construction of the window, sliding door, or entrance door also has a significant impact on signal range.
To extend the range, you can add additional permanently powered Matter over Thread devices to your system. These devices strengthen the Thread network by supporting its mesh functionality. Additional Border Routers can also help improve the performance and coverage of the Thread network.

MACO near you:
www.maco.eu/contact

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or by scanning the QR code.

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