



Installation Manual



LDR Shutters

Standard 1001 module

Mini 1002 module

Translation of the original installation manual

Doc. ID: 2018-LDR-RLS-V1.2



Carefully read this manual before beginning any work.

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1 Identification

Manufacturer	Address	LDR-Rolltechnik GmbH Hainberg 34 94424 Arnstorf	
	Phone	+49 8723 97964-0	
	Fax	+49 8723 97964-11	
Contact information	Web	www.ldr-rolltechnik.de	
	E-mail	info@ldr-rolltechnik.de	
Contact	Name	Alexander Vilsmaier	
	E-mail	alexander.vilsmaier@ldr-rolltechnik.de	
Product description	Product	Shutter	
	Type	Standard module	1001
		Mini module	1002
	Production	from 01/2017	
Formal data	Document ID	2018-LDR-RLS-V1.2	
	Version	V1.2	
	Created	mr  technik	
	Creation date	15 Nov 2016	
	Last change	29 Apr 2021	

2 General information

Familiarity with the contents	Familiarity with and adherence to the basic safety and task-related instructions in this installation manual are a prerequisite for the safe handling of the shutter.
Translation	The language version identified by the manufacturer as the “original installation manual” shall have exclusive validity. Other language versions of this installation manual published by the manufacturer are identified as “translation of the original installation manual”.
Forwarding	This installation manual and all other applicable documentation must be included whenever the shutter is sold or handed over to third parties.
Warranty	Legitimate warranty claims can be filed within the legal term. The warranty does not apply to damage or defects caused by improper handling. Any repairs, changes, or modifications to the shutter shall void all warranty claims.

2.1 Explanation of symbols and hazard information

The conventions and symbols used in this installation manual are explained below.

Warnings



DANGER

This combination of a symbol and a signal word indicates an immediately dangerous situation that will result in death or serious injury unless avoided.



WARNING

This combination of a symbol and a signal word indicates a potentially dangerous situation that may result in death or serious injury unless avoided.



CAUTION

This combination of a symbol and a signal word indicates a potentially dangerous situation that may result in light or moderate injury unless avoided.

Attention



ATTENTION

This combination of a symbol and a signal word indicates a potentially dangerous situation that may result in damage to materials or equipment unless avoided.

Information



INFO

Tips and additional information

Warning signs



General warning sign



Falling hazard



Falling objects hazard



Sharp objects hazard



Electrical voltage hazard

Instruction signs



General instruction sign



Observe manual



Wear protective clothing



Wear foot protection



At least two persons required

2.2 Other applicable documentation

In addition to this manual, the technical documentation for incorporated assemblies and components applies. Observe the contents of any other applicable documentation when using the shutter.

3 Safety

This chapter describes all relevant aspects related to the safe use of the shutter. Other task-related warnings are included in the chapters about the phases of the product life cycle.

Any actions not described in the installation manual are to be considered unsafe. Using the shutter in ways differ from the descriptions in this installation manual may result in serious injury.

- Read the chapter on safety before beginning any work.
- Read applicable chapters before performing any tasks.

3.1 Appropriate use

Use	The shutter is intended for commercial use in industrial applications, as well as in coachbuilding and the manufacture of vehicles.
Applications	Installation in: ▪ Special vehicles (e.g. fire trucks) ▪ Machines and systems, as a barrier (not as a protective safety barrier) ▪ Tool cabinets ▪ Shelves
Prerequisites for use	▪ Installation and custom fitting at the place of assembly ▪ Installation by qualified technicians
Specified lifetime	100,000 operating cycles

3.2 Inappropriate use

Inappropriate use

Any use other than the applications described in section 3.1 shall be considered inappropriate.

The following methods of attachment are also inappropriate.

- Wall openings in residential homes or other buildings
- Walk-on cover (e.g. pit cover)

3.3 Basic safety instructions

Improperly attached parts



Improperly attached parts of the shutter may come loose during operation and cause dangerous situations. Falling parts may cause serious physical injury.

Actions:

- Check that the shutter is in proper working condition. Observe maintenance intervals.

When exchanging or reattaching parts:

- Ensure that the attachment hardware is in good condition.
- Exchange or renew hardware or attachment parts properly as required.
- Attach parts properly according to the instructions in the applicable documentation.
- Check attached parts for proper and safe condition.

Sharp corners or edges



Sharp corners and edges have been eliminated as much as possible during the manufacturing process. However, there remains a risk of cuts and abrasions during cleaning and maintenance.

Actions:

- Exercise due care and caution.
- Deburr or file down parts that have become sharp.

Handling electrical power



The electrical equipment uses a voltage of 230 V, with correspondingly high currents. Because currents as low as 10 mA may be lethal, there is a risk of injury or even death when touching live parts. Damage to the insulation or to parts of the electrical equipment may create a life-threatening hazard.

The basic precautions must always be applied. Other precautions may be required depending on the task performed.

5 safety rules for electrical work

To avoid electrical hazards, apply the following five safety rules when performing any work on electrical equipment.

Before beginning work on electrical equipment:

1. De-energize.
2. Secure against switching on.
3. Verify that the equipment is voltage-free.
4. Ground and short-circuit.
5. Cover or fence off nearby live parts.

Restrict access to trained electricians

- All work on electrical equipment must be performed by trained electricians.
- Keep access doors to electrical equipment locked.

Basic precautions

- Wear insulating safety shoes for all electrical work.
- Avoid contact with live parts.
- De-energize active electrical equipment before performing any work on it.
- Dissipate stored residual energy (e.g. in capacitors).
- Moisture may cause shorts! Keep live parts dry.

Additional precautions for maintenance

- All maintenance work must be performed by trained maintenance technicians.
- Secure the main switch against being turned on by third parties during maintenance work.
- Never bridge or disable fuses or circuit breakers.
- Replace defective fuses or circuit breakers with parts that have the required technical specifications (current, voltage, breaking capacity, tripping characteristic).

Additional precautions in case of malfunction

- Immediately disconnect the power supply in case of damage to cable insulation or other electrical equipment.
- Have repairs performed by trained electricians.

Electromagnetic compatibility

Electromagnetic waves may generate undesired voltages and currents in electrical circuits. In the worst case, this may cause a loss of functionality. The following technical rules must be observed for sensors, controllers, and actuators to work without fault.

Electromagnetic emissions may also impede the safe operation of other systems/machines or electrical equipment/devices.

The following applies for any work on electrical equipment:

- Have all work performed by trained electricians.
- Follow the instructions in the applicable documentation.
- Observe the EMC Directive.

Precautions for fault prevention:

- Select EMC compatible electrical equipment and systems.
- Use conductive shielding materials.

- Filter electrical circuits.
- Twist electrical cables.
- Select suitable equipotential bonding.
- Avoid large parasitic current loops.
- Depending on the fault situation: Disconnect or connect the electrical ground.

3.4 Installation personnel

For appropriate installation and use of the shutter, all work must be performed by qualified and instructed personnel with suitable training.

Qualification

The installation personnel must have the following competences:

- Completed vocational training in one of the following professions in the metals industry:
 - Coach and vehicle builder
 - Systems mechanic
 - Production mechanic
 - Industrial mechanic
 - Construction mechanic
 - Mechatronics technician
 - Toolmaker
- Technical knowledge and experience with mechanical systems.

PSE to be used

Wear the following personal safety equipment during the installation:



Close-fitting safety clothes with high tear resistance



Safety shoes of the category required at the place of installation (minimum: S1).

3.5 Labels and marking

The shutter bears labels and markings that warn of residual risks or provide instructions for safe behavior or operation. Periodically check existing labels and markings for legibility and completeness. The owner is responsible for renewing labels and markings that have sustained damage or become illegible over time.

ID plate

LDR-Rolltechnik GmbH
Hainberg 34, D-94424 Arnstorf
www.ldr-rolltechnik.de
Tel.: 0049-8723-97964-0

Typ: LDR Modul
B x H

Seriennummer:

Spring roller

Welle vorgespannt!
Roller under tension!!!

Umdrehungen:
Turns: _____

Mitarbeiter: _____
Operator: _____

Tension ↑

Relax ↓

Dieser Aufkleber
immer RECHTS
(von innen)!!

This Label always
RIGHT (from inside)!!

Weight

Modul B x H
Gewicht netto:

4 Scope of delivery

Check the delivery for completeness and integrity immediately upon receipt, referring to the included bill of materials. Have any transport damage to the packaging or the shutter confirmed in writing by the carrier immediately upon detection. Later complaints will not be accepted. Additional deliveries will be billed.

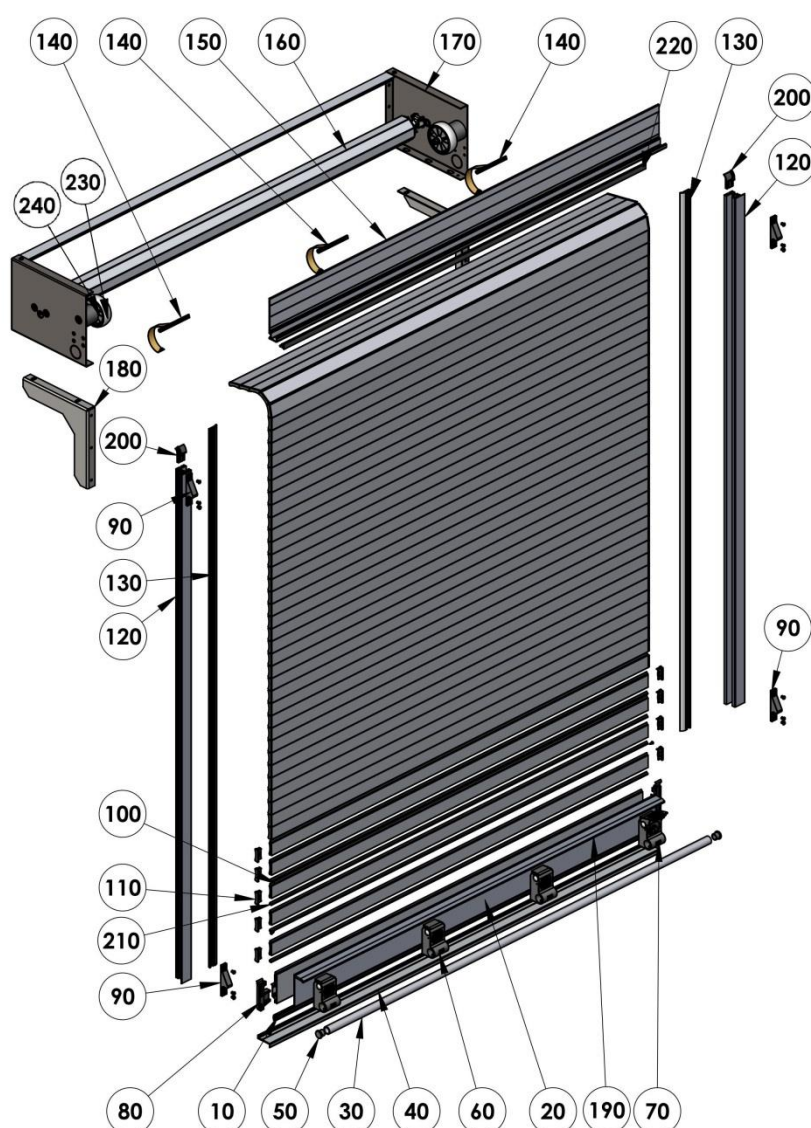
5 Construction of the shutter

A standard shutter consists of the following parts. The explosion drawing below illustrates the construction of the shutter.

i

INFO

The actual construction depends on the specifications made in the shutter configurator.



10	Seal of the end profile
20	End profile
30	Handle bar
40	Sill
50	End caps of handle bar
60	Handle without lock
70	Handle with bar lock
80	Sliding end pieces of the end profile
90	Hooks
100	Shutter profile (slat)
110	Shutter end caps
120	Guide rail
130	Guide rail seal
140	Suspension spring
150	Rain gutter
160	Spring roller
170	Module
180	Mounting kit (optional)
190	Reinforcement bracket (optional or from W > 2200 mm)
200	Guide rail inlet funnel
210	Joint seal
220	Rain gutter seal
230	Deflection rollers with accessories
240	Deviating shaft (optional or standard if B > 2000mm)

6 Assembly and installation

6.1 Preparation

Ensure the following prerequisites are fulfilled before assembling and installing the shutter:

Installation location

- Installation location/opening has sufficient mechanical strength.
- The surfaces in contact with the components and assemblies of the shutter are flat and clean.
- The components and assemblies of the shutter are in without defect or damage.
- The installation technicians have all required tools, aids, and hardware at their disposal.
- The installation opening is easily accessible.
- Depending on the installation height, there are scaffolding, a mobile working platform, or other secure access aids provided at the installation location.

Tools and aids

(not included!)

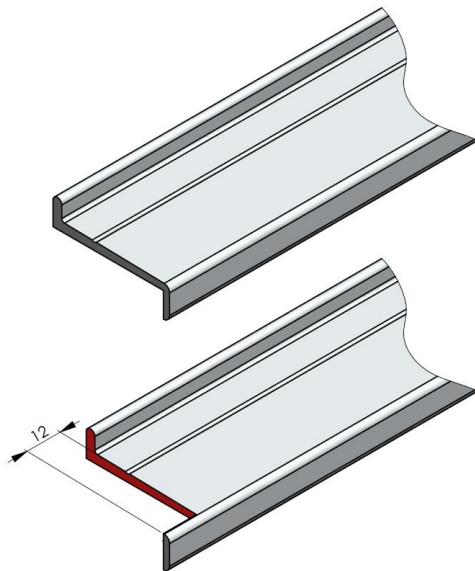
Type	Functions
Saw/chop saw	Trimming and cutting of: ▪ Guide rails ▪ Sill ▪ Rain gutter
▪ Cordless screwdriver ▪ Drill ▪ Bit set ▪ Countersink ▪ Punch ▪ Wrench ▪ Allen keys ▪ Blind riveter	▪ Drill mounting holes ▪ Prepare holes for mounting ▪ Attach hardware
▪ Safe access aid (scaffolding) ▪ Factory crane	▪ Installation of the shutter at height

Attachment hardware

(not included!)

- M8 DIN 912 for installation of the module in the vehicle
- Screws for lateral guide rail according to selection in the shutter configurator
- Attachment screws for rain gutter, DIN 7991 with countersunk head
- Auto body sealant, auto body adhesive

6.2 Shutter module



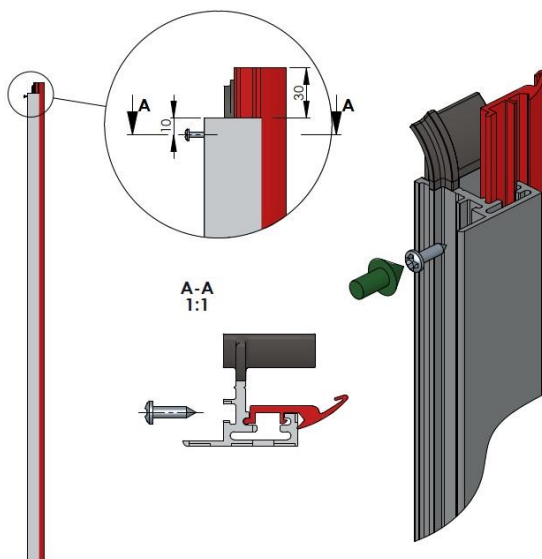
1. Trim sill to the required length.

For F003 guide rail, unhook corner and attach separately.

For F003, the dimension for trimming equals the clear width plus 24 mm.

! ATTENTION

Attach the sill to the frame using auto body glue. Screws are unsuitable for attachment because the seal might be damaged by the rubber lip.



2. Trim the guide rails and the black friction seals to the required length.

(Consider the sill and rain gutter when determining the length of the guide rail.)

For most installations, the friction seals may be a little longer than the guide rails and stand out over the top. This improves the corner seal and the entry at the top.

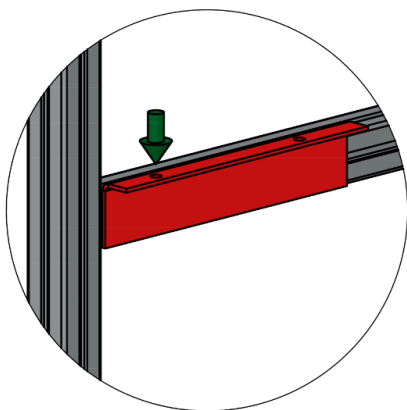
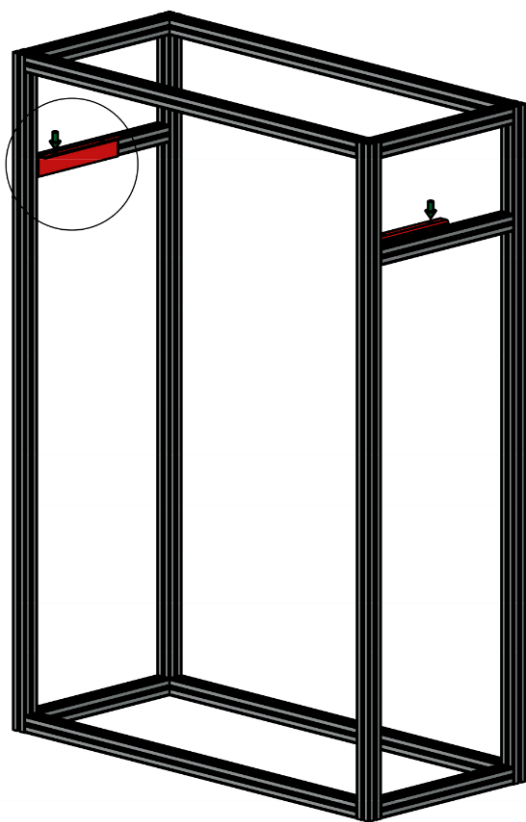
Secure the friction seal against shifting upward using one of the following options:

- Use an extra-long friction seal that extends at the top end.
- Secure mechanically using 2.2 x 6.5 mm tapping screws.
- Glue in place

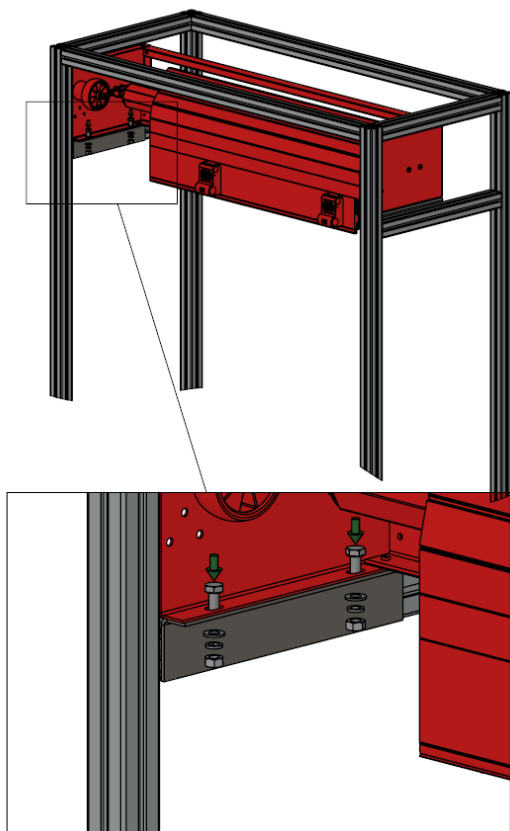
! ATTENTION

After installing the roller shutter, the running surfaces of the guide rails should be treated with PTFE spray to improve the sliding properties and the responsiveness of the roller shutter!

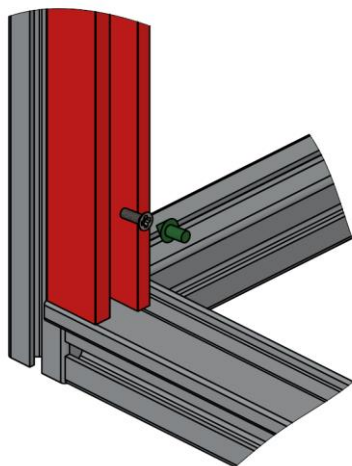
3. Prepare the installation of the shutter by mounting the lateral L brackets (not included).



- Slide the shutter into the holder and fix lightly.

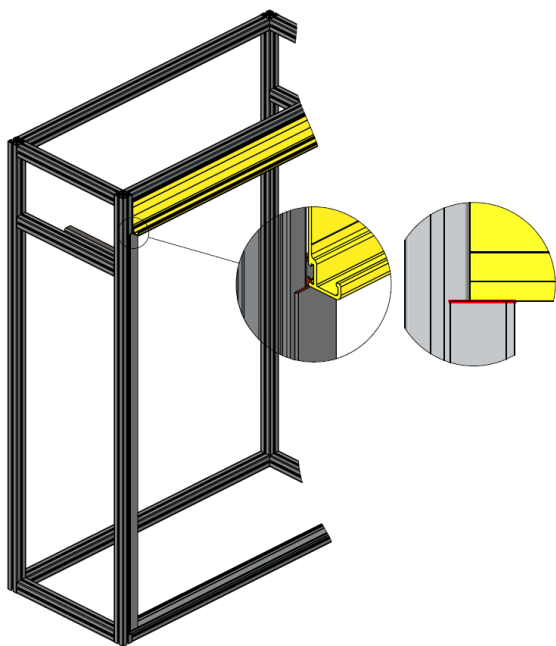


- Attach the guide rails laterally using countersunk head screws.



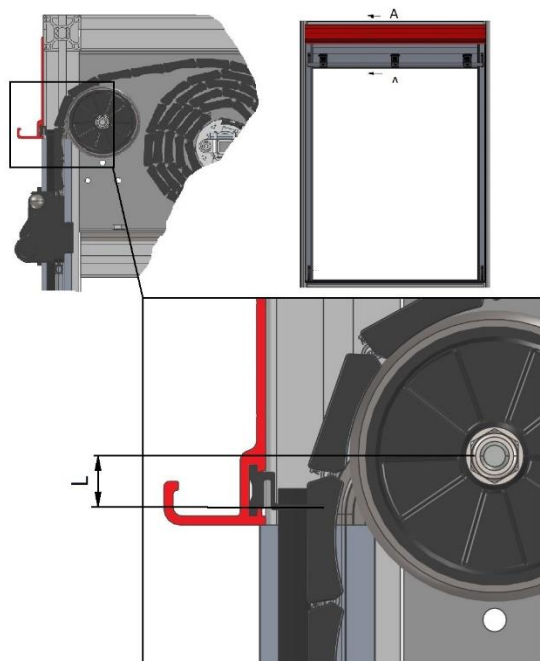
! ATTENTION

Install M5 screws or countersunk head tapping screws (4–5 mm) every 300 mm. Use at least 3 screws per guide rail as a minimum.



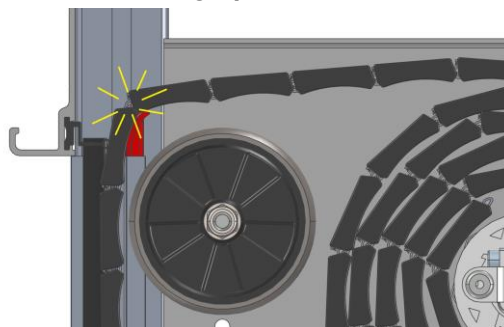
6. Attach rain gutter and sealing lip.
 - Trim rain gutter to the required length.
 - **For versions F1D5, D004, D001:** Unhook the corners to ensure the slat makes contact at right angles.
 - Trimming the sealing lip: Trim corners at an angle, between friction seals.
 - Draw the sealing lip into the profile
 - Attach rain gutter: Screw or glue

graphic 1



Dimension L = min. 20 mm

graphic 2



! HINWEIS

The guide rails must be shortened so that the constellation of rain gutter and guide rails of the Representation in graphic 1 corresponds to!

If the guide rails are not shortened appropriately, the run-up of the guide rails is exposed to excessive loads and will be damaged (see graphic 2)

Due to the too high kink angle of the individual slats, the Separate the slats, which results in a complete failure of the roller shutter system!

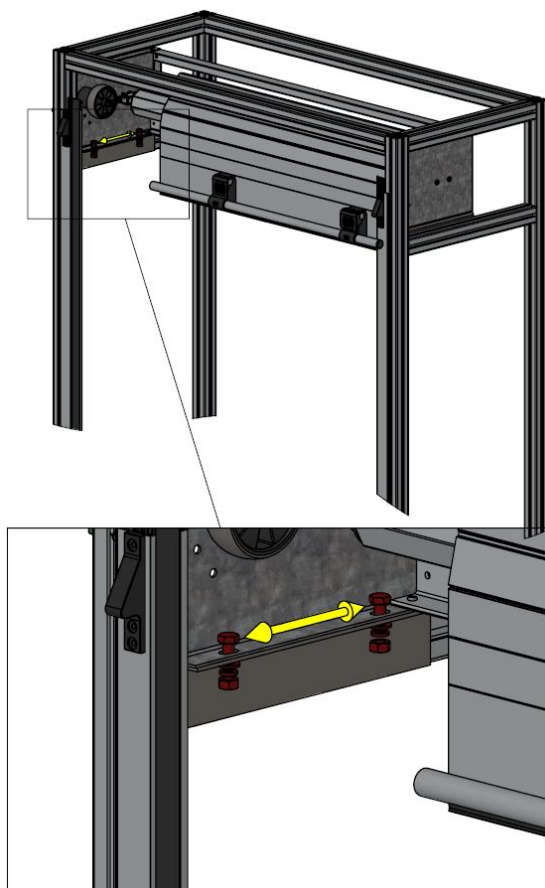
- Adjust installation depth of the shutter modules at the slotted holes. This ensures an even seal of the rain gutter rubber lip and smooth operation of the shutter.

! ATTENTION

The shutter should meet the guide rollers at right angles.

! ATTENTION

Observe the setting instructions on page 19.



8. Rivet the hooks to the outer surface of the guide rail.

! ATTENTION

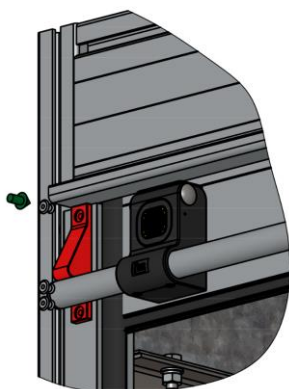
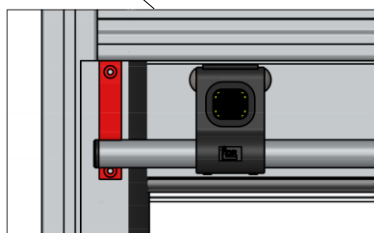
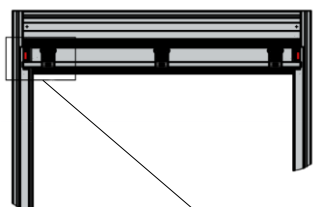
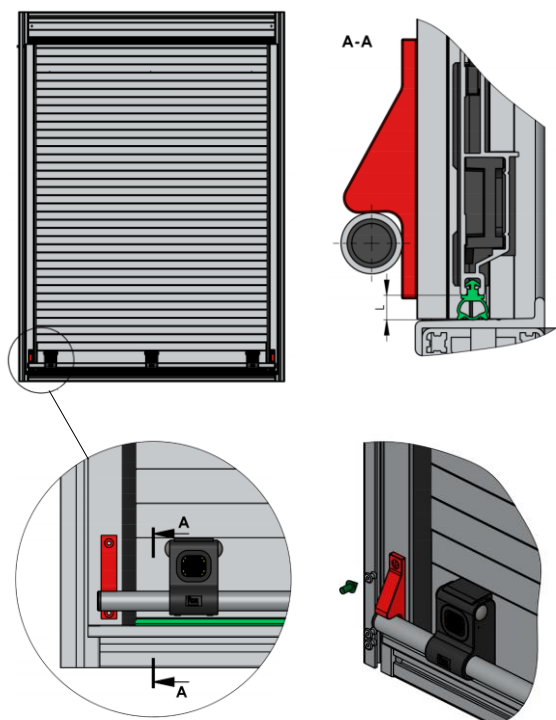
Install the lower hook so that the rubber lip of the end profile is compressed by about 4-5 mm when closed.

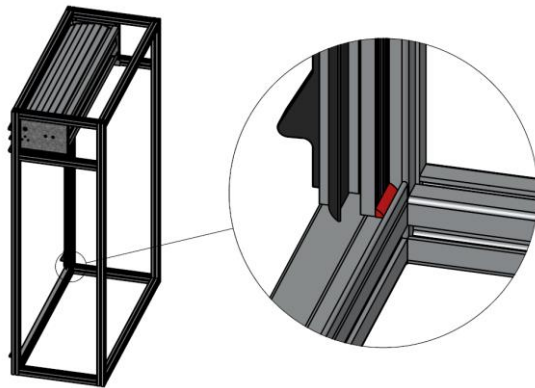
INFO

The delivery scope may include:

- Lower hooks for the handle bar when closing
- Upper hooks as an upper end stop
- Spacer discs for height adjustment

See the attached bill of materials for the actual number of parts.





9. Seal the guide rails and sill on the inside with auto body sealant.

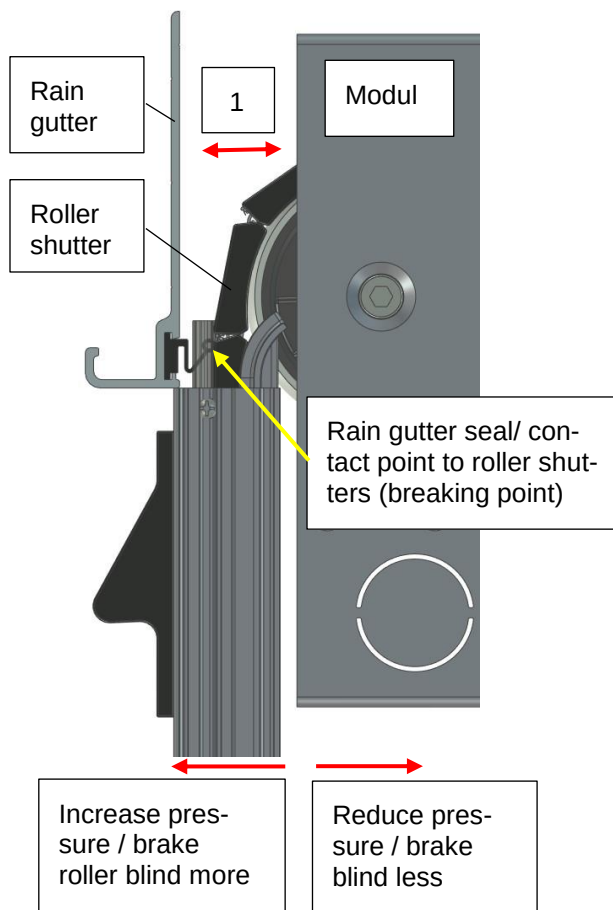
! CAUTION

There is a risk of water ingress in case of improper execution or failure to follow instructions.

10. Remove the (current) blue protective film from the end profile and the guide rails.

! ATTENTION

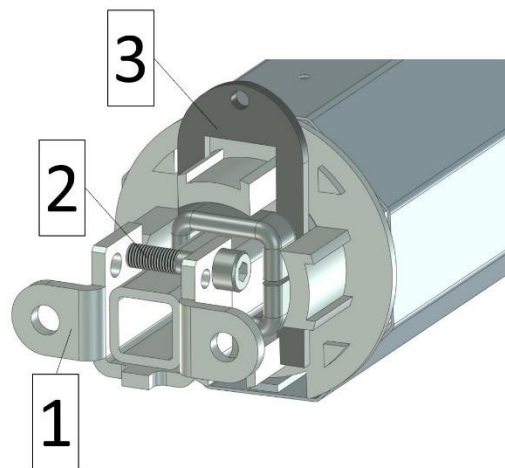
The (currently) blue protective film should be removed immediately after installation! Long exposure to sunlight / UV light can detach the adhesive from the film and leave it on the profiles after it has been removed!



! ATTENTION

In order to enable the roller shutters to be rolled up properly, it is essential to fine-tune the contact pressure of the rain gutter seal over the distance from the module to the rain gutter (1) after complete assembly! By adjusting the module via the elongated holes, the braking effect of the seal can be influenced accordingly (see graphic).

6.3 Spring roller



1	Lateral support
2	M5x25 cylinder head screw
3	Retaining bracket

1. Install the lateral supports of the spring roller (1) in the mounting hole using M5 screws.

2. Place the spring roller in the lateral supports.

! ATTENTION

The label text must be upside down.
(View from outside the installation opening)

The retaining bracket must be on the left-hand side.
(View from outside the installation opening)

3. Use the screws (2) to fix the spring roller in the lateral supports.

! ATTENTION

The retaining bracket must point up while the shutter curtain is attached. Else the actual number of turns will not match the required number of turns.

4. Attach shutter curtain.
Attach suspension springs.

! ATTENTION

Do not install suspension springs or screws in the following areas:

- Edges (70 mm to the left or right of the spring roller)
- Label area:
Do not use this hole!

The function of the mechanical assembly will be impeded!

5. Remove the retaining bracket.

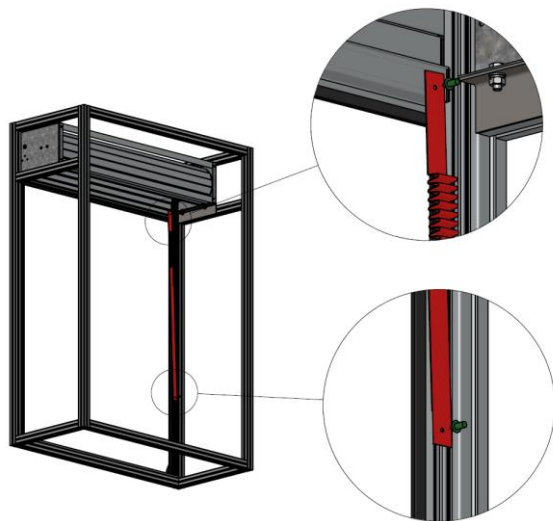
WARNING

The tension of the pre-loaded spring roller contains a high mechanical force. This step in the process requires at least 2 technicians. Both must hold the spring roller with their hands and turn it slowly. Failure to observe these instructions may result in serious injury!



- One technician turns the spring roller and unwinds the shutter.
- The second technician removes the retaining bracket when no longer loaded.
- Both technicians keep turning the spring roller until the shutter or the suspension springs are tensioned.

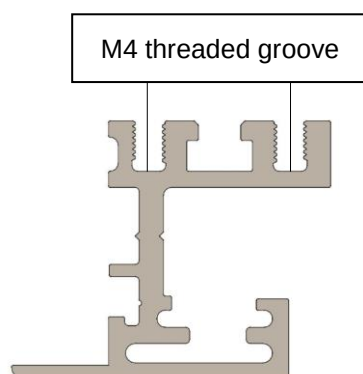
6.4 Pulling strap (optional)



The pulling strap can only be installed after the installation of the shutter has been completed.

1. Attach the pulling strap to the outer holes of the end profile using suitable hardware (rivets, tapping screws).
2. Attach the pulling strap at the required height using suitable hardware (rivets, tapping screws, machine screws):

Either in the M4 threaded groove of the guide rail (except rail 11b and F1F4) or directly in the frame.



7 Operation

Prerequisite:

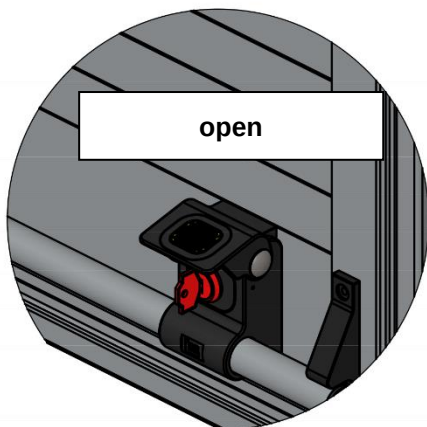
The lock on the right is in the **open** position. If the lock is still in the **closed** position, unlock it before moving the shutter.



1. Pull the handle bar toward yourself to unlock the shutter. Let the handle bar slide over the black hooks.
2. Holding the handle bar with both hands, move the shutter to the upper or lower end position.

CAUTION

During the movement, ensure that the danger area is unobstructed and free of people or animals.



ATTENTION

To avoid damage to the shutter curtain, only pull the shutter down in the **open** position. Remove the key from the shutter to prevent accidental changes in adjustment.

Operate the lock only when the end profile is locked:

- Bottom position
- Shutter closed

8 Technical data

8.1 Mechanical data



INFO

The actual mechanical data of the shutter depend on the specifications made in the shutter configurator.

For information about the weight of the shutter, see the included bill of materials or the labels on the shutter module.

8.2 Electrical data



INFO

The actual electrical data of the shutter depend on the specifications of the drive used.

The technical data for the drive are part of the included applicable documentation.

8.3 Performance limits

Assuming appropriate use, the shutter is designed for 100,000 operating cycles.

8.4 Storage conditions

Temperature

-30 to +60 °C

9 Maintenance

Perform regular maintenance to ensure the continued safe operation of the shutter.

Spare and wear parts



WARNING

Use of spare or wear parts other than those specified may be dangerous. Use only the specified original spare and wear parts and accessories. Contact LDR-Rolltechnik for specifications of spare and wear parts if required.

Falling



WARNING



Holding on to the slats or the shutter curtain may create a falling hazard.

Use suitable access aids, working platforms, or scaffolding for maintenance and cleaning.

9.1 Cleaning

Basic information

- Switch off the device before performing any maintenance and cleaning tasks.
- Keep the area around the shutter free of dirt.
- Clean regularly and as required. The abrasive effect of foreign particles reduces the service life and increases the wear of the shutter.
- Do not use dry ice, water, or aggressive detergents to clean the shutter or its components.
- Use the **Bio-X-3000-PU** cleaner for:
 - Powder-coated shutters
 - Anodized shutters
- Do not use abrasive cleaners, scouring pads, or solvents for cleaning.
- Do not use pressure cleaners:
 - Water may enter electrical components or assemblies.
 - Pressure and heat may degrade the surface of the slats.
- Clean smooth surfaces using a lint-free cloth.
- Do not wash electrical components and assemblies with water. Wipe only with a slightly damp cloth.
- The lateral guide rails are made of high-performance plastics. Do not apply generic lubricants like grease or oil!
- With powdercoated roller shutters, abrasion from the sealing lips of the guide rails can accumulate on the curtain, which is very difficult to remove. This is to be observed and not a defect in the product!
- With powdercoated roller shutters, the sealing lip causes fine scratches and streaks on the surface of the curtain. This is to be observed and not a defect in the product!

9.2 Intervals and tasks

In addition to the tasks and intervals specified in this installation manual, also observe the information in the included applicable documentation for components.

Scope	Task	Action	Interval
Shutter: 	Visual inspection for external damage with regard to mechanical strength	Repair and restoration	Daily before shift start
	Functional check	Restoration of function	Weekly
	Cleaning	Removal of dirt accumulated due to use	Weekly
	Visual inspection for correct seating of the rubber rings, if Deviating shaft (No. 240) is mounted	Restore the original position Grid approx. 400-500mm	monthly

Scope	Task	Action	Interval
Inside of guide rails	Remove dirt	Remove dust with a soft brush Remove dirt using commonly available household cleaners	1 to 3 months and as required
	Lubrication	Lubricate guide rails with PTFE spray after cleaning	1 to 3 months and as required

9.3 Repairs

All maintenance and repair work on the shutter must be performed by qualified technicians.

Changes or modifications to the shutter are not allowed for safety reasons.

Contact LDR-Rolltechnik with any questions about service and repair.

10 Disassembly and disposal

Properly disassemble and dispose of the shutter according to environmental regulations after the end of its service life.

Contact LDR-Rolltechnik and local authorities for the safe decommissioning, disassembly, and environmentally safe procedures for disposing of the shutter.



Do not dispose of electrical or electronic components as part of the general waste. Municipal governments provide containers for the disposal of electric and electronic devices free of charge (Germany).

11 Product conformity

As partly completed machinery, the shutter conforms to the requirements of European Machinery Directive 2006/42/EC.

Declaration of incorporation

For detailed information about product conformity, please see the declaration of incorporation by LDR-Rolltechnik.

CE marking

Due to its classification as partly completed machinery, the shutter does not bear a CE marking.

Integration

When installing the shutter in a vehicle, a machine, system, or other equipment, observe the information in this installation manual as well as further applicable documentation, including the documentation for the electric motor. Furthermore, a conformity assessment must be performed for the vehicle, the machine, system, or equipment in which this shutter has been installed.