Roto
Window & Door
Technology

Roto E-Tec Control

Surface-mounted contact elements
Wired sensors for security technology and room climate

Installation, maintenance and operation instructions for timber, PVC and aluminium profiles

Contact

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1 General information

1.1 Version history

Version	Date	Changes
v3	24/03/2025	New structure Roto Patio Alversa added → *from page 46* Rebate clearance specifications changed → *from page 24* Tolerances changed → *from page 73* Explanations of terms added → *from page 10*

1.2 Instructions

This document contains important information, instructions and notes for the installation, maintenance and operation of contact elements.

The information and instructions contained in this document refer to surface-mounted contact elements from Roto.

All steps must be completed in sequence.

The following documents apply in addition to these instructions:

Roto Drive&Control

- Catalogue
  - Drive&Control: CTL_41

Roto NX

- Installation instructions
  - Timber
    - Roto NX | Hinge side T: IMO_456
    - Roto NX | Hinge side C: IMO_581
    - Roto NX | Hinge side Designo (HA 13): IMO_542
    - Roto NX | Hinge side Royal: IMO_155
    - Roto NX | Hinge side PowerHinge: IMO_68
  - PVC
    - Roto NX | Hinge side P: IMO_455
    - Roto NX | Hinge side C: IMO_580
    - Roto NX | Hinge side Designo (HA 13): IMO_517
  - Aluminium with 16 mm hardware groove
    - Roto NX | Hinge side A16: IMO_146
    - Roto NX | Hinge side A16 Designo: IMO_147
- Catalogue
  - Timber: CTL_104
  - PVC: CTL_105
  - Aluminium with 16 mm hardware groove: CTL_107

Roto AL / Roto AL Designo

- Installation instructions
  - Roto AL: IMO_332
  - Roto AL Designo: IMO_386

Roto Patio Alversa

- Installation instructions
  - Timber / PVC: IMO_407
  - Aluminium: IMO_408

- Catalogue
  - Timber / PVC: CTL_93
  - Aluminium: CTL_94

The following guidelines also apply:

www.guetegemeinschaft-schloss-beschlag.de

- Directive TBDK issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Attachment of supporting fitting components for turn-only and tilt&turn fittings),
- Directive VHBE issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Hardware for windows and balcony doors – Guidelines / advice for end-users),
- Directive VHBH issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Hardware for windows and balcony doors – Guidelines / advice on the product and on liability),
- Directive FPKF issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Restrictor and cleaning stays for Tilt-Only sashes and Tilt-Only fanlights),
- Instructions and information issued by profile manufacturers (e.g. manufacturers of windows and balcony doors),
- The applicable regulations, directives and national laws.

Compliance with the following guidelines is additionally recommended:

- TLE.01 issued by the VFF (German Window and Facade Association) Correct handling of ready-to-install windows and external doors during transport, storage and installation,
- WP.01 issued by the VFF (German Window and Facade Association) Maintenance of windows, facades and external doors – Maintenance, care and inspection – Information for sales,
- WP.02 issued by the VFF (German Window and Facade Association) Maintenance of windows, facades and external doors – Maintenance, care and inspection – Measures and documents,
- WP.03 issued by the VFF (German Window and Facade Association) Maintenance of windows, facades and external doors – Maintenance, care and inspection – Maintenance agreement.

Storing the instructions

These instructions are an important part of the product. The instructions must be stored so that they are always to hand.

Explanation of the markings

The manual uses the following markings for emphasis (e.g. in figures or instructions):

Marking	Meaning
	Optional / alternative components seated in the sash
	Sash / components seated in the sash
	Optional / alternative components seated in the frame
	Frame / components seated in the frame
	Drill holes, routing, screw positions
	Unaffected components / indirectly affected components
	Components, arrows or movements that have just been described
1	Item number

Marking	Meaning
[1]	Legend
[A]	Steps

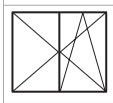
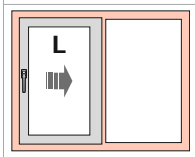
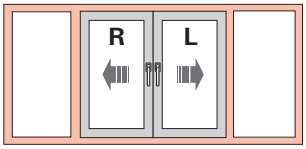
INFO
Any dimensions without a unit in the instructions are given in millimetres (mm). Other units of measurement are clearly indicated by the presence of the differing unit.

INFO
Figures are provided in the right-hand version (DIN 107).

1.3 Symbols

Symbol	Meaning
■	First-level list
□	Second-level list
→	(Cross) reference
▷	Result
▶	Unnumbered step
1.	Numbered step
a.	Numbered second-level step
⇨	Requirement

1.4 Pictographs

Symbol	Meaning
	Turn-Only sash
	Tilt&Turn sash
	Tilt-Only sash
	Arched window
	Pitched window
	Floating-mullion sash
	Diagram A
	Diagram C

Symbol	Meaning
	Aluminium
	Timber
	PVC
	Timber and PVC
	Timber, PVC and aluminium

1.5 Abbreviations

Abbreviation	Meaning
AC	Alternating current
°C	Degrees Celsius
CTL	Catalogue
DC	Direct current
DIN L / R	DIN left / right
T&T	Tilt&Turn
BAS	Burglar alarm systems
RC	Rebate clearance
HDS	Hazard detection systems
I	Current level
IMO	Installation instructions
Y	Yes
kg	Kilograms
KU	Couplable
LSN	Local security network
mA	Milliamperes
mm	Millimetres
MΩ	Megaohms
MTS	Magnetic thermostat sensor
CL	Centre lock
MVS	Magnetic locking sensor
N	No
Nm	Torque in newton metres
P	Power
RC	Resistance class
SEC	Security
ST	Striker
U	Voltage
V	Volts
W	Watts

1.6 Explanation of terms

Hardware-coupled magnet

Forms a functional unit together with the contact element, mounted on the sash side on the connecting rod.

Used for locking monitoring and combined locking and opening monitoring.

Bus-capable / bus-compatible

The requirement bus-capable or bus-compatible in texts for invitation of tenders refers to the data bus building management system, but without specifying a specific data bus system.

In this case, standard contact elements are usually used, which are connected via the potential-free input terminals of the data bus system. The VdS-B LSN MVS contact elements require VdS-certified alarm systems, e.g. with the LSN Bosch data bus system, and can only be used with this system.

Data bus system

A transmission medium (usually two cable cores) for connecting many devices, which exchange data and signals with each other.

The structure is similar to the computer network within a company. Data bus systems are frequently commissioned with a PC, which is used to program the assignment of the data packages. One advantage is the fast and simple electrical installation with straightforward rules and flexible assignment, which can also be changed via the Internet with the correct password and suitable software, depending on the system. This is supplemented by the enormous variety of functions in these applications, such as the control of light, shading, alarm, temperature, heating, remote maintenance, etc.

Burglar alarm systems

A burglar alarm system (BAS) is an electronic security system that is used to detect or report unauthorised intrusion into buildings or areas.

Rebate magnet

Forms a functional unit together with the contact element, mounted on the sash side. Used in double-sashed windows for opening or locking monitoring.

In the case of double-sashed windows, the hardware creates a need to lock the second opening sash first because the first opening sash with the hardware-coupled magnetic system can only be closed and locked after this has been done.

External field contact / external field monitoring

The external field monitoring function checks whether the contact element has been tampered with using an external magnetic field and whether the burglar alarm system therefore has to be replaced.

A special contact element with two contact circuits, which are connected to the burglar alarm system, is used here. While the first contact responds to the magnetic field of the magnet (locking and/or opening monitoring), the second contact only closes when an external magnetic field is present. Each of these impulses triggers the alarm via the burglar alarm system. Six external field monitoring elements are combined in the external field monitoring contact circuit on the VdS-C MVS contact element.

Tilt monitoring

From an insurance point of view and according to VdS, tilted windows are considered to be open windows.

Many users still also want their alarm system to be activated when their windows are tilted. To this end, two contact elements are integrated into the window, which distinguish between internal and external alarm notifications. The alarm type [internal (tilt monitoring, presence) / external (locking monitoring, absence)] is switched over in the alarm system. With an internal alarm, an alarm notification is usually only issued inside the building, and the person or people present in the building must respond accordingly. The external alarm can also notify the police or security automatically. Depending

on the required security class, the locking monitoring with hardware-coupled magnet needs a VdS-B or VdS-C MVS contact element. The tilt monitoring, which is horizontal at the bottom of the window, usually requires a VdS-B contact element (never VdS-C or MTS) with rebate magnet.

Combined locking and opening monitoring

MVS contact element and hardware-coupled magnet for monitoring the locking state and opening of a sash via a two-core cable. The opening monitoring (locking has not taken place) blocks the activation of the alarm system. After activation, the locking monitoring reports any change to the locking state and issues an alarm if required. If the sabotage cables are tampered with, this will also cause an alarm notification to be issued.

Contact element (magnetic switch) / reed switch

A contact element or reed switch is an electromechanical switching device consisting of two ferromagnetic contact tongues that are hermetically sealed in a glass tube.

This design allows reed switches to be used in almost any environment. The contacts close or open when a magnetic field acts on them (or does not act on them), and they do not consume any current when idle (normally open). To trigger the switching process, the contacts are exposed to a magnetic field generated by a permanent magnet or an electromagnetic coil.

As reed switches do not require any wear components thanks to their simple design and mode of operation, they function reliably over an almost unlimited number of switching cycles.

Line contact

The line contact is the connection line for MVS contact elements that is closed when activated, see “N/O contact”.

LSN / LSN data bus system

Local security network / LSN improved module.

Data bus system for VdS-certified alarm systems with the Bosch LSN data bus system. MVS contact elements with a compatible bus coupler are VdS-B LSN.

MTS

Magnetic **t**hermostat **s**ensor for the building management system.

Is used to control heating and temperature control systems. The MTS contact element is equipped with a changeover contact and is therefore suitable for universal use.

MVS

Magnetic locking sensor.

To control burglar alarm systems, with VdS-B and VdS-C certification.

Normally closed contact (N/C contact)

Normally closed contacts are closed when idle and open when activated.

Wiring diagrams always show the idle state of the contact.

Opening monitoring

Monitors whether the sash is in contact with the frame or open.

Potential-free contact

A potential-free contact is a switch or contact of a device that has no direct electrical connection to a power source.

This means that the contact itself does not conduct any voltage or current and can therefore be used universally in various applications.

Sabotage cable (peak connection)

A sabotage cable is an electronic circuit where voltage is present.

A burglar alarm system supplies power to and monitors the circuit. If the circuit is interrupted, for example because the cable connection is destroyed, the burglar alarm system issues an alarm or a sabotage alarm. In the case of contact elements with a sabotage cable, two switching cables are connected to each other. All contact element connections are identical.

N/O contact (normally open contact)

N/O contacts are open when idle, so they do not allow any current to pass through and close when activated.

Wiring diagrams always show the idle state.

Smart home systems

Smart home refers to the use of technical systems, automated processes and networked, remote-controlled devices in living spaces and homes.

The functions primarily serve to increase the quality of life and living comfort.

VdS

Abbreviation for the German phrase “Vertrauen durch Sicherheit” (trust through security). VdS Schadenverhütung GmbH is Europe’s largest institute for corporate security and a subsidiary of the German Insurance Association (GDV).

The company is accredited by the German Accreditation Body (DAkkS) for various tests and certifications according to DIN, ISO and EN standards. The requirements for the intended level of protection are defined by VdS guidelines, which are accepted and applied by the industry and insurance sector.

VdS classes

With its classification, VdS defines the minimum requirements for a burglar alarm system which have to be adhered to in order for it to be certified.

VdS class A

VdS class A burglar alarm systems only offer basic protection against burglary attempts.

Roto does not offer VdS class A contact elements, but VdS B contact elements can also be used at any time in the lower VdS class A.

VdS class B

VdS class B burglar alarm systems offer moderate protection against burglary attempts when activated and deactivated.

The detectors have moderate sensitivity.

VdS class C

VdS class C burglar alarm systems offer increased protection against burglary attempts when activated and deactivated.

The detectors have increased sensitivity. The security-relevant functions are extensively monitored.

Locking monitoring

Monitors the locking of window sashes or door leaves.

For pure locking monitoring, contact elements of a lower VdS class can also be used (e.g. MVS-B for a VdS-C burglar alarm system).

Changeover contact (C/O contact / changeover switch)

Changeover contacts change the contact connection when activated and form the interaction of an N/O contact and an N/C contact.

Wiring diagrams always show the idle state.

1.7 Target groups

The information in this document is directed at the following target groups:

Hardware dealers

The “hardware dealers” target group includes all companies and individuals that purchase hardware from hardware manufacturers for resale, without modifying or further processing the hardware.

Window and balcony door manufacturers

The “window and balcony door manufacturers” target group includes all companies and individuals that purchase hardware from hardware manufacturers or hardware dealers and further process the hardware by integrating it in windows or balcony doors.

Building element dealers or installation companies

The “building element dealers or installation companies” target group includes all companies and individuals that purchase windows and balcony doors from window and balcony door manufacturers for resale and for installation in construction projects, without modifying the windows or balcony doors.

Builders

The “builders” target group includes all companies and individuals who place orders for the manufacture of windows and balcony doors for installation in their construction projects.

Qualified electrician

The “qualified electrician” target group includes all individuals who are allowed to perform electrical work on a commercial basis and to monitor work of this type due to their professional training, knowledge and experience.

End users

The “end users” target group includes all individuals who use the installed windows and balcony doors.

1.8 Target groups' obligation to give instructions

INFO

Each target group must fulfil their obligation to give instructions in full.

Unless specified otherwise in the text below, documents and information can be passed on as a printed document, on a data storage device or via the Internet.

Responsibility of hardware dealers

Hardware dealers must pass the following documents on to the window and balcony door manufacturer:

- Catalogue
- Installation, maintenance and operation instructions
- Directive on attachment of supporting fitting components for turn-only and tilt&turn fittings (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the window and balcony door manufacturer

The window and balcony door manufacturer must pass the following documents on to building element dealers or the builder, even if a subcontractor (installation company) is involved:

- Installation, maintenance and operation instructions
- Directive on attachment of supporting fitting components for turn-only and tilt&turn fittings (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

They must ensure that the end users are provided with the documents and information intended for them in printed format.

Responsibility of building element dealers and the installation company

Building element dealers must pass the following documents on to the builder, even if a subcontractor (installation company) is involved:

- Installation, maintenance and operation instructions (with a focus on hardware)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the builder

The builder must pass the following documents on to the end user:

- Installation, maintenance and operation instructions (with a focus on hardware)
- Guidelines/advice for end-users (VHBE)

1.9 Copyright protection

The contents of this document are copyright-protected. This content can be used when working with the hardware. Any other use is not permitted without written permission of the manufacturer.

1.10 Limitation of liability

All information and instructions contained in this document have been compiled in consideration of the applicable standards and regulations, the latest developments in technology and many years of knowledge and experience.

The hardware manufacturer assumes no liability for damage caused by:

- Failure to comply with this document and all product-specific documents and other applicable directives (see the chapters entitled “Security” and “Stipulated use”).
- Improper use / misuse (see the chapters entitled “Security” and “Stipulated use”).
- Insufficient invitation to tender, non-compliance with installation specifications and non-compliance with the application diagrams (where available).
- Increased contamination.

Claims made by third parties against the hardware manufacturer on account of damage resulting from misuse or failure to comply with the obligation to give instructions on the part of hardware dealers, window, door and balcony door manufacturers and building element dealers or the builder are passed on accordingly.

The obligations agreed in the delivery contract, the general terms and conditions, the hardware manufacturer’s terms and conditions of delivery and the legal provisions applicable when the contract was concluded shall apply.

The warranty only covers original Roto components.

We reserve the right to make technical changes as part of improvement to performance characteristics and further development.

1.11 Preserving the surface finish

ATTENTION

Surface treatments may cause property damage.

Surface treatments (e.g. painting and varnishing) on elements can damage components or prevent them from working properly.

- For masking, only use adhesive tape that does not damage the paint coats. Consult the manufacturer if in doubt.
- Protect components against direct contact with the surface treatment.
- Protect components against contamination.

ATTENTION

Using incorrect cleaning agents and sealing compounds may cause property damage.

Cleaning agents and sealing compounds may damage the surfaces of components and gaskets.

- Do not use aggressive or flammable liquids, acidic cleaners or abrasive cleaners.
- Only use mild, pH-neutral cleaning agents that have been diluted.
- Apply a thin protective film to the components, for example using a cloth soaked in oil.
- Avoid aggressive vapours (e.g. produced by formic acid, acetic acid, ammonia, amine compounds, ammonia compounds, aldehyde, carbolic acid, chlorine, tannic acid) around the element.
- Do not use any acetic acid-crosslinking or acid-crosslinking sealing compounds or those with the aforementioned constituents as both direct contact with the sealing compound and its fumes can corrode the surface of the components.

ATTENTION

Contamination may cause property damage.

Contamination prevents components working properly.

- Remove deposits and contamination caused by construction materials (e.g. plaster, gypsum).
- Keep components free of deposits and contaminants.

ATTENTION

(Permanently) damp room air may cause property damage.

Damp room air can lead to mould growth and corrosion caused by condensation.

- Provide adequate ventilation for components, particularly during the construction phase.
- Intensively air out the room several times per day by opening all elements for approximately 15 minutes. If intensive airing is not an option, place the elements in the tilt position and provide airtight masking inside the room, e.g. if there is fresh screed that cannot be walked on or must not be exposed to draughts. Discharge any humidity present in the room air to the outside using condensation dryers.
- Establish a ventilation plan for more complex construction projects if necessary.
- Provide adequate ventilation during holiday periods as well.

2 Security

This manual contains instructions relating to safety. The principal safety information in this chapter includes information and instructions relevant to the safe use or maintaining the safe condition of the product. Warning instructions that relate to handling warn of residual risks and are located before steps that are relevant to safety.

- Follow all of the instructions in order to prevent personal injury and property and environmental damage.

2.1 Presentation and structure of warning instructions

The warning instructions relate to individual actions and are structured as follows with a warning symbol:

DANGER

Nature and source of the danger.

Explanation and description of the danger and the implications.

- Measures to take to avert the danger.

2.2 Security levels of warning instructions

The warning instructions that relate to handling are identified differently according to the severity of the associated danger. The signal words and the associated warning symbols used are clarified below.

DANGER

Immediate risk of death or serious injuries.

- Observe these warning instructions to avoid personal injuries.

WARNING

Potential risk of death or serious injuries.

- Observe these warning instructions to avoid personal injuries.

CAUTION

Risk of injuries

- Observe these warning instructions to avoid personal injuries.

ATTENTION

Reference to property or environmental damage.

- Observe these warning instructions to avoid property or environmental damage.

2.3 Basic safety information

The following hazards may arise when handling the product:

2.3.1 Installation

Incorrect installation poses an immediate risk of death or serious injuries.

Incorrect installation or assembly of hardware can lead to hazardous situations or property damage. Depending on the height of the fall, this can result in serious to life-threatening injuries and glass breakage.

- Only use hardware combinations that have been approved by the hardware manufacturer.
- Only use original accessories or those that have been approved by the hardware manufacturer.
- Always have installation performed by a specialist company.

Heavy loads pose a risk of injury.

Lifting and carrying heavy loads may lead to injuries in the event of a fall or physical overexertion.

- Note the applicable accident prevention regulations.
- Transport heavy loads with two people and use suitable transportation means (such as an industrial truck).

Physical overexertion may be harmful to health.

Moving heavy loads for extended periods leads to physical injury in the long term.

- When carrying and lifting by hand, comply with a maximum weight of 25 kg for men and 10 kg for women.
- Carry and lift even smaller loads with an ergonomically correct posture.

2.3.2 Use

Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries.

Opened sashes of windows and balcony doors create a danger zone. Depending on the height of the fall, this can result in serious to life-threatening injuries and glass breakage.

- Take care when in the vicinity of open windows and balcony doors.
- Keep children and anyone unable to understand the risks away from the hazardous area.

Trapping body parts in the opening between sash and frame may lead to serious injuries.

Gripping between the sash and frame when closing windows and balcony doors poses the risk of crushing injuries.

- When closing windows and balcony doors, never grip between the sash and frame and always exercise caution.
- Keep children and anyone unable to understand the risks away from the hazardous area.

Opening and closing sashes improperly poses the risk of injury and property damage.

Incorrect opening and closing of sashes can result in serious injuries and substantial property damage.

- When moving the sash, ensure that it will not slam against the frame or other sashes once fully opened or closed.
- Ensure that the sash is slowly guided by hand throughout its entire movement range, until it has been brought into a fully closed or opening position.
- When closing a sash and locking the hardware, the gasket counter force must be overcome.

Misuse poses a risk of injury and property damage.

Misuse can lead to hazardous situations and may destroy the hardware, frame materials or other individual components within the windows or balcony doors.

- Do not introduce any obstacles in the opening area between the frame and window or balcony door sashes.

- Do not place additional loads on windows and balcony door sashes.
- Refrain from intentionally or uncontrollably slamming or pushing the window or balcony door sash against the window reveal or the opening restrictor.

Improper maintenance poses the potential risk of injury and property damage.

Windows and balcony doors, including the hardware, require expert maintenance (care, cleaning, maintenance and inspection) in order to guarantee their proper condition and safe use.

- Keep the hardware free of deposits and contaminants.
- Carry out care and cleaning tasks as specified in these instructions.
- Always have regular maintenance, adjustment and repair work carried out by a specialist company.

2.3.3 Ambient conditions

Physical and chemical influences may result in property damage.

Hardware components can be permanently damaged in a saline, aggressive or corrosive environment to the point that they can no longer function.

- Do not use the hardware components in a saline, aggressive or corrosive environment.
- Carry out care and cleaning tasks as specified in these instructions.
- Corrosion protection must be inspected by an authorised specialist company as part of regular maintenance work.

Moisture may cause property damage.

Depending on the outside temperature, relative humidity of the room air and installation situation of the windows and balcony doors, a temporary build-up of condensation may occur. This can lead to corrosion on the hardware and mould growth on the frame or wall. Ambient conditions that are too damp, particularly during the construction phase, can lead to timber elements warping.

- Avoid preventing the circulation of air (e.g. due to deep reveals, curtains and unfavourable positioning of radiators or the like).
- Intensively air out the room several times per day.

  Open all windows and balcony doors for approximately 15 minutes so that the air in the room can be completely replaced.
- Provide adequate ventilation during holiday periods as well.
- Create a ventilation plan for construction projects if necessary.

2.3.4 Stipulated use

The contact elements described in these instructions are intended for installation in windows, balcony doors and sliding elements.

MVS-B, MVS-C

The contact elements can be used for opening monitoring, locking monitoring or combined opening and locking monitoring in conjunction with burglar alarm systems and surveillance systems.

Also suitable for integration in smart home and data bus systems thanks to potential-free contact.

MTS

The MTS contact element can be used to monitor the window status in conjunction with heating and air conditioning systems.

Also suitable for integration in smart home and data bus systems thanks to potential-free contact.

MVS-B, MVS-C, MTS

The stipulated use also includes compliance with all information contained in the product-specific documentation:

- These installation, maintenance and operation instructions
- Product catalogues
- Information, specifications from profile manufacturers (e.g. light-metal profiles, etc.)
- Directives TBDK, VHBH and VHBE issued by the Gütegemeinschaft Schlösser und Beschläge e.V. quality assurance association
- VdS guidelines and standards for burglar alarm systems
- Applicable national laws and directives.

2.3.4.1 Misuse

Any use and processing of the products that goes beyond or differs from the stipulated use is considered misuse and can lead to hazardous situations.

WARNING

Misuse may pose a risk of death!

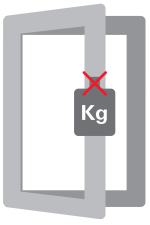
Misuse and incorrect installation of hardware can lead to serious injuries.

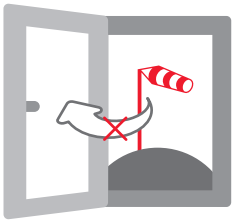
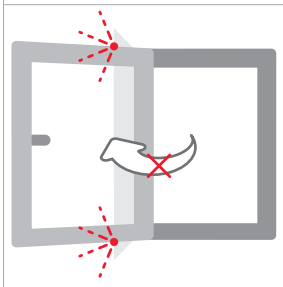
- Only use hardware combinations that have been approved by the hardware manufacturer.
- Only use original accessories or those that have been approved by the hardware manufacturer.
- Note the product-related documentation → *from page 7*.

2.4 Operation

The safety symbols and markings and the associated warning instructions explained below apply to the safe operation of windows and balcony doors.

Safety symbols and markings

Symbol	Meaning
	Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries. Take care when in the vicinity of open windows and balcony doors. Keep children and anyone unable to understand the risks away from the hazardous area.
	Trapping body parts in the opening between sash and frame may lead to serious injuries. When closing windows and balcony doors, never grip between the sash and frame and always exercise caution. Keep children and anyone unable to understand the risks away from the hazardous area.
	**Placing additional loads on the sash may lead to minor injuries and property damage.** Avoid placing additional loads on the sash.

Symbol	Meaning
	**The impact of wind may lead to minor injuries and property damage.** Avoid exposing the open sash to wind. Close and lock the window and balcony door sash in windy or draughty conditions.
	Introducing obstacles into the opening between sash and frame may result in minor injuries and property damage. Avoid introducing obstacles into the opening between sash and frame.
	**Pressing the sash against the edge of an opening (reveal) may pose a risk of minor injuries and cause property damage** Refrain from pressing the sash against the edge of an opening (reveal).

3 Information on the product

3.1 General hardware characteristics

Monitoring

- **MVS-B and MVS-C**

  Can be used for combined opening and locking monitoring in conjunction with burglar alarm and surveillance systems.

  - MVS-B: suitable for class VdS-B (or VdS-A) burglar alarm systems.
  - MVS-C: suitable for class VdS-C (or VdS-B and VdS-A) burglar alarm systems.
  - Also suitable for integration in smart home and data bus systems thanks to potential-free contact.
- **MTS**

  Can be used for combined opening and locking monitoring in conjunction with ventilation and temperature control systems.

  - Also suitable for integration in smart home and data bus systems thanks to potential-free contact.

INFO

The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted sashes are considered to be open elements. Consequently, the monitoring of the tilt position is not compliant with VdS.

3.2 Processing instructions

Cable and wire

- To enable precision adjustment and replacement of defective contact elements, lay the contact element cables so that the contact element can be removed later.

  Provide a wire loop.
- Lay the wire so that it is concealed in accordance with VdS 2311.

  Laying the cable in empty conduits up to the next accessible distribution socket is also recommended.

Magnet and tolerance range

- The response values of magnets worsen if they are exposed to strong vibration or extreme heat or if they are used near ferromagnetic materials (e.g. steel or other magnets).

  For this reason, ensure that no other ferromagnetic materials are installed, except for the Roto components intended for this purpose.
- The response sensitivity of the magnet and contact elements is based on the installation dimensions described in these installation instructions. Deviations may cause these components to stop working properly.
- There must be no mechanical loading of the contact element or magnet. This can lead to poorer response values or even cause the contact element or magnet to stop working properly.

Installation area

- On balcony doors, install contact elements outside the threshold area.
- Opening detectors must be installed on the elements so that every stipulated opening type results in a message being issued.
- Never use cordless screwdrivers or pneumatic screwdrivers to install the contact element. Do not use these in the immediate vicinity of the contact element either (strong vibration).
- Seal the drill hole or screw fixing in the water-conducting plane.

3.3 Rebate clearance

3.3.1 Timber and PVC

	Rebate clearance	
	Hardware-coupled magnet	Rebate magnet
MVS-B	10 – 15	10 – 13.5
MVS-B LSN	10 – 13.5	10 – 13.5
MVS-C	10 – 12	10 – 12
MTS	10 – 13.5	10 – 13.5

INFO

Compensating support plate

The support plate for timber (309245) can also be used as a compensating support plate to compensate for the rebate clearance. The compensating support plate is stackable.

3.3.2 Aluminium

	Rebate clearance	
	Hardware-coupled magnet	Rebate magnet
MVS-B	10 – 15	10 – 13.5
MVS-B LSN	10 – 13.5	10 – 13.5
MVS-C	10.5 – 13.5	10.5 – 12
MTS	10 – 15	10 – 13.5

INFO

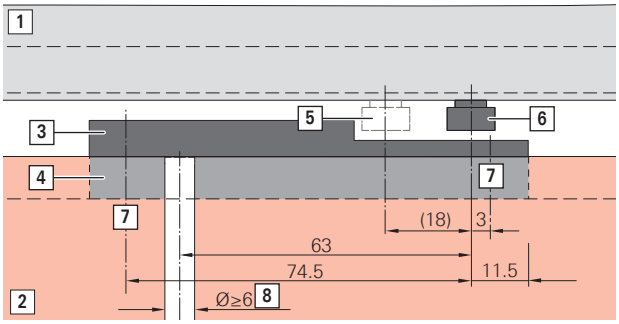
Compensating support plate

The support plate for timber (309245) can also be used as a compensating support plate to compensate for the rebate clearance. The compensating support plate is stackable.

4 Roto NX

4.1 Contact element and hardware-coupled magnet or clip-on magnet

4.1.1 Dimensions



[1] Sash
[2] Frame
[3] Contact element
[4] Support plate
[5] Magnet (handle in locked position)
[6] Magnet (handle in open position)
[7] Screw axis
[8] Cable feedthrough

4.1.2 Positioning

INFO
The installation of contact elements for burglar alarm and surveillance systems on the hinge side is not permitted.

Opening detectors must be installed on windows so that every stipulated opening type results in an alert being issued.

Requirement

One of the following components is required:

- Corner drive, standard, for contact elements
- MVS centre lock couplable on one side
- MVS centre lock couplable on both sides
- Clip-on magnet for centre locks

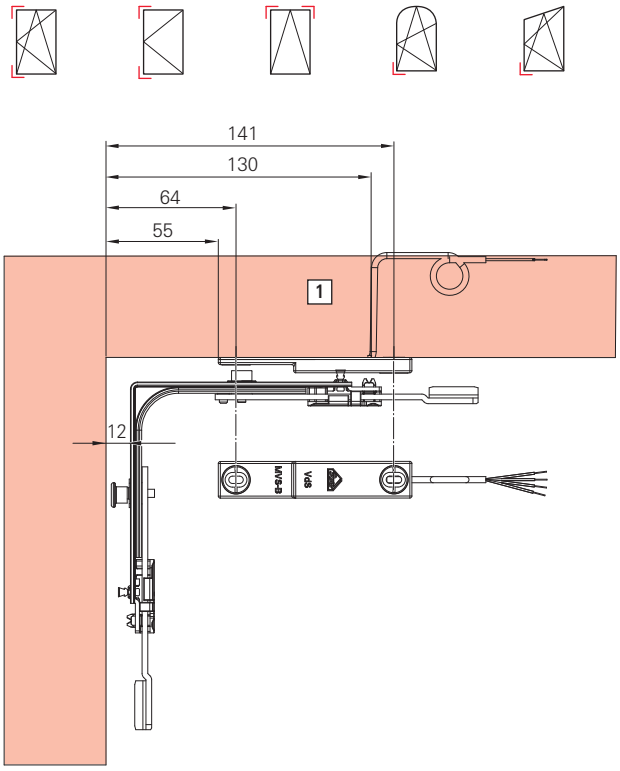
Position

- Combined locking and opening monitoring: anywhere except on the hinge side
- Locking monitoring: anywhere except on the hinge side
- Opening monitoring: max. 60 cm away from the locking side

4.1.3 Installation dimensions

4.1.3.1 Corner drive, standard, for contact elements

Combined locking and opening monitoring / locking monitoring

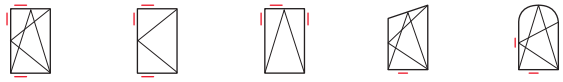


[1] Drill hole for cable feedthrough, Ø 6 mm

4.1.3.2 Centre lock couplable on one side / both sides

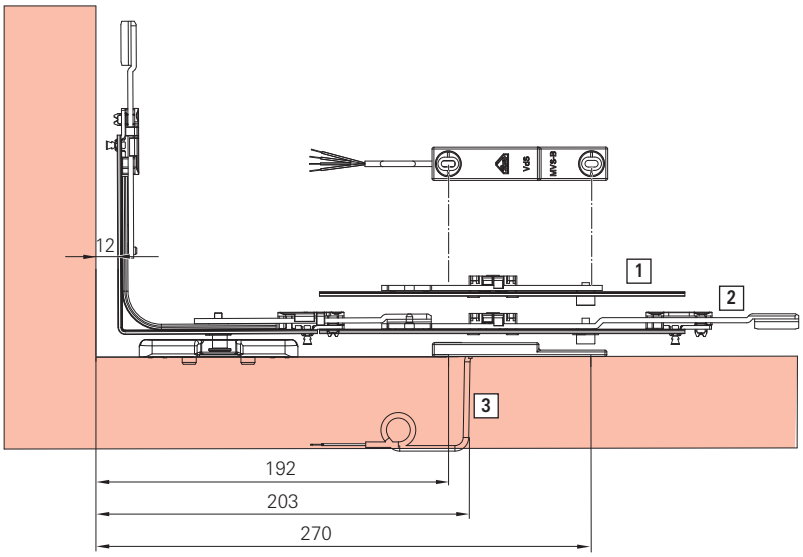
Combined locking and opening monitoring / locking monitoring

MVS centre lock couplable on both sides



MVS centre lock couplable on one side

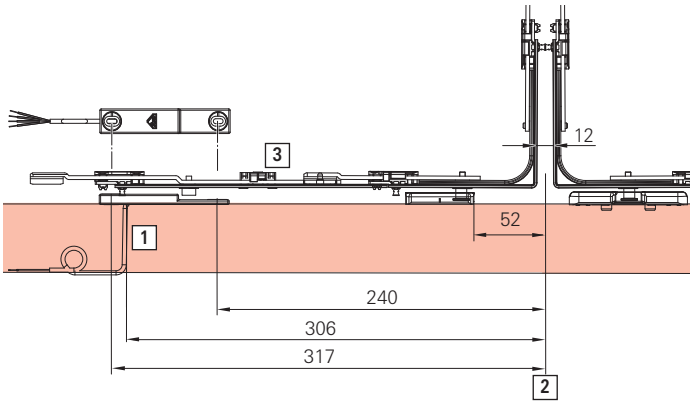
Clip-on magnet for centre locks (only possible in conjunction with CL 400 and CL 600)



[1] MVS centre lock couplable on one side
[2] MVS centre lock couplable on both sides
[3] Drill hole for cable feedthrough, Ø 6 mm

4.1.3.3 Lever-operated espagnolette Standard – second opening sash

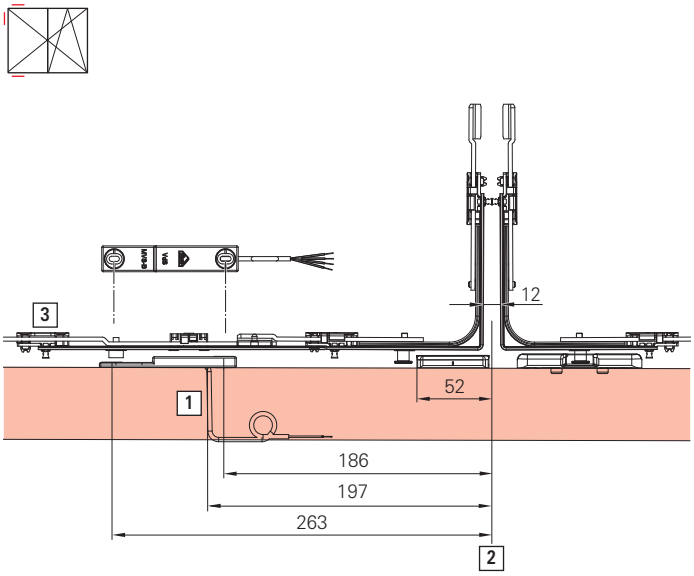
Combined locking and opening monitoring / locking monitoring



[1] Drill hole for cable feedthrough, Ø 6 mm
[2] Rebate clearance centre
[3] MVS centre lock couplable on both sides

4.1.3.4 Lever-operated espagnolette Plus – second opening sash

Combined locking and opening monitoring / locking monitoring



[1] Drill hole for cable feedthrough, Ø 6 mm
[2] Rebate clearance centre
[3] MVS centre lock couplable on both sides

4.1.4 Installation

4.1.4.1 Contact element

1. Move the sash to the turn position.

   Tilt&Turn hardware

   TiltFirst hardware

2. Mark the screw position for the contact element → *from page 26*.

   Drill holes:

   2x Ø 2.4 mm, drilling depth: 14 mm

3. Mark the cable feedthrough for the contact element → *from page 26*.

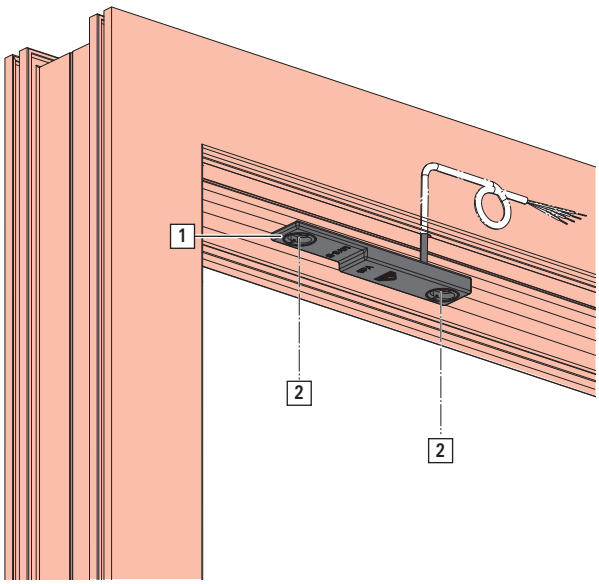
   Drill holes:

   1x Ø 6 mm

4. Insert the contact element and support plate [1] into the rebate and pull in the cable.

   Ensure a sufficient length of cable is left over. Lay the cable loop.

   Ensure that the cable is not pinched or damaged during frame installation.



5. Fasten the contact element with the supplied pan-head screws 2.9 x 19 [2].

   Tool: Phillips screwdriver PH1

6. Connect the cable according to the wiring diagram → *from page 64*.

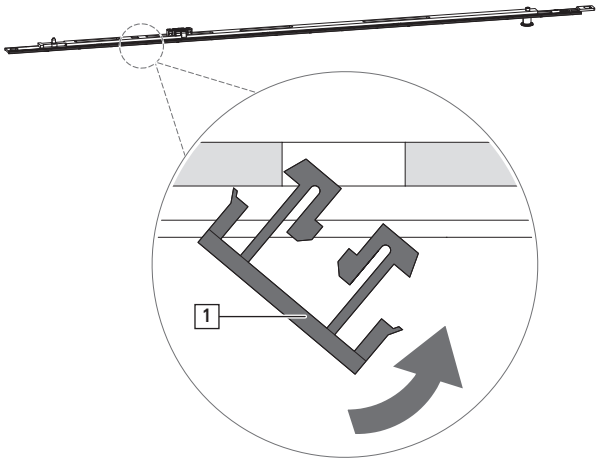
> **INFO**
> Note the cable routing. If the cable material is crushed or damaged, the entire unit will be defective.

7. Carry out a performance test → *from page 52*.

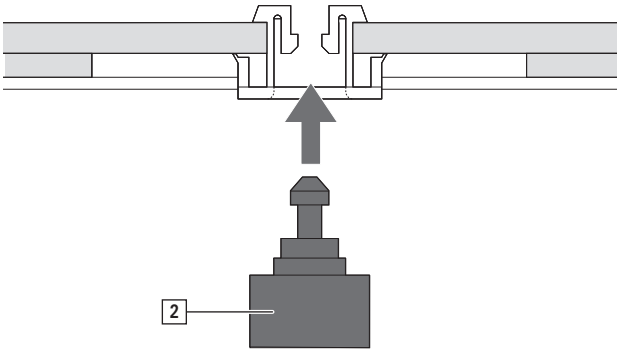
4.1.4.2 Clip-on magnet for centre lock

Can only be used in conjunction with CL 400 or CL 600.

1. Clip the assembly clips [1] into the recess on the centre lock in a swivel movement.



2. Press the magnet holder [2] into the hole in the assembly clip until it clicks into place.

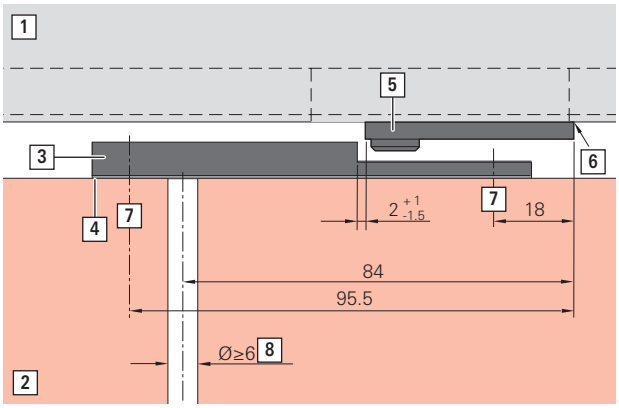


> **INFO**
> When installing the assembly clip on the underside of the sash, a suitable rebate run-up block also always has to be fitted.

3. Install the contact element → *from page 29*.

4.2 Contact element and rebate magnet

4.2.1 Dimensions



[1] Sash
[2] Frame
[3] Contact element
[4] Support plate
[5] Rebate magnet
[6] Reference edge
[7] Screw axis
[8] Cable feedthrough

4.2.2 Positioning

INFO
The installation of contact elements for burglar alarm and surveillance systems on the hinge side is not permitted.

Opening detectors must be installed on windows so that every stipulated opening type results in an alert being issued.

Position

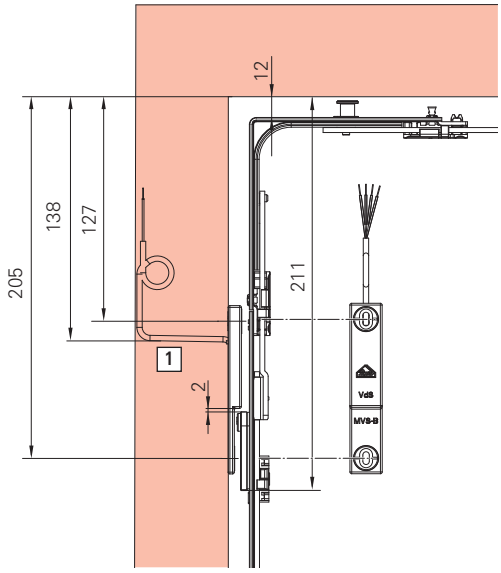
- Opening monitoring: max. 60 cm away from the locking side

4.2.3 Installation dimensions

4.2.3.1 Corner drive, standard

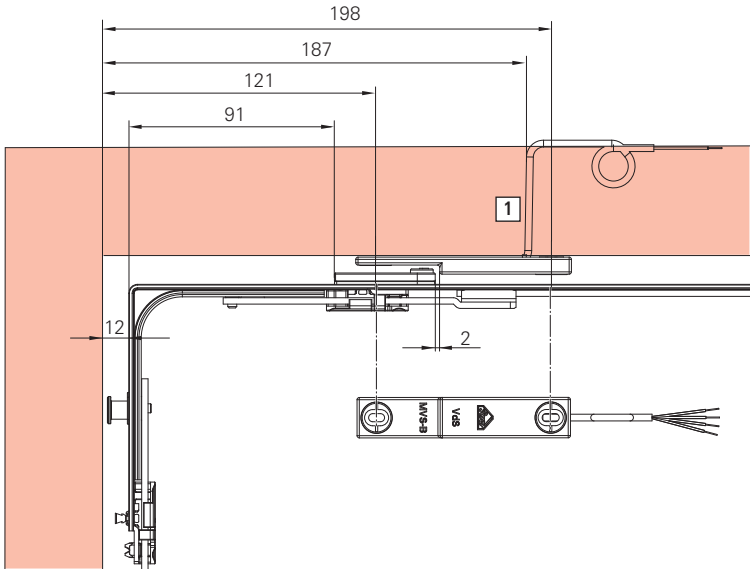
Opening monitoring

Lateral



[1] Drill hole for cable feedthrough, Ø 6 mm

Horizontal at the top



[1] Drill hole for cable feedthrough, Ø 6 mm

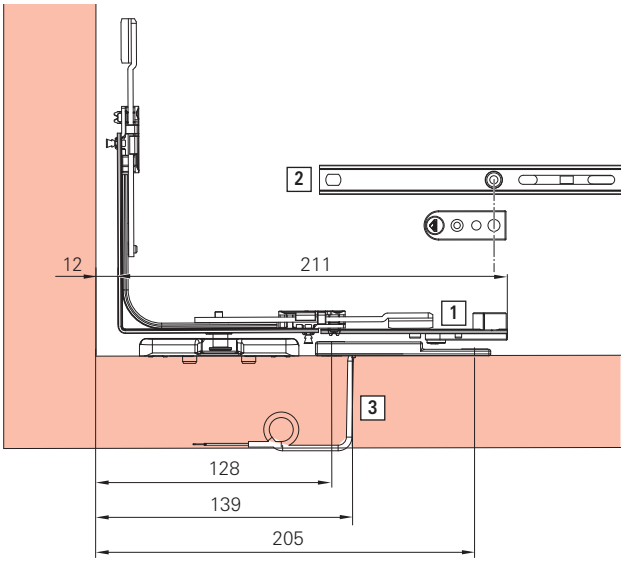
4.2.3.2 Tilt monitoring

Opening monitoring

First opening sash

Pitched window

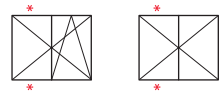
Arched window

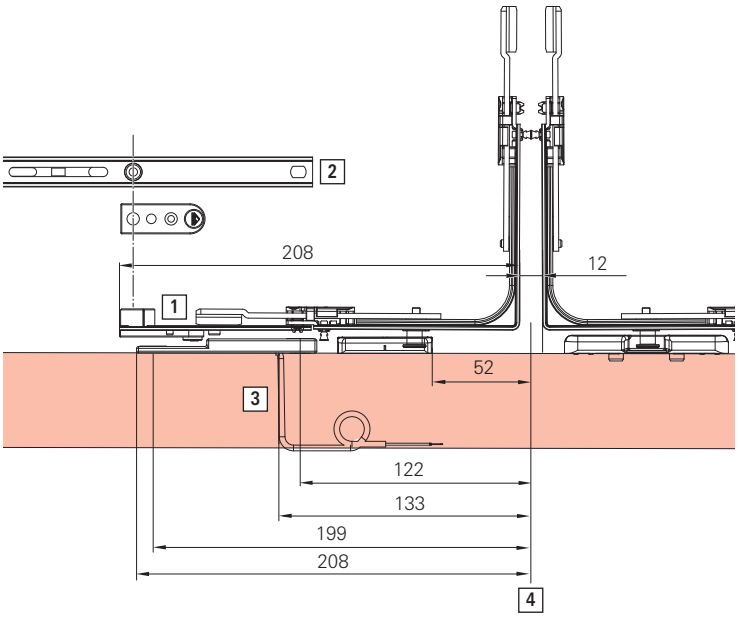


[1] Rebate magnet and magnet holder
[2] CL 400 or CL 600
[3] Drill hole for cable feedthrough, Ø 6 mm

4.2.3.3 Lever-operated espagnolette Standard – second opening sash

Opening monitoring

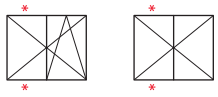


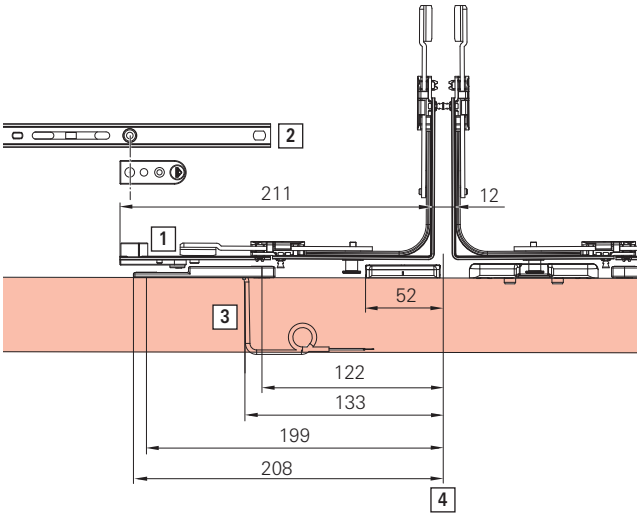


[1] Rebate magnet and magnet holder
[2] MVS centre lock couplable on both sides
CL 200, CL 400, CL 600
[3] Drill hole for cable feedthrough, Ø 6 mm
[4] Rebate clearance centre

4.2.3.4 Lever-operated espagnolette Plus – second opening sash

Opening monitoring





[1] Rebate magnet and magnet holder
[2] MVS centre lock couplable on both sides
CL 400, CL 600
[3] Drill hole for cable feedthrough, Ø 6 mm
[4] Rebate clearance centre

4.2.4 Installation

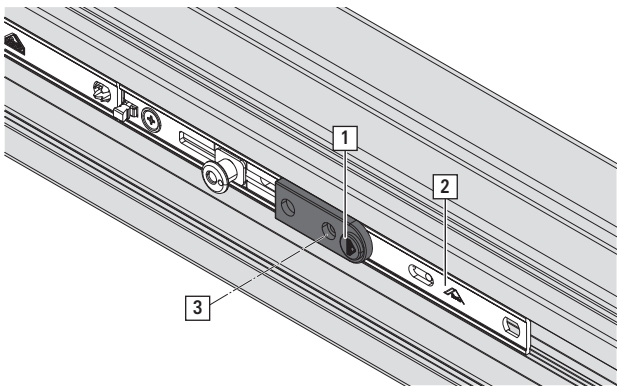
4.2.4.1 Rebate magnet on hardware faceplate

1. Move the sash to the turn position.

Tilt&Turn hardware

TiltFirst hardware

2. Place the rebate magnet [1] on centre lock 200, 400 or 600 [2].



3. Fasten the rebate magnet with the supplied screw [3].
   Optional: use a support plate.

4.2.4.2 Rebate magnet on magnet holder

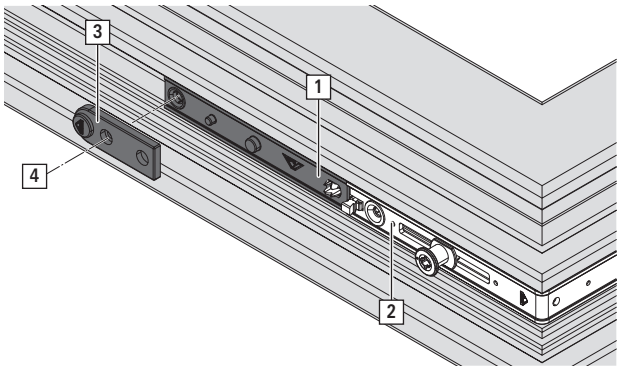
A free space of 175 mm in the rebate area is required for installing the rebate magnet and magnet holder.

1. Move the sash to the turn position.

Tilt&Turn hardware	TiltFirst hardware

2. Couple the magnet holder for the rebate magnet [1] to the corner drive [2] or centre lock, or position it anywhere in the rebate.

3. Position the rebate magnet [3] on the magnet holder.



4. Fasten with the supplied screw [4].
   Tool: Phillips screwdriver PH1

4.2.4.3 Contact element

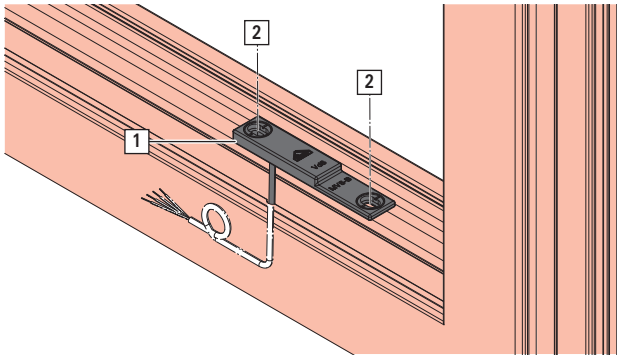
1. Mark the screw position for the contact element → *from page 32*.
   Drill holes:
   2x Ø 2.4 mm, drilling depth: 14 mm

2. Mark the cable feedthrough for the contact element → *from page 31*.
   Drill holes:
   1x Ø 6 mm

3. Insert the contact element [1] and support plate into the rebate and pull in the cable.

   Ensure a sufficient length of cable is left over. Lay the cable loop.

   Ensure that the cable is not pinched or damaged during frame installation.



4. Fasten the contact element with the supplied pan-head screws 2.9 x 19 [2].

   Tool: Phillips screwdriver PH1

5. Connect the cable according to the wiring diagram → *from page 64*.

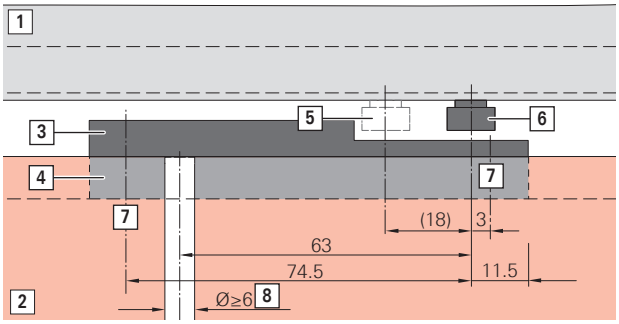
> **INFO**
> Note the cable routing. If the cable material is crushed or damaged, the entire unit will be defective.

6. Carry out a performance test → *from page 52*.

5 Roto AL

5.1 Contact element and plug-in magnet or adhesive magnet

5.1.1 Dimensions



[1] Sash
[2] Frame
[3] Contact element
[4] Support plate
[5] Magnet (handle in locked position)
[6] Magnet (handle in open position)
[7] Screw axis
[8] Cable feedthrough

5.1.2 Positioning

INFO
The installation of contact elements for burglar alarm and surveillance systems on the hinge side is not permitted.

Opening detectors must be installed on windows so that every stipulated opening type results in an alert being issued.

Requirement

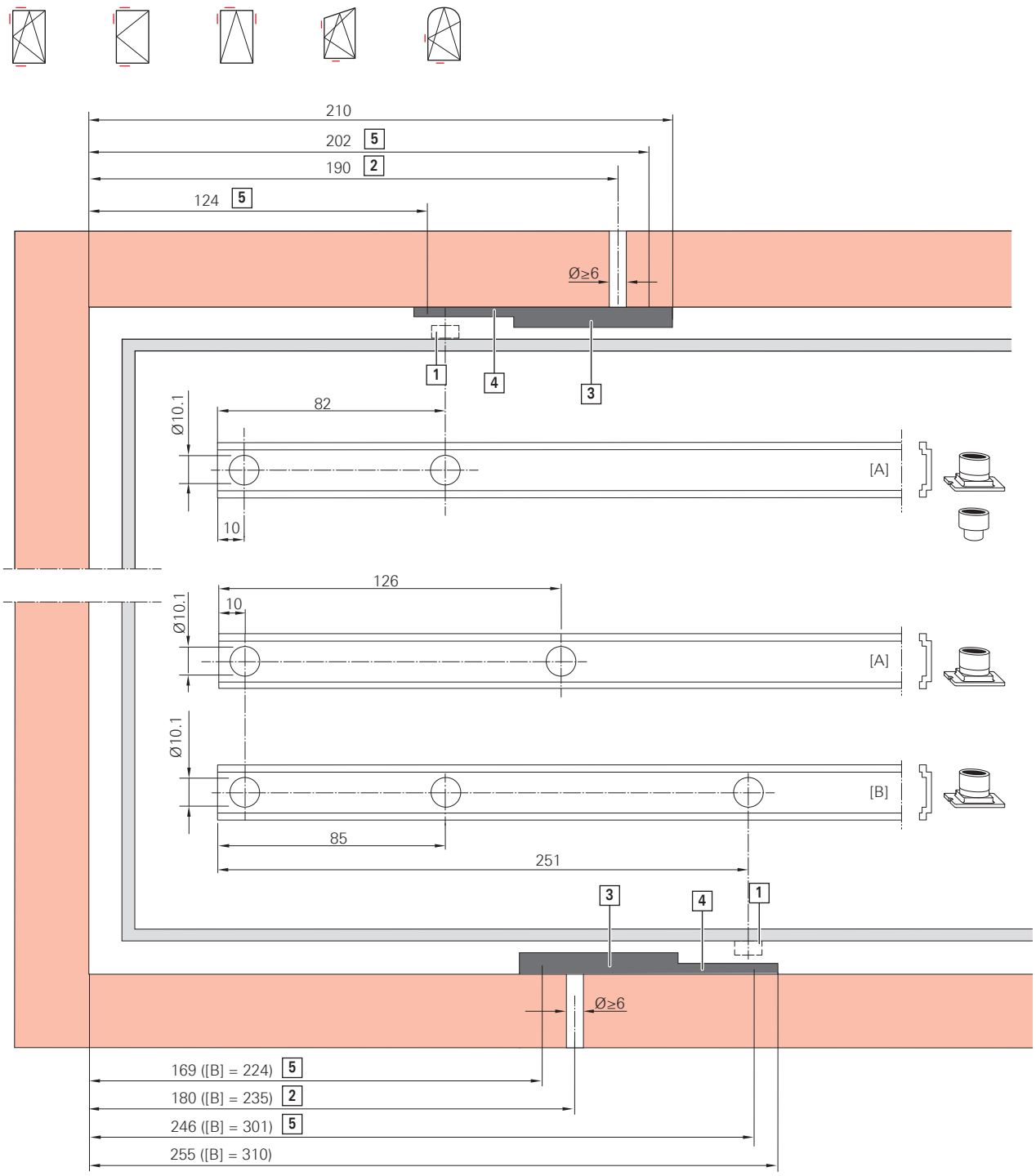
One of the following two components is required:

- Adhesive magnet
- Plug-in magnet

Position

- Combined locking and opening monitoring: anywhere except on the hinge side
- Locking monitoring: anywhere except on the hinge side
- Opening monitoring: max. 60 cm away from the locking side

5.1.3 Installation dimensions



[A] Tilt&Turn hardware
[B] TiltFirst hardware

[1] Plug-in magnet or adhesive magnet
[2] Cable feedthrough
[3] Contact element
[4] Support plate
[5] Screw axis

INFO
Ensure that the installation position is correct. The use of an additional stay arm requires the dimensions to be changed.

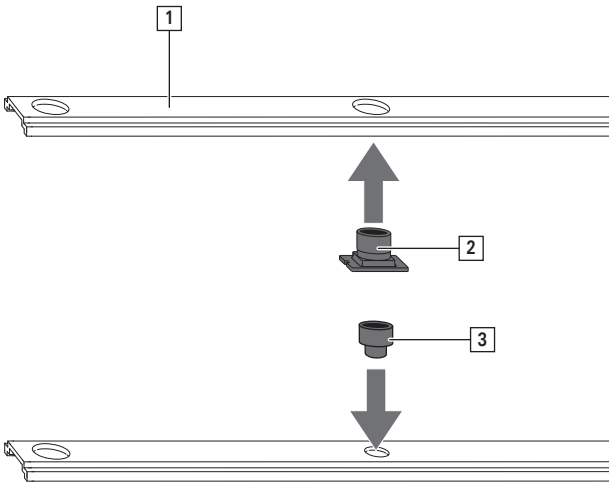
INFO
Positions differ for RC 2 (install an additional locking component on both sides of the corner drive).

5.1.4 Installation

1. Crop the connecting rod [1] according to the installation drawing, drill or punch with Ø 10 mm and insert the plug-in magnet [2].

   Or

   Crop the connecting rod according to the installation drawing, drill or punch with Ø 5 mm and fix the adhesive magnet [3] to the connecting rod with acrylate adhesive.



2. Move the sash to the turn position.

Tilt&Turn hardware	TiltFirst hardware

3. Mark the screw positions for the contact element [4] according to the installation drawing → *from page 38*.

   Drill the hole:

   2x Ø 2.4 mm, min. 14 mm deep

4. Mark the positions for the cable feedthrough according to the installation drawing → *from page 39*.

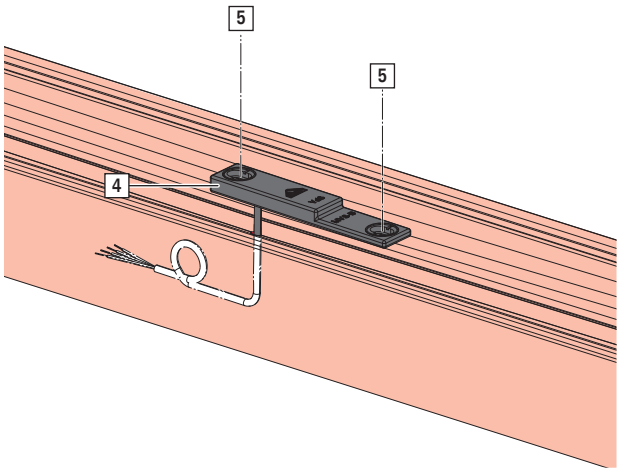
   Drill the hole:

   1x Ø 6 mm

5. Pull in the cable.

   Ensure a sufficient length of cable is left over. Lay the cable loop.

   Ensure that the cable is not pinched or damaged during frame installation.



6. Insert the support plate. Always use at least one support plate.

   Fasten the contact element with the supplied screws [5].

   Tool: Phillips screwdriver PH1

   After tightening the screw (max. torque 2.5 Nm), check that the contact element is securely fitted.

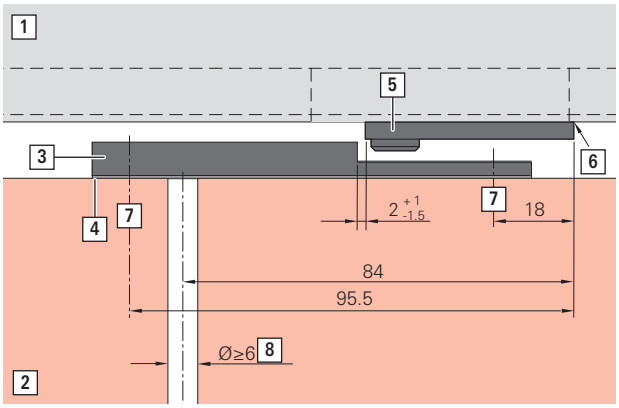
7. Connect the cable according to the wiring diagram → *from page 64*.

INFO
Note the cable routing. If the cable material is crushed or damaged, the entire unit will be defective.

8. Carry out a performance test → *from page 52*.

5.2 Contact element and rebate magnet

5.2.1 Dimensions



[1] Sash
[2] Frame
[3] Contact element
[4] Support plate
[5] Rebate magnet
[6] Reference edge
[7] Screw axis
[8] Cable feedthrough

5.2.2 Positioning

INFO
The installation of contact elements for burglar alarm and surveillance systems on the hinge side is not permitted.

Opening detectors must be installed on windows so that every stipulated opening type results in an alert being issued.

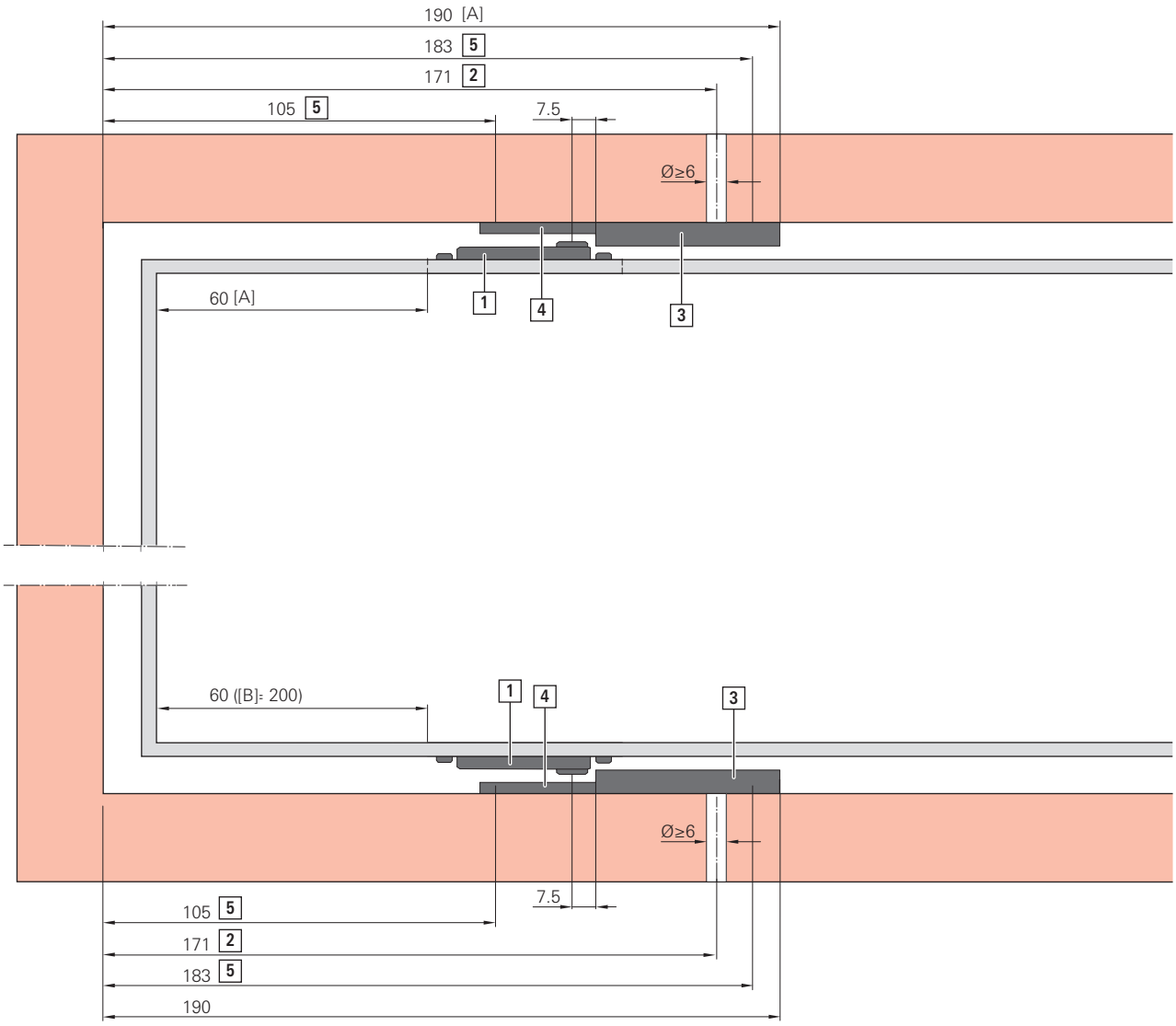
Requirement

- Rebate magnet

Position

- Combined locking and opening monitoring: anywhere except on the hinge side
- Locking monitoring: anywhere except on the hinge side
- Opening monitoring: max. 60 cm away from the locking side

5.2.3 Installation dimensions



[1] Rebate magnet
[2] Cable feedthrough
[3] Contact element
[4] Support plate
[5] Screw axis

INFO
Can only be used without a multipart centre lock.

Only install at the top of the Turn-Only hardware (T-O).

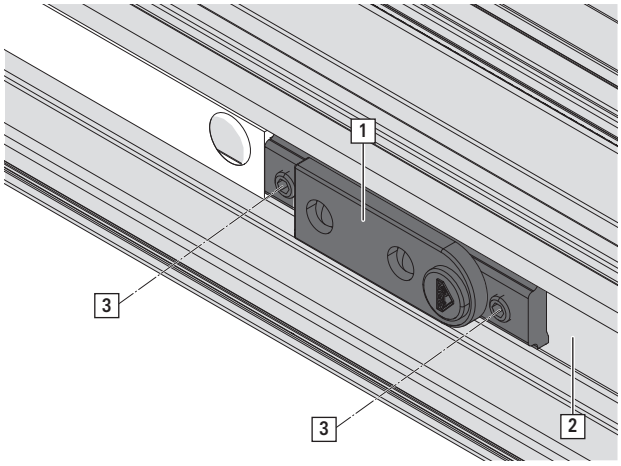
INFO
Ensure that the installation position is correct. The use of an additional stay arm requires the dimensions to be changed.

5.2.4 Installation

1. Move the sash to the turn position.

Tilt&Turn hardware	TiltFirst hardware

2. Place the rebate magnet [1] in the sash groove [2].



3. Tighten the threaded pins [3].
   Tool: 2.5 mm hex key
   Optional: use a support plate.

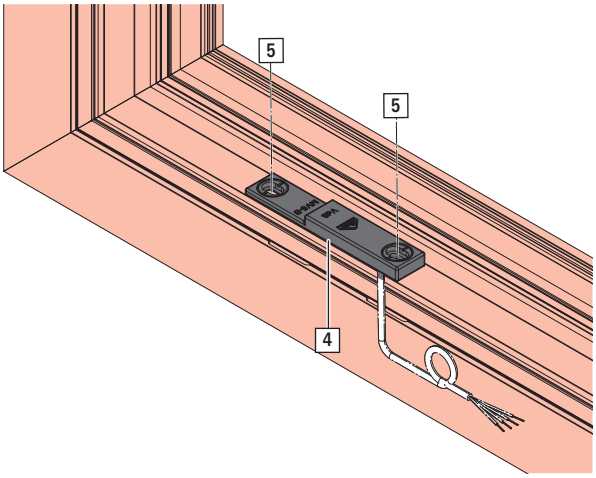
4. Mark the screw positions for the contact element [4] according to the installation drawing → *from page 42*.
   Drill the hole:
   2x Ø 2.4 mm, min. 14 mm deep

5. Mark the positions for the cable feedthrough according to the installation drawing → *from page 43*.
   Drill the hole:
   1x Ø 6 mm

6. Pull in the cable.

   Ensure a sufficient length of cable is left over. Lay the cable loop.

   Ensure that the cable is not pinched or damaged during frame installation.



7. Insert the support plate.

   Fasten the contact element with the supplied screws [5].

   Tool: Phillips screwdriver PH1

   After tightening the screw (max. torque 2.5 Nm), check that the contact element is securely fitted.

8. Connect the cable according to the wiring diagram → *from page 64*.

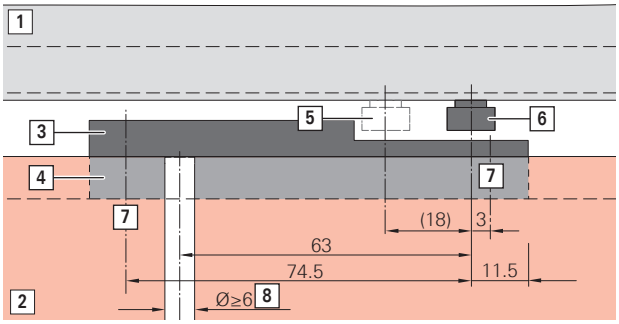
> **INFO**
> Note the cable routing. If the cable material is crushed or damaged, the entire unit will be defective.

9. Carry out a performance test → *from page 52*.

6 Roto Patio Alversa

6.1 Timber and PVC

6.1.1 Dimensions



[1] Sash
[2] Frame
[3] Contact element
[4] Support plate
[5] Magnet (handle in locked position)
[6] Magnet (handle in open position)
[7] Screw axis
[8] Cable feedthrough

6.1.2 Positioning

Opening detectors must be installed on windows so that every stipulated opening type results in an alert being issued.

Requirement

- Corner drive, standard, for contact elements

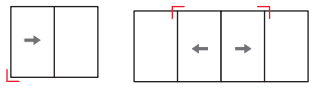
Position

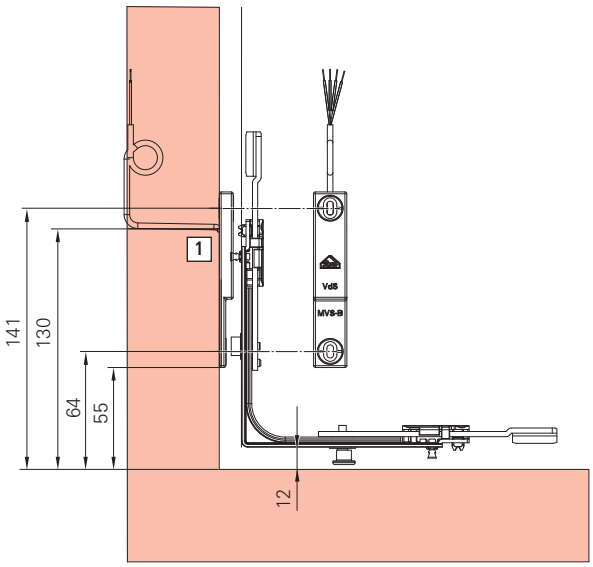
- Opening monitoring: max. 60 cm away from the locking side

6.1.3 Installation dimensions

6.1.3.1 Corner drive, standard, for contact elements

Combined locking and opening monitoring / locking monitoring





[1] Drill hole for cable feedthrough, Ø 6 mm

6.1.4 Contact element

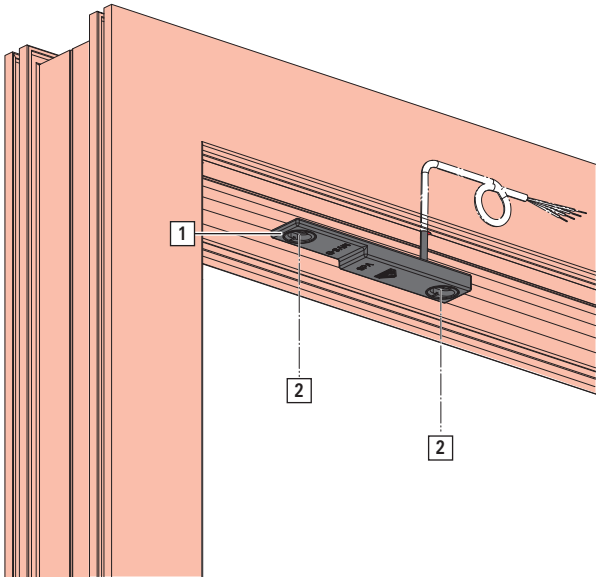
1. Move the sash to the turn position.

Tilt&Turn hardware	TiltFirst hardware

2. Mark the screw position for the contact element → *from page 26*.
   Drill holes:
   2x Ø 2.4 mm, drilling depth: 14 mm

3. Mark the cable feedthrough for the contact element → *from page 26*.
   Drill holes:
   1x Ø 6 mm

4. Insert the contact element and support plate [1] into the rebate and pull in the cable.
   Ensure a sufficient length of cable is left over. Lay the cable loop.
   Ensure that the cable is not pinched or damaged during frame installation.



5. Fasten the contact element with the supplied pan-head screws 2.9 x 19 [2].
   Tool: Phillips screwdriver PH1

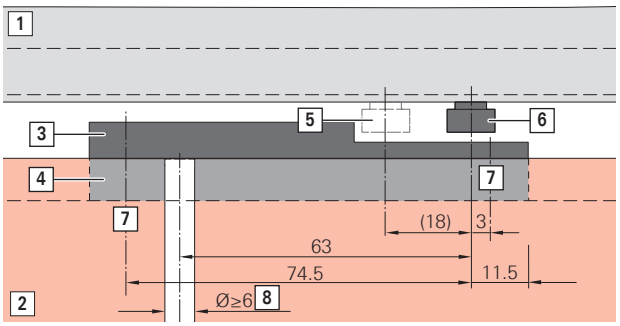
6. Connect the cable according to the wiring diagram → *from page 64*.

> **INFO**
> Note the cable routing. If the cable material is crushed or damaged, the entire unit will be defective.

7. Carry out a performance test → *from page 52*.

6.2 Aluminium

6.2.1 Dimensions



[1] Sash
[2] Frame
[3] Contact element
[4] Support plate
[5] Magnet (handle in locked position)
[6] Magnet (handle in open position)
[7] Screw axis
[8] Cable feedthrough

6.2.2 Positioning

Opening detectors must be installed on windows so that every stipulated opening type results in an alert being issued.

Requirement

One of the following two components is required:

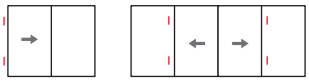
- Adhesive magnet
- Plug-in magnet

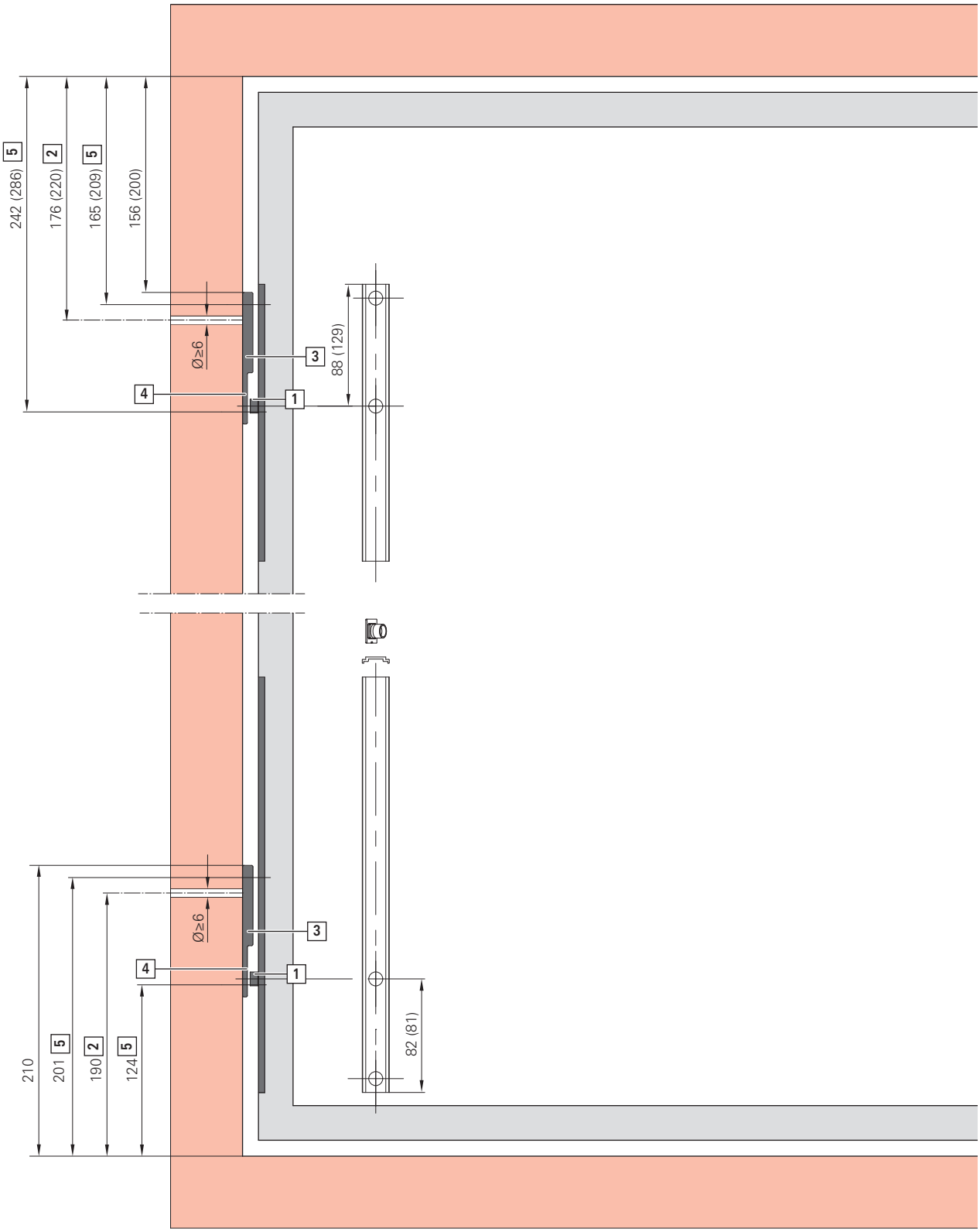
Position

- Opening monitoring: max. 60 cm away from the locking side

6.2.3 Installation dimensions

INFO
Ensure that the installation position is correct. Vertical installation is only possible in conjunction with a T&T espagnolette – centred / variable handle height.





[1] Adhesive magnet / plug-in magnet
[2] Cable feedthrough
[3] Contact element
[4] Support plate
[5] Screw axis

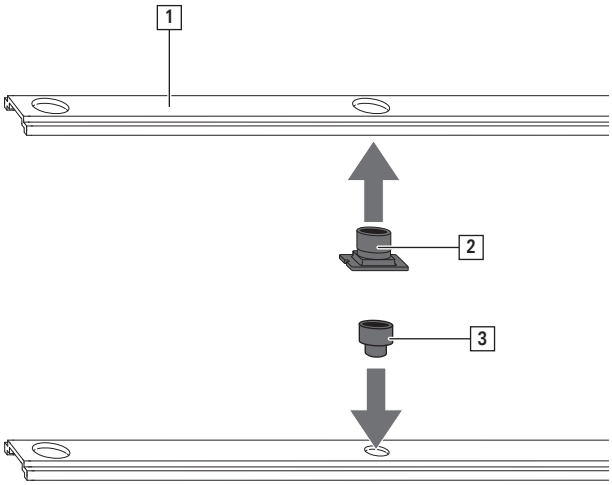
INFO
Values in brackets only apply to Roto Patio Alversa | PS Air Com.

6.2.4 Installation

1. Crop the connecting rod [1] according to the installation drawing, drill or punch with Ø 10 mm and insert the plug-in magnet [2].

   Or

   Crop the connecting rod according to the installation drawing, drill or punch with Ø 5 mm and fix the adhesive magnet [3] to the connecting rod with acrylate adhesive.



2. Move the sash to the turn position.

Tilt&Turn hardware	TiltFirst hardware

3. Mark the screw positions for the contact element [4] according to the installation drawing → *from page 38*.

   Drill the hole:

   2x Ø 2.4 mm, min. 14 mm deep

4. Mark the positions for the cable feedthrough according to the installation drawing → *from page 39*.

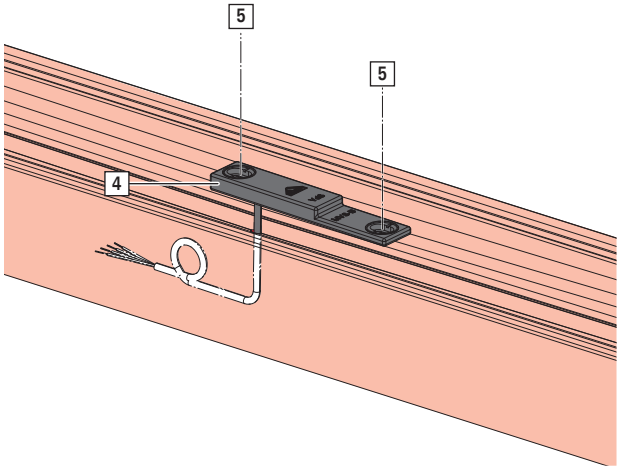
   Drill the hole:

   1x Ø 6 mm

5. Pull in the cable.

   Ensure a sufficient length of cable is left over. Lay the cable loop.

   Ensure that the cable is not pinched or damaged during frame installation.



6. Insert the support plate. Always use at least one support plate.

   Fasten the contact element with the supplied screws [5].

   Tool: Phillips screwdriver PH1

   After tightening the screw (max. torque 2.5 Nm), check that the contact element is securely fitted.

7. Connect the cable according to the wiring diagram → *from page 64*.

INFO
Note the cable routing. If the cable material is crushed or damaged, the entire unit will be defective.

8. Carry out a performance test → *from page 52*.

7 Performance test

7.1 MVS-B

INFO
The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted sashes are considered to be open elements. Consequently, the monitoring of the tilt position is not compliant with VdS.

1. Use the Control Unit to check whether the contact element is working properly.

   INFO
   The locking cams must be inserted at least 50% into the striker or tilt striker before the contact elements report a locked position – this roughly corresponds to a handle position of 15° (from vertical).

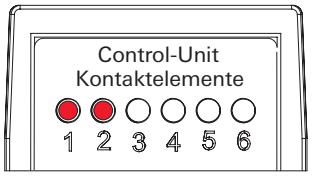
   INFO
   The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 67*.

   Do not use a lamp test device.

2. Connect the contact element (max. six conductors) to the Control Unit in any configuration via the terminals.

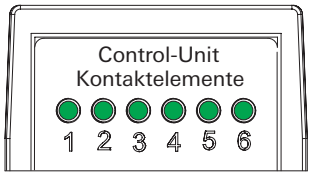
3. Remove the magnet from the contact element (e.g. by opening the sash).

4. Switch on the Control Unit by briefly pressing the button. The current battery status is displayed.



Low battery voltage

LED indicator: 2x red



High battery voltage

LED indicator: 6x green

   INFO
   If the battery status is red, replace the batteries as soon as possible.

5. The Control Unit detects whether the magnet is not in contact with the contact element, e.g. when the sash is open.

6. After two beeps, place the magnet on the contact element (e.g. by closing or locking the window). The Control Unit detects the conductor assignment and the actuated state.

   INFO
   If the contact element is not actuated within one minute, the Control Unit will switch off. Restart the measurement by pressing the button. The Control Unit starts by checking the battery status (step 4).

7. Check that the contact element is working properly and is installed correctly by locking and opening the window.
   The window is open: 2x orange and 4x white LEDs light up; no sound
   The window is locked (line contact): 2x red, 2x orange and 2x white LEDs light up, continuous sound
   LEDs must light up red at a handle position of approx. 15°.

INFO
The set without VdS does not show any orange-coloured LEDS as there are only two cables.

Display of the switching states

Red = N/O contact
Green = N/C contact
Orange = sabotage cable (MVS-B, MVS-C)
= joint (MTS)
Off = no connection (LEDs are not lit)

7.1.1 LSN data bus system

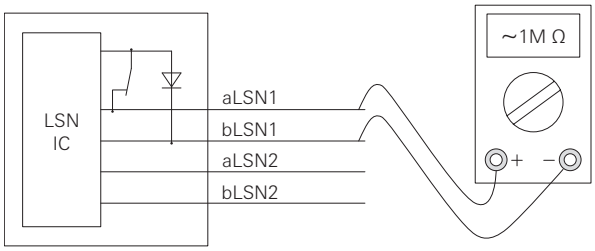
1. Use a high-resistance multimeter or continuity tester (for diode path) to check that the reed switch is working properly before installation.

- Connect the white conductor to the positive pole (V)
- Connect the brown conductor to the negative pole (GND)

The resistance values are rough approximations. The decisive factor is the extreme change in resistance.

aLSN1: White
bLSN1: Brown
aLSN2: White
bLSN2: Yellow

Changes to the values depend on the device.
Contact open = higher value (MΩ) than with closed contact.



INFO
The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 67*.

Do not use a lamp test device.

7.2 MVS-C

INFO
The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted sashes are considered to be open elements. Consequently, the monitoring of the tilt position is not compliant with VdS.

1. Use the Control Unit to check whether the contact element is working properly.

   INFO
   The locking cams must be inserted at least 50% into the striker or tilt striker before the contact elements report a locked position – this roughly corresponds to a handle position of 15° (from vertical).

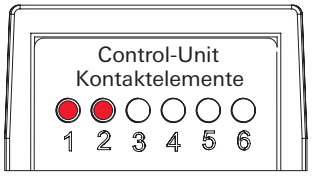
   INFO
   The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 67*.

   Do not use a lamp test device.

2. Connect the contact element (max. six conductors) to the Control Unit in any configuration via the terminals.

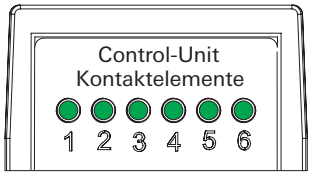
3. Remove the magnet from the contact element (e.g. by opening the window).

4. Switch on the Control Unit by briefly pressing the button. The current battery status is displayed.



Low battery voltage

LED indicator: 2x red



High battery voltage

LED indicator: 6x green

   INFO
   If the battery status is red, replace the batteries as soon as possible.

5. The Control Unit detects whether the magnet is not in contact with the contact element, e.g. when the sash is open.

6. After two beeps, place the magnet on the contact element (e.g. by closing or locking the sash). The Control Unit detects the conductor assignment and the actuated state.

   INFO
   If the contact element is not actuated within one minute, the Control Unit will switch off. Restart the measurement by pressing the button. The Control Unit starts by checking the battery status (step 4).

7. Check that the contact element is working properly and is installed correctly by locking and opening the sash.
   The sash is open: 2x orange and 4x white LEDs light up; no sound
   The sash is locked (line contact): 2x red, 2x orange and 2x white LEDs light up, continuous sound
   LEDs must light up red at a handle position of approx. 15°.

INFO
If acoustic or visual signals other than those described above are generated, this means that the external field has been triggered. In this case, check the distance between the magnet and the contact element.

Display of the switching states

Red = N/O contact
Green = N/C contact
Orange = sabotage cable (MVS-B, MVS-C)
= joint (MTS)
Off = no connection (LEDs are not lit)

7.3 MTS

1. Use the Control Unit to check whether the contact element is working properly.

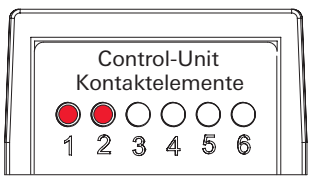
INFO
The locking cams must be inserted at least 50% into the striker or tilt striker before the contact elements report a locked position – this roughly corresponds to a handle position of 15° (from vertical).

INFO
The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 67*.
Do not use a lamp test device.

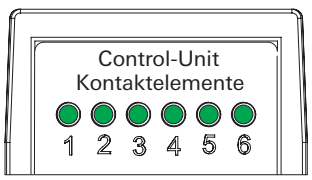
2. Connect the contact element (max. six conductors) to the Control Unit in any configuration via the terminals.

3. Remove the magnet from the contact element (e.g. by opening the window).

4. Switch on the Control Unit by briefly pressing the button. The current battery status is displayed.



Low battery voltage
LED indicator: 2x red



High battery voltage
LED indicator: 6x green

INFO
If the battery status is red, replace the batteries as soon as possible.

5. The Control Unit detects whether the magnet is not in contact with the contact element, e.g. when the sash is open.

6. After two beeps, place the magnet on the contact element (e.g. by closing or locking the window). The Control Unit detects the conductor assignment and the actuated state.

INFO
If the contact element is not actuated within one minute, the Control Unit will switch off. Restart the measurement by pressing the button. The Control Unit starts by checking the battery status (step 4).

7. Check that the contact element is working properly and is installed correctly by locking and opening the window.
   The window is open: 1x orange and 1x green LED light up, short beeps
   The window is locked: 1x red and 1x orange LED light up, continuous sound

Display of the switching states

Red = N/O contact
Green = N/C contact
Orange = sabotage cable (MVS-B, MVS-C)
= joint (MTS)
Off = no connection (LEDs are not lit)

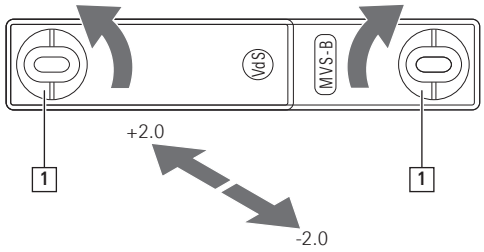
8 Adjustment

INFO
Roto hardware components may only be adjusted by authorised professionals when the element is installed.

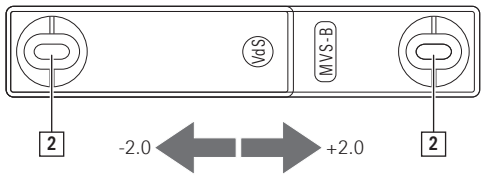
8.1 Contact element

Lateral adjustment

1. Lateral adjustment (sideways or diagonally) ±2.0 by turning the discs [1].
   Adjustment by hand, without tools.

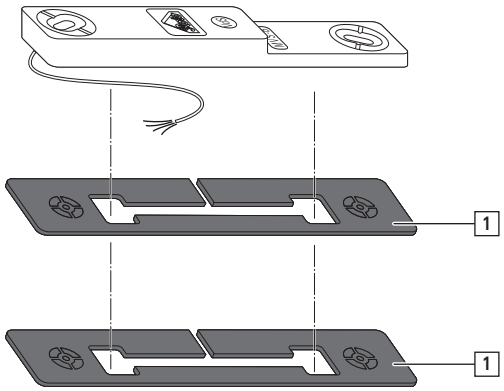


2. Lateral adjustment in the longitudinal direction through slots [2].
   Adjustment by hand, without tools.



Height adjustment

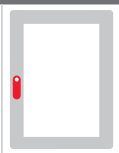
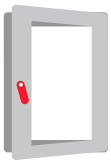
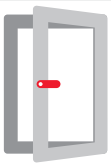
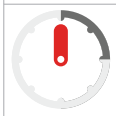
1. Insert support plates [1] until the optimum height is reached.
   Rebate clearance → *from page 24*



9 Operation

9.1 Tilt&Turn hardware

9.1.1 Handle position

Handle position	Sash position	Meaning
		Sash in closed position.
		Contact closure for the closed position of the sash.
		Sash in turned, open position.
		Sash in tilted, open position.

9.2 Roto Patio Alversa

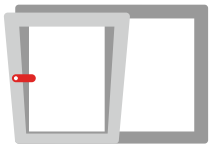
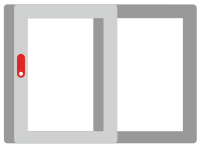
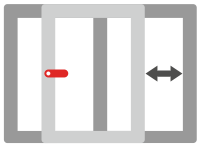
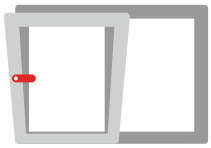
9.2.1 Roto Patio Alversa | KS

ATTENTION

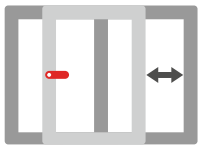
Risk of being accidentally locked out.

If the sash is in the sliding position and falls closed, the sash can engage and then be impossible to re-open from the outside.

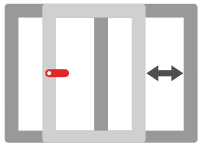
- Secure the sash against accidentally engaging when in the sliding position.
- Ensure that access is possible if necessary.

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in tilt position.
		Sash opened.
		Sash in sliding position.
		Sash engaged.
		Sash in closed position.

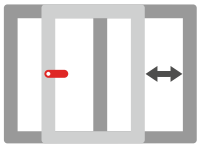
9.2.2 Roto Patio Alversa | PS without night ventilation

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.

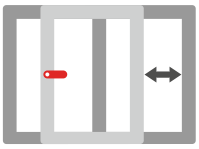
9.2.3 Roto Patio Alversa | PS with night ventilation

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.
		Sash in night ventilation position.

9.2.4 Roto Patio Alversa | PS Air

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.
		Sash in tilt position.

9.2.5 Roto Patio Alversa | PS Air Com

Handle position	Sash position	Meaning
		Sash in closed position.
		Sash in sliding position.
		Sash in comfortable tilted mode.

9.3 Fault assistance

Fault	Cause	Corrective action	To be carried out by
False alarm.	Lateral, longitudinal or height offset between magnet and contact element. Below detection range or borderline.	Check the installation dimensions and adapt them if necessary. Correct lateral and/or longitudinal offset by adjusting the contact element using a rotary disc. Correct height offset by using support plates. Electrical test by Control Unit.	■
False alarm, despite correct lateral and/or longitudinal offset.	Magnet and contact element spaced too far apart or rebate clearance too large. Below detection range or borderline.	Check the rebate clearance and correct it if necessary. Use an additional support plate for height adjustment → *from page 57*. Use a magnetic sleeve (only for MVS-B contact element). Check the handle position. Check the position of the contact element and correct it if necessary. Electrical test by Control Unit.	■
Contact element fails to switch although the magnet is installed correctly.	Cable / connection elements damaged.	Check all electrical connections, e.g. distributor, connecting terminal on BAS. Tighten the terminals. Mechanical loading of the cable (pinching). Replace the cable. Damage to the cable, e.g. due to screws. Replace the cable. Electrical test by Control Unit.	■
Contact element fails to switch although the magnet is installed correctly and the cable is intact.	Reed switch is faulty.	Replace the contact element. Ensure that there is no inductive or capacitive load, no vibration and no mechanical tension due to screw connections; comply with the technical data → *from page 67*. When replacing a contact element, a soldered connection may be produced as long as it is professionally made and insulated.	■
Contact element fails to switch although the magnet is installed correctly and the cable and reed switch are intact.	Magnet is faulty.	Replace the magnet. Ensure that there is no vibration and no mechanical tension due to screw connections.	■

☐ = May be carried out by a specialist company or the end user

■ = **Must** be carried out by a specialist company

10 Maintenance

CAUTION

Performing maintenance work incorrectly can lead to injuries.

Performing maintenance incorrectly can lead to injuries.

- Ensure that there is sufficient space for installation before starting work.
- Ensure that the installation site is clean and tidy.
- Always have hardware adjustment and replacement work performed by a specialist company.
- Secure the sash against unintentionally opening or closing.
- Do not unhinge the sash for maintenance.

INFO

Have adjustment work on the contact elements performed by a specialist company.

INFO

Have a specialist company check the distance between the magnet and contact element on a regular basis (at least annually). The position may need to be corrected to prevent malfunctions

11 Dismantling

11.1 Contact elements

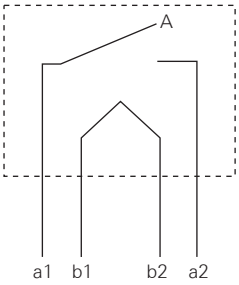
INFO
Unless otherwise stated, dismantling is performed in reverse order to installation.

12 Connection

12.1 MVS-B

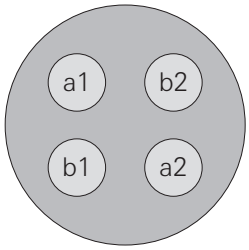
Standard

Wiring diagram



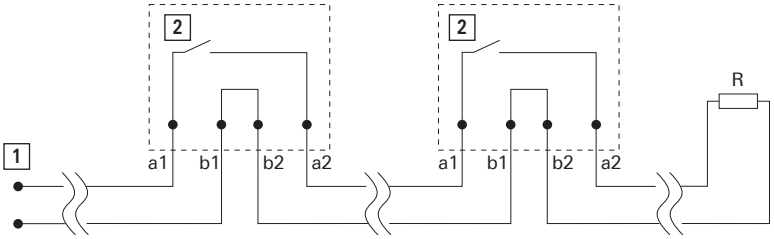
a1 Line contact
a2 Line contact
b1 Sabotage cable
b2 Sabotage cable
A Line contact (N/O contact)

Connection cable



INFO
Do not switch any inductive or capacitive loads.

Circuit example

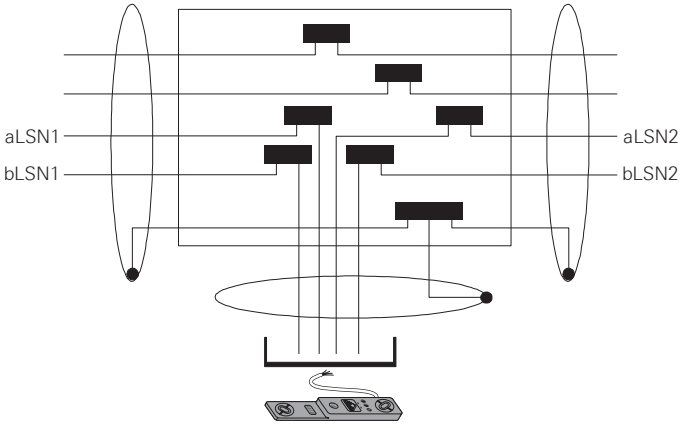


[1] Central unit
[2] Line contact

a1 Line contact
a2 Line contact
b1 Sabotage cable
b2 Sabotage cable

LSN data bus system

Network structure



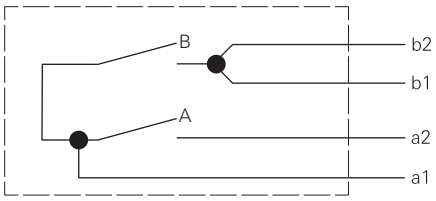
Connection

aLSN1: White
bLSN1: Brown

aLSN2: White
bLSN2: Yellow

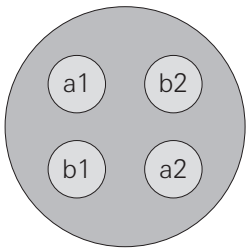
12.2 MVS-C

Wiring diagram



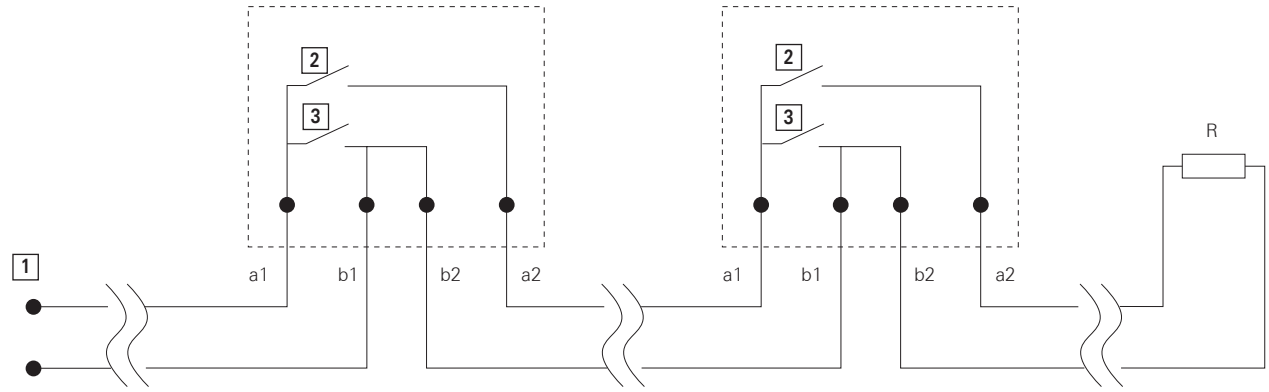
a1 Line contact
a2 Line contact
b1 Sabotage cable
b2 Sabotage cable
A Line contact (N/O contact)
B External field contact (N/O contact)

Connection cable



INFO
Do not switch any inductive or capacitive loads.

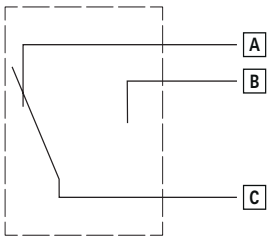
Circuit example



[1] Central unit
[2] Line contact
[3] External field contact

a1 Line contact
a2 Line contact
b1 Sabotage cable
b2 Sabotage cable

12.3 MTS



[A] Green (N/C contact)
[B] Brown (N/O contact)
[C] White

INFO
Without magnet: white-green connection
With magnet: white-brown connection

INFO
Do not switch any inductive or capacitive loads.

13 Technical data

13.1 MVS-B

Standard

Technical data	
Contact type	Reed contact, N/O contact, potential-free
Voltage	U_{max} = 100 V DC / 70 V AC
Switching current	I_{max} = 500 mA
Switching capacity	P_{max} = 10 W (= U x I)
Temperature range	-25 °C to +70 °C with fixed cabling
IP rating	IP67
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 7035 (Light grey)
Cable	LIYY 4 x 0.14 mm², white
Cable diameter	3.2 mm
Bending radius	≥ 16 mm with fixed cabling

Certificates

Certification		
VdS	G 102512	VdS class B
EN	EN-ST-000241	EN grade 2 in acc. with EN 50131-2-6
ANPI	B-659-1001	–

VdS

INFO
The certificates only apply when Roto hardware components with magnets are used.

LSN data bus system

Technical data	
Contact type	N/O contact
LSN voltage	U_{max} = 33 V DC
LSN current consumption	Approx. 0.4 mA
Temperature range	-25 °C to +70 °C, with fixed cabling
IP rating	IP67
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 7035 (Light grey)
Cable	LIY(St)Y 4 x 0.14 mm², white
Bending radius	≥ 16 mm with fixed cabling

Certificates

Certification		
VdS	G 104515	VdS class B

VdS

INFO
The certificates only apply when Roto hardware components with magnets are used.

13.2 MVS-C

Technical data	
Contact type	Reed contact, N/O contact, potential-free
External field contact	N/O contact
Voltage	U_{max} = 30 V DC / 30 V AC
Switching current	I_{max} = 200 mA
Switching capacity	P_{max} = 3 W (= U x I)
Temperature range	-25 °C to +70 °C with fixed cabling
IP rating	IP67
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 7035 (Light grey)
Cable	LIYY 4 x 0.14 mm², white
Bending radius	≥ 16 mm with fixed cabling

Certificates

Certification		
VdS	G 102039	VdS class C
EN	EN-ST-000240	EN grade 3 in acc. with EN 50131-2-6

VdS

INFO
The certificates only apply when Roto hardware components with magnets are used.

13.3 MTS

Technical data	
Contact type	Reed contact, changeover contact, potential-free
Voltage	U_{max} = 30 V DC / 30 V AC
Switching current	I_{max} = 200 mA
Switching capacity	P_{max} = 3 W (= U x I)
Temperature range	-25 °C to +70 °C with fixed cabling
IP rating	IP67
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 7035 (Light grey)
Cable	LIYY 3 x 0.14 mm², white
Bending radius	≥ 16 mm with fixed cabling

14 Transport

14.1 Transporting contact elements

The contact element is a delicate electromechanical component.

Do not expose the contact element to mechanical loading, impact, collisions, extreme heat or electric overload during transport, storage and operation.

This also applies to the installed state in the frame, when the window is subsequently transported.

14.2 Transport inspection

Immediately check the delivery for completeness and transport damage on receipt.

ATTENTION

Strong vibration may cause property damage.

Strong vibration can permanently damage the magnet and contact element.

- Avoid vibration during transport.

15 Disposal

ATTENTION

Incorrect disposal may pollute the environment.

Pieces of hardware are raw materials.

- Dispose of hardware for environmentally friendly material re-utilisation as mixed scrap.

15.1 Disposing of packaging

The hardware is supplied as complete sets together with the packaging. Once unpacked, the installation company or builder is responsible for disposing of the packaging properly. The packaging materials are produced in accordance with current environmental protection standards. The materials can be recycled separately.

Follow the basic instructions below for the proper disposal of packaging:

- Do not dispose of packaging in household waste.
- Hand over packaging at local waste collection points or recycling centres.
- Observe the national regulations on the disposal of recyclable materials.
- Contact the local authorities if necessary.

15.2 Disposing of hardware

Once the hardware is finished with, the end user or builder is responsible for properly disposing of the windows, doors or balcony doors and the hardware, including any accessories. Hardware is produced in accordance with current environmental protection standards. The materials can be recycled separately.

Follow the basic instructions below for the proper disposal of hardware:

- Observe the information and specifications for disposal contained in the other applicable documents.
- Separate hardware components from windows, doors or balcony doors.
- Do not dispose of hardware in household waste.
- Hand over hardware at local waste collection points or recycling centres.
- Observe the national regulations on the disposal of recyclable materials.
- Contact the local authorities if necessary.

15.3 Electronic waste

Disposal of electronic waste in accordance with the legal regulations in the individual countries, e.g. in accordance with EU directives (2002/95/EC: Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, RoHs and 2002/96/EC: Requirements for the take-back and recycling of waste electrical and electronic equipment (WEEE)).

According to the Federal Electrical and Electronic Equipment Act (ElektroG) in Germany, waste electronic equipment must not be disposed of in household waste; it must be taken to an appropriate disposal site.

16 Additional information

16.1 Declaration of Conformity

Roto

EU-Konformitätserklärung
EU Declaration of Conformity

Hersteller:
manufacturer:

Roto Frank Fenster- und Türtechnologie GmbH
Wilhelm-Frank-Platz 1
D-70771 Leinfelden-Echterdingen

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Produkt-/ Typbezeichnung:
name of product/ type:

MVS/MTS-Kontaktelemente (siehe Anhang 1)
MVS/MTS-contact elements (see annex 1)

Seriennummer, Baujahr
serial number, year of manufacture:

siehe Typenschild
according to identification plate

Die Gegenstände dieser Erklärung erfüllen die einschlägigen, nachstehend benannten Harmonisierungsrechtsvorschriften der Union.
The items addressed by this declaration satisfy the relevant harmonization legislation of the European Union.

EU-Richtlinie *EU Directive*	Norm *Standard*
2014/30/EU **Elektromagnetische Verträglichkeit (EMV)** ***Electromagnetic Compatibility (EMC)***	**EN 50130-4: 2015-04** **EN 61000-4-2: 2009-12** **EN 61000-4-3: 2011-04** **EN 61000-4-4: 2013-04** **EN 61000-4-5: 2015-03** **EN 61000-4-6: 2014-08** **EN 61000-4-11: 2016-10** **EN 61000-6-3: 2011-09**
2011/65/EU (RoHS) **2011/65/EU (RoHS II)** **2015/863/EU (RoHS III)**	**EN 50581: 2013-02**

Leinfelden-Echterdingen, 23.11.2020
Ort, Datum
place, date

H. Schmidt
Hartmut Schmidt
Direktor Produktinnovation
VP Product Innovation

EU-DOC MVS MTS V1.0.docx V1.0 Seite/page 1 von/of 2

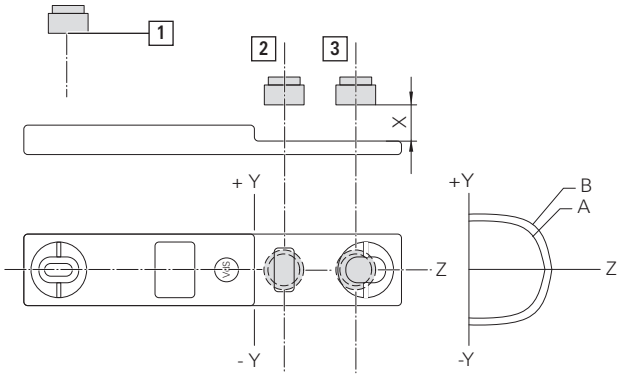
Anhang 1
Annex 1

Artikel-Nr. *product-ID*	Artikelbezeichnung	*name of product*
292101	MVS-KONTAKTELEMENT VDS B 6M	MVS-CONTACT VDS B 6M
292114	MVS-KONTAKTELEMENT VDS C 6M	MVS-CONTACT VDS C 6M
292118	MTS-KONTAKTELEMENT 6M	MTS-CONTACT 6M
335077	MTS-KONTAKTELEMENT 10M	MTS-KONTAKTELEMENT 10M
335078	MVS-KONTAKTELEMENT VDS B 10M	MVS-CONTACT VDS B 10M
335079	MVS-KONTAKTELEMENT VDS C 10M	MVS-CONTACT VDS C 10M
336318	MVS-KONTAKTELEMENT LSN VDS B 6M	MVS-CONTACT LSN VDS B 6M
384016	MVS-KONTAKTEL.-SET o.VDS 6M SILBER	MVS-CONTACT-SET wo.VDS 6M SILVER
485530	MVS-KONTAKTEL.-SET o.VDS 4-ADR. 10M SILBER	MVS-CONTACT-SET wo.VDS 4-wire 10M silver
635289	MVS-KONTAKTELEMENT VDS B RUND 6M	MVS-CONTACT VDS B ROUND 6M
737983	MVS-KONTAKTELEMENT VDS B RUND 10M	MVS-CONTACT VDS B ROUND 10M
791950	MVS-KONTAKTELEMENT VDS C RUND 6M	MVS-CONTACT VDS C ROUND 6M
791951	MTS-KONTAKTELEMENT RUND 6M	MTS-CONTACT ROUND 6M
794823	MVS-KONTAKTELEMENT-SET RUND 3M SCHRAUBB	MVS-CONTACT-SET ROUND 3M
814899	MVS-KONTAKTELEMENT VDS B 20M	MVS-CONTACT VDS B 20M
858477	MVS-KONTAKTELEMENT VDS B RUND 6M	MVS-CONTACT VDS B 6M
858478	MVS-KONTAKTELEMENT VDS B RUND 10M	MVS-CONTACT VDS B ROUND 10M
891372	CONTROL-UNIT KONTAKTELEMENTE	CONTROL-UNIT CONTACT-ELEMENTS
891373	KABEL 6POL F CONTROL-UNIT PG MK 6	CABLE 6PIN CONTROL-UNIT PG MK 6
896748	MVS-KONTAKTELEMENT VDS B RUND 20M	MVS-CONTACT VDS B ROUND 20M
899191	MVS-KONTAKTELEMENT VDS C RUND 10M	MVS-CONTACT VDS C ROUND 10M
2024961	MVS-KONTAKTELEMENT VdS C RUND 20M	MVS-CONTACT VDS C ROUND 20M

16.2 Tolerance fields of contact element and magnet

16.2.1 MVS-B

Hardware-coupled magnet



[1] Reference point (centre of magnet and external contour)
[2] Locking position
[3] Turn position

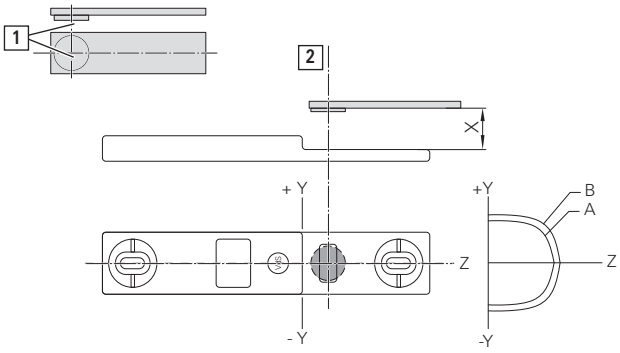
Timber and PVC

	Switching distance	Tolerance
[A] = proximity / switch-on distance	14	±4
[B] = removal / switch-off distance	18	±4
[X] = distance	2.7	±2.5
Tolerance in [Y]: ±2		

Aluminium

	Switching distance	Tolerance
[A] = proximity / switch-on distance	14	±3
[B] = removal / switch-off distance	17	±3
[X] = distance	2.7	±2.5
Tolerance in [Y]: ±2		

Rebate magnet



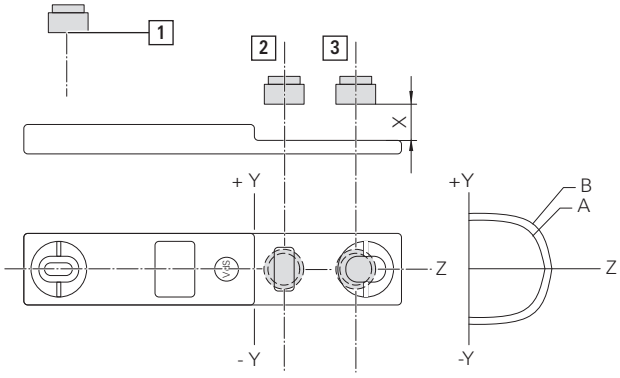
[1] Reference point
[2] Locking position

Timber, PVC and aluminium

	Switching distance	Tolerance
[A]	7	±3
[B]	9	±3
[X]	2.15	±1.75
Tolerance in [Z]: +1 / -1.5		

16.2.2 MVS-B LSN

Hardware-coupled magnet



[1] Reference point
[2] Locking position
[3] Turn position

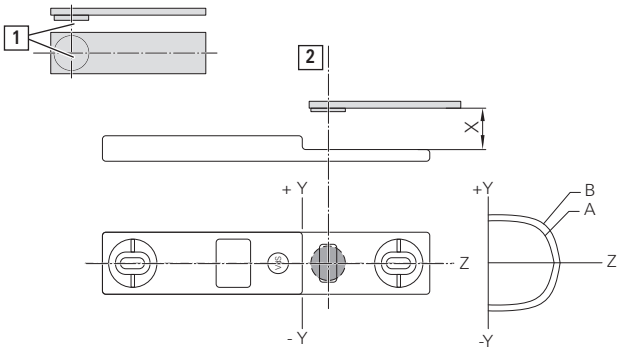
Timber and PVC

	Switching distance	Tolerance
[A] = proximity / switch-on distance	17	±3
[B] = removal / switch-off distance	19	±3
[X] = distance	1.95	±1.75
Tolerance in [Y]: ±2.0		

Aluminium

	Switching distance	Tolerance
[A] = proximity / switch-on distance	17	±3
[B] = removal / switch-off distance	18	±3
[X] = distance	1.95	±1.75
Tolerance in [Y]: ±2		

Rebate magnet



[1] Reference point

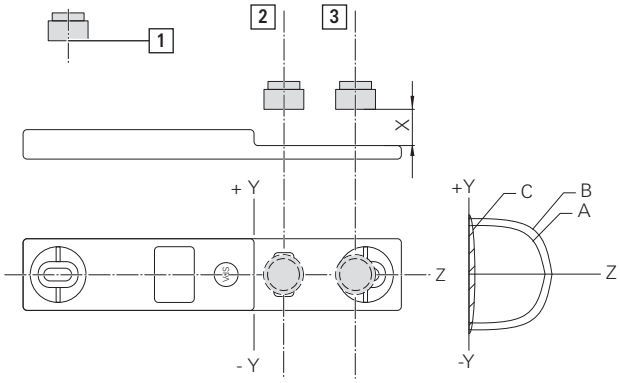
[2] Locking position

Timber, PVC and aluminium

	Switching distance	Tolerance
[A]	5	±3
[B]	8	±3
[X] = distance	2.15	±1.75
Tolerance in [Z]: +1 / -1.5		

16.2.3 MVS-C

Hardware-coupled magnet



[1] Reference point
[2] Locking position
[3] Turn position

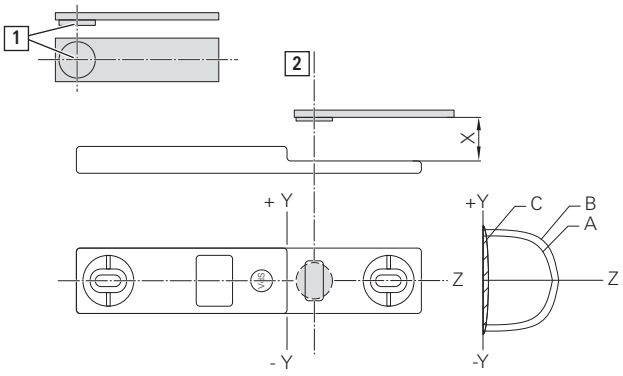
Timber and PVC

	Switching distance	Tolerance
[A] = proximity / switch-on distance	11	±3
[B] = removal / switch-off distance	14	±3
[C] = prohibited area / sabotage area	0.5	+0 / -0.5
[X] = distance	1.2	±1
Tolerance in [Y]: ±2		

Aluminium

	Switching distance	Tolerance
[A] = proximity / switch-on distance	11	±3
[B] = removal / switch-off distance	13	±3
[C] = prohibited area / sabotage area	0.5	+0 / -0.5
[X] = distance	2.2	±1.5
Tolerance in [Y]: ±2		

Rebate magnet



Timber and PVC

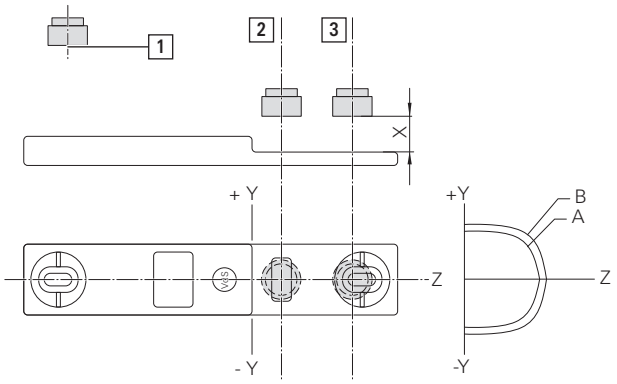
	Switching distance	Tolerance
[A] = proximity / switch-on distance	4	±2
[B] = removal / switch-off distance	6	±2
[C] = prohibited area / sabotage area	0.5	+0 / -0.5
[X] = distance	1.4	±1
Tolerance in [Z]: +1 / -1.5		

Aluminium

	Switching distance	Tolerance
[A] = proximity / switch-on distance	4	±2
[B] = removal / switch-off distance	6	±2
[C] = prohibited area / sabotage area	0.5	+0 / -0.5
[X] = distance	1.65	±0.75
Tolerance in [Z]: +1 / -1.5		

16.2.4 MTS

Hardware-coupled magnet



[1] Reference point
[2] Locking position
[3] Turn position

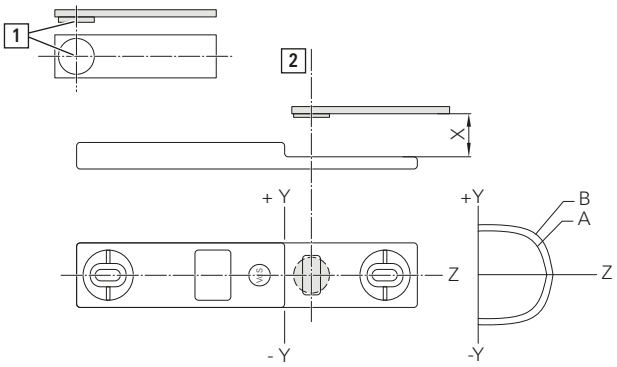
Timber and PVC

	Switching distance	Tolerance
[A] = proximity / switch-on distance	13	±3
[B] = removal / switch-off distance	15	±3
[X] = distance	1.95	±1.75
Tolerance in [Y]: ±2		

Aluminium

	Switching distance	Tolerance
[A] = proximity / switch-on distance	11	±3
[B] = removal / switch-off distance	14	±3
[X] = distance	2.7	±2.5
Tolerance in [Y]: ±2		

Rebate magnet



[1] Reference point
[2] Locking position

Timber, PVC and aluminium

	Switching distance	Tolerance
[A]	5	±3
[B]	7	±3
[X] = distance	2.15	±1.75
Tolerance in [Z]: +1 / -1.5		

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