

# Rittal – The System.

Faster – better – everywhere.

## Enclosure cooling unit



SK 3186930  
SK 3187930  
SK 3188940  
SK 3189940

## Assembly and operating instructions

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP

## **Preface**

Dear Customer!

Thank you for choosing a "Blue e+" enclosure cooling unit (referred to hereafter as "cooling unit") from Rittal.

Yours  
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We are always happy to answer any technical questions regarding our entire range of products.

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# 1 Notes on documentation

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## 1 Notes on documentation

### 1.1 CE labelling

Rittal GmbH & Co. KG confirms the conformity of the cooling unit with the European Union's Machinery Directive 2006/42/EC and EMC Directive 2004/108/EC. A corresponding declaration of conformity has been issued and enclosed with the unit.



### 1.2 Storing the documents

The assembly and operating instructions as well as all other applicable documents are an integral part of the product. They must be issued to everyone who works with the unit and must always be available and on hand for operating and maintenance personnel.

### 1.3 Symbols used in these operating instructions

The following symbols are used in this documentation:



**Danger!**

**A dangerous situation in which failure to comply with the instructions will result in death or severe injury.**



**Warning!**

**A dangerous situation which may cause death or serious injury if the instructions are not followed.**



**Caution!**

**A dangerous situation which may lead to (minor) injuries if the instructions are not followed.**



**Note:**

Important notices and indication of situations which may result in material damage.

- This symbol indicates an "action point" and shows that you should perform an operation or procedure.

### 1.4 Other applicable documents

Assembly and operating instructions exist as paper documents and/or digital data carriers for the unit types described here and are enclosed with the equipment.

We cannot accept any liability for damage associated with failure to observe these instructions. Where applicable, the instructions for any accessories used also apply.

## 2 Safety notes

### 2.1 General safety instructions

Please observe the following general safety instructions for the installation and operation of the system:

- Please be sure to observe the applicable regulations governing electrical installations of the country in which the device is installed and operated as well as national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
- Use only original Rittal products or products recommended by Rittal in conjunction with the cooling unit.
- Please do not make any changes to the cooling unit that are not described in these operating instructions or other applicable assembly and operating instructions.
- The operational safety of the cooling unit is only warranted if used as intended. The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP protection category.
- Operating the cooling unit in direct contact with water, aggressive materials or inflammable gases and vapours is prohibited.
- Other than these general safety instructions, it is also vital to observe the specific safety instructions when carrying out the tasks described in the following chapters.
- Please note the maximum weights that may be lifted by individuals. It may be necessary to use lifting gear.

### 2.2 Operating and technical staff

- The assembly, installation, commissioning, maintenance and repair of this cooling unit may only be performed by qualified, trained personnel.
- Only properly instructed personnel may operate a cooling unit with the system operational.
- Children and persons with limited cognitive/coordinate abilities must **not** operate, maintain or clean the unit or be allowed to use it as a toy.

### 2.3 Other dangers when using the cooling unit

Particularly when the cooling unit is externally mounted (see section 5 "Installation"), there is a risk that the enclosure could become unbalanced and tip over.

- In such cases, the enclosure should be bolted to the floor as a precaution.

If the air inlet or outlet of the cooling unit is obstructed, there is a risk of air short-circuits, resulting in inadequate climate control.

- Please ensure that the electronic assemblies in the enclosure are installed in accordance with section 5.3.1 "Assembly instructions".

- Where applicable, use suitable components to divert the air.
- Please observe the prescribed minimum distances at the installation site as outlined in section 5.3.1 "Assembly instructions".

# 3 Product description

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## 3 Product description

### 3.1 Functional description and components

#### 3.1.1 Function

There are two separate cooling circuits installed in the cooling unit.

- One conventional refrigerant circuit (compression system), and
- One heat pipe integrated into the condenser and evaporator coil.

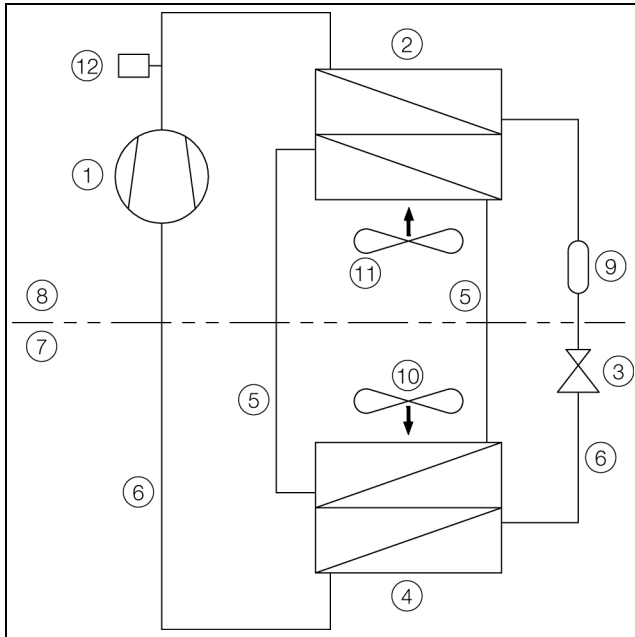


Fig. 1: Cooling circuit

#### Key

- 1 Compressor
- 2 Condenser (dual version) with fan
- 3 Expansion valve
- 4 Evaporator coil (dual version) with fan
- 5 Refrigerant circuit with heat pipe
- 6 Refrigerant circuit with compression system
- 7 Internal circuit
- 8 External circuit
- 9 Dryer/collector
- 10 Internal fan
- 11 External fan
- 12 PSA<sup>H</sup> pressure monitor

In both cooling circuits, the individual components are connected with pipes in which the refrigerant R134a is circulating. This refrigerant is very environmentally friendly, thanks to the following properties:

- Chlorine-free
- Does not deplete the ozone layer (ozone destruction potential ODP = 0)

#### Refrigerant circuit with compression system

The refrigerant circuit with compression system is comprised of the following four main components:

1. Evaporator coil
2. Compressor
3. Condenser
4. Expansion valve

The evaporator coil fan draws hot air from the enclosure in the internal circuit of the cooling unit and passes it over the evaporator coil. After the evaporator coil, the cooled air is fed back into the enclosure via the outlet opening.

The air is cooled down by evaporating the refrigerant in the evaporator coil. The refrigerant vapour is transported by the compressor in the external circuit of the cooling unit to the condenser. There, the refrigerant condenses and becomes a liquid. The heat produced is dissipated by the condenser fan. The downstream electronic expansion valve reduces the high pressure of the refrigerant, and the refrigerant is then fed back into the evaporator coil.

Both the compressor and the two fans in the cooling unit are activated via an inverter. This makes it possible to control these components, so that the fan and compressor may be activated for a longer time but at a lower output and improved efficiency.

#### Refrigerant circuit with heat pipe

The additional second refrigerant circuit operates without a compressor, expansion valve or other control elements, and is integrated into the evaporator coil and condenser as a heat pipe.

The refrigerant inside the heat pipe (R134a) absorbs thermal energy from the intake of enclosure air and evaporates. The gaseous refrigerant then rises through the pipeline until it reaches the condenser. The refrigerant is cooled down again in the condenser (provided  $T_u < T_i$ ), and the heat released is emitted into the environment. Gravity then causes the liquid refrigerant to flow back down the pipelines. The whole cycle begins again.

### 3.1.2 Components

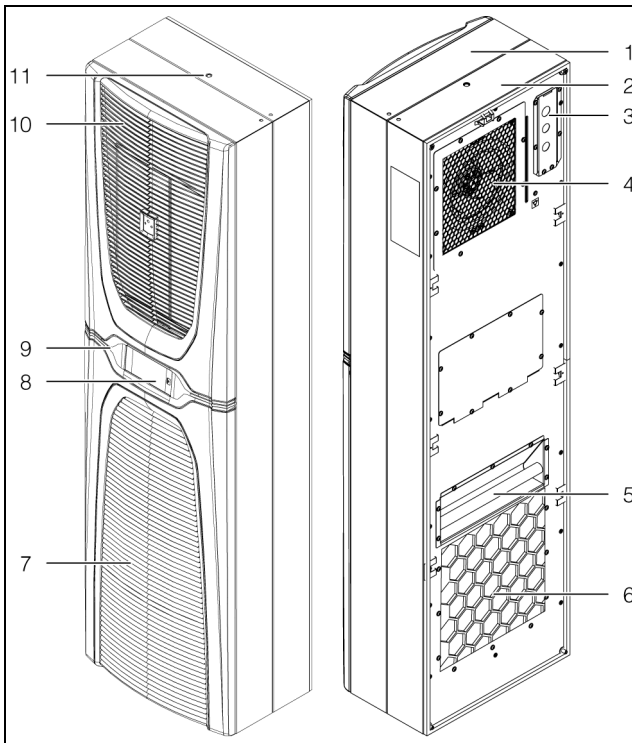


Fig. 2: Main components of cooling unit

#### Key

1	Cover
2	Chassis
3	Connection box
4	Evaporator fan
5	Handle
6	Air outlet opening
7	Lower louvred grille for air inlet
8	Display
9	Infill panel
10	Upper louvred grille for air outlet
11	Thread for eyebolt

### 3.1.3 Control

Rittal enclosure cooling units are fitted with a controller for setting the functions of the cooling unit.

Operation using this controller is described in section 7 "Operation".

### 3.1.4 Safety devices

- In the refrigerant circuit, the cooling units have a type-tested pressure monitor (to EN 12263) which switches off the cooling unit if the maximum admissible pressure is exceeded. Once the pressure drops back below the admissible pressure, the unit will automatically resume operation.
- Temperature monitoring prevents the evaporator coil from icing over. If there is a risk of icing, the compressor switches itself off and automatically switches itself back on again at higher temperatures.
- The compressor is monitored and protected by the inverter to prevent overloading.
- The fans have a built-in overload protection with automatic reset.

- In order to allow a reduction of pressure inside the compressor and hence a safe restart, once it has been switched off (e.g. upon reaching the set temperature via the door limit switch function or via de-energising), the device will switch back on with a delay of 180 seconds.
- The device has floating contacts on the connection pins on terminals 1 and 3 of the signal connector (X2), via which system messages from the device may be polled, e.g. using a PLC (2 x normally closed or normally open contacts).

### 3.1.5 Condensation

At high levels of humidity and low temperatures inside the enclosure, condensate water may form on the evaporator coil.

The cooling units have an automatic electrical condensate water evaporator. The thermal component used for this purpose is based on self-regulating PTC technology. Condensate water arising on the evaporator coil is collected in a tank in the external circuit of the cooling unit, and partially evaporated via the airflow. When the water level rises, the water enters the PTC thermal component and is evaporated (through-flow heater principle). The water vapour streams out of the cooling unit with the airflow from the external fan.

The PTC thermal component is activated automatically when the compressor is running, and continues to run for around 15 minutes after the compressor has been switched off. During the after-run phase, the condenser fan will likewise continue to run at low speed.

In the event of a short-circuit in the PTC component or if there is a risk of inverter overload (possible at high ambient temperatures), the PTC component will be deactivated. This means that any condensate water arising can be discharged via the safety overflow.

If the fuse has tripped, any condensate water is drained off via the safety overflow. The condensation is routed downwards out of the unit via a drain pipe on the evaporator coil divider panel. For this purpose, a hose may be connected to the condensate water nozzle (see section 5.3.8 "Connect the condensate water discharge").

### 3.1.6 Filter mats

The entire cooling unit condenser is covered with a dirt-repelling, easy-to-clean RiNano coating. In many applications, therefore, the use of filter media is unnecessary, particularly with dry dusts.

For dry, coarse dust and lint in the ambient air, we recommend installing an additional PU foam filter mat (available as an accessory) in the cooling unit. Depending on the incidence of dust, you will need to replace the filter mat from time to time (see section 8 "Inspection and maintenance").

For oily ambient air, we recommend the use of metal filters (also available as an accessory). These may be cleaned with suitable detergents and reused.

# 3 Product description

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### 3.1.7 Door limit switch

The cooling unit may be operated with a floating door limit switch connected. The door limit switch is available as accessory from Rittal.

The door limit switch function causes the fans and the compressor in the cooling unit to gradually slow down and then switch off after approximately 15 seconds when the enclosure door is opened (contacts 1 and 2 closed). This prevents the formation of condensate water inside the enclosure while the enclosure door is open. In order to prevent damage to the unit, it is equipped with an ON delay: The evaporator fan will cut in again after a delay of a few seconds on closure of the door.

Please note that no external voltage may be applied to the door contacts (terminals 1 and 2)

### 3.2 Proper use, foreseeable misuse

The cooling unit is only intended for cooling connected enclosures. Any other use is not permitted.

- The unit must not be installed and operated in locations which are accessible to the general public (see DIN EN 60335-2-40, paragraph 3.119).
- The unit is designed solely for stationary use.
- The manufacturer's consent must be obtained in advance for mobile applications, e.g. on cranes.

The cooling unit is state of the art and built according to recognised safety regulations. Nevertheless, improper use can pose a threat to the life and limb of the user or third parties, or result in possible damage to the system and other property.

Consequently, the cooling unit must only be used properly and in a technically sound condition! Any malfunctions which impair safety should be rectified immediately.

Proper use also includes the observance of the documentation provided, and compliance with the inspection and maintenance conditions.

Rittal GmbH & Co. KG is not liable for any damage which may result from failure to comply with the documentation provided. The same applies to failure to comply with the valid documentation for any accessories used.

Inappropriate use may be dangerous. Examples of inappropriate include:

- Use of the cooling unit over long periods with the enclosure open.
- Use of impermissible tools.
- Improper operation.
- Improper rectification of malfunctions.
- Use of accessories not approved by Rittal GmbH & Co. KG.

### 3.3 Supply includes

Qty.	Description
1	Enclosure cooling unit
1	Shipping bag with
1	- Declaration of conformity
1	- Assembly and installation instructions
1	- Assembly, installation and operating instructions on digital data carrier
1	- Warning and safety notes
6	- Grub screws M8 x 40 mm
6	- Nut-and-washer assembly M8
1	- Sealing tape 10 x 10 mm, L = 4.1 m
1	- Signal connector X2
1	- Connector X1
1	- Cover for connection unit
1	- Membrane entry grommet
1	- Clip
1	- Wedge element
6	- Fixing clamps
4	- Corner bracket for internal/external mounting
2	- L-shaped brackets
1	- Earth clamp 4 NS
1	- Earth clamp 5 NS
1	- Washer for attaching the earth clamp
1	- Contact washer for attaching the earth clamp
1	- M4 nut for attaching the earth clamp
1	- Cable gland M20 x 1.5 mm
1	- EMC cable gland M20 x 1.5 mm
1	- Strain relief

Tab. 1: Supply includes



## 4 Transport and handling

### 4.1 Delivery

The cooling unit is supplied in one packaging unit.

- Check the packaging carefully for signs of damage. Traces of oil on damaged packaging indicate a loss of refrigerant and/or a leak in the cooling unit. Any packaging damage may be the cause of a subsequent functional failure.

### 4.2 Unpacking

- Remove the packaging materials from the cooling unit.



Note:

After unpacking, the packaging materials must be disposed of in an environmentally friendly way.

- Check the cooling unit for any damage that may have occurred during transport.



Note:

Damage and other faults, e.g. incomplete delivery, should be reported immediately, in writing, to the shipping company and to Rittal GmbH & Co. KG.

- Check the supply contents for completeness (see section 3.3 "Supply includes").

### 4.3 Transport

Depending on the chosen version, the cooling unit may weigh up to 85 kg. The components in the cooling unit chassis account for the bulk of the weight.



**Warning!**

**Please note the maximum weights that may be lifted by individuals. It may be necessary to use lifting gear.**

At the rear of the cooling unit is a handle which can be used to briefly lift the cooling unit when inserting into the mounting cut-out.

There is also an M12 thread at the top of the chassis, into which a Rittal eyebolt (e.g. belonging to an enclosure) may be screw-fastened. The cooling unit is readily transported with the aid of lifting gear and an indoor crane.



Note:

An eyebolt with M12 thread may be ordered as an accessory from Rittal (see section 13 "Accessories").

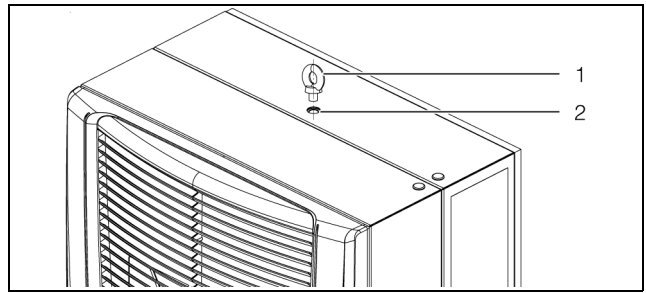


Fig. 3: Thread and eyebolt on top of the chassis

#### Key

- 1 Eyebolt
- 2 M12 thread

- Before transporting by crane, please ensure that the lifting gear and crane have sufficient load capacity to transport the cooling unit safely.
- Never allow anyone to stand beneath a suspended load, even for a short time, during transportation by crane.
- Protect the lifting gear on the crane hook from load deflection, because the load's centre of gravity may be off-centre.
- First position the cooling unit close to the installation site and protect from accidentally being knocked over.

## 5 Installation

### 5.1 Safety instructions



**Warning!**  
Please note the maximum weights that may be lifted by individuals. It may be necessary to use lifting gear.



**Warning!**  
Work on electrical systems or equipment may only be carried out by an electrician or by trained personnel under the guidance and supervision of an electrician. All work must be carried out in accordance with electrical engineering regulations.

**The cooling unit may only be connected after the aforementioned personnel have read this information!**

**Use only insulated tools.**

**Follow the connection regulations of the appropriate electrical supply company.**

**The cooling unit must be connected to the mains via an all-pin isolating device to overvoltage category III (IEC 61058).**

**The cooling unit is not de-energised until all of the voltage sources have been disconnected!**

- Please be sure to observe the applicable regulations governing electrical installations of the country in which the device is installed and operated, as well as national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
- The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP protection category.

### 5.2 Siting location requirements

When choosing the installation site for the enclosure, please observe the following:

- The site for the enclosure, and hence the positioning of the cooling unit, must be carefully selected so as to ensure good ventilation (clearance between cooling units and clearance between a cooling unit and the wall must be at least 200 mm in each case).
- The cooling unit must be installed and operated with a maximum deviation of 2° from the vertical.

- The installation site must be free from excessive dirt, aggressive ambient conditions and moisture.
- The ambient temperature must not exceed 60°C.
- It must be possible to fit a condensate water discharge (see section 5.3.8 "Connect the condensate water discharge").
- The mains connection data as stated on the rating plate of the cooling unit must be guaranteed.

### Size of installation room

- **Units SK 3186930 and SK 3187930** must not be installed in rooms of less than 6 m<sup>3</sup>.
- **Units SK 3188940 and SK 3189940** must not be installed in rooms of less than 12 m<sup>3</sup>.

### Electromagnetic interference (EMI)

- Interfering electrical installations (high frequency) must be avoided.

### 5.3 Assembly procedure

#### 5.3.1 Assembly instructions

- Before assembling, please ensure that the enclosure is sealed on all sides (IP 54). Increased condensation will occur later during operation if the enclosure is not airtight.
- If applicable, additionally fit a door limit switch (such as 4127.010) to the enclosure which switches off the cooling unit when the enclosure door is opened to prevent excessive condensation (see section 3.1.7 "Door limit switch").
- Please ensure that the electronic assemblies in the enclosure allow the even circulation of air.

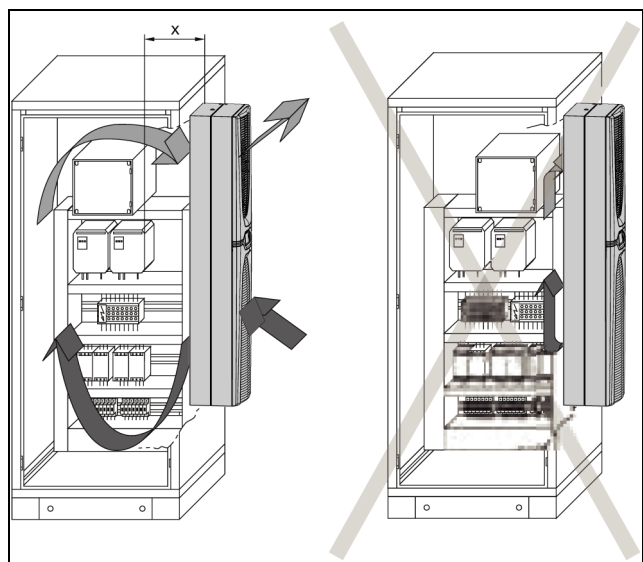


Fig. 4: Never direct the cold airflow at active components

- Under no circumstances should the air inlet and outlet openings of the cooling unit be obstructed. Only in this way is it possible to ensure that the maximum cooling output is available.
- Please ensure that the cold airflow from the cooling unit is not directed at active components.

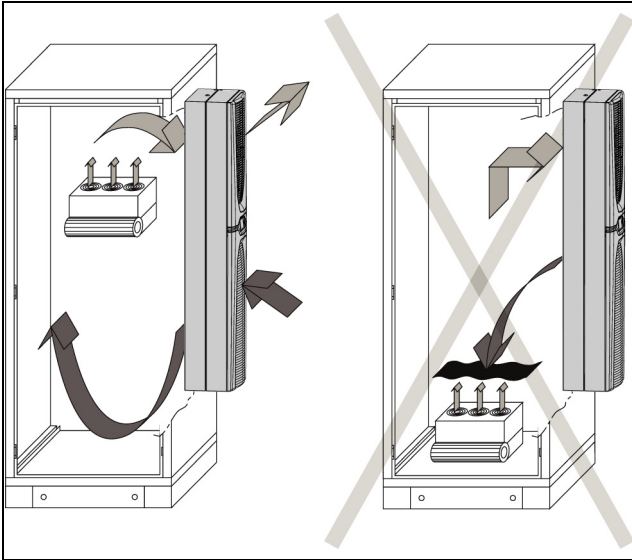


Fig. 5: Never direct the cold airflow at active components

- If appropriate, install components to divert the air.
- When installing in a dismantled door or side panel, please ensure that it cannot fall over when installing the cooling unit in the mounting cut-out.



**Note:**

The pictures in this chapter illustrate the installation of the cooling unit in an enclosure door. Installation in a side panel is carried out in the same way.

### 5.3.2 Mounting options

In principle, there are three different options for installing the cooling unit on an enclosure door or side panel.

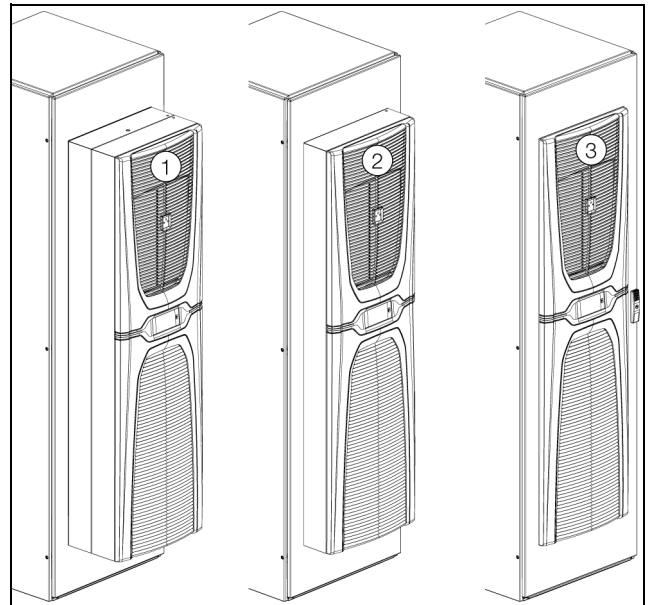


Fig. 6: Mounting options

**Key**

- 1 External mounting
- 2 Partial internal mounting
- 3 Full internal mounting

- External mounting: All of the cooling unit is outside the enclosure.
- Partial internal mounting: The cooling unit chassis is inside the enclosure, while the cover and the louvred grilles are outside.
- Full internal mounting: All of the cooling unit is inside the enclosure. Only the louvred grilles project on the outside.



**Note:**

- Full installation of the 6 kW cooling unit is **not** possible.
- On an enclosure with 500 mm depth, the unit may only be externally mounted on the side panel.

Your chosen installation option will ultimately depend on how much space you require inside and outside of the enclosure. The various mounting options have no influence on the cooling output of the cooling unit, which remains the same in all cases.

- If there are a large number of components installed **inside the enclosure**, external mounting or partial internal mounting of the cooling unit may be appropriate. In such cases, the space inside the enclosure may be insufficient for full internal mounting, or it may not be possible to guarantee adequate cooling of all components inside the enclosure.
- If the space **surrounding the enclosure** is limited, full internal mounting may be suitable, so as to keep essential escape routes clear.

# 5 Installation

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## 5.3.3 Make a mounting cut-out in the enclosure

In order to mount the cooling unit on the enclosure, a suitable mounting cut-out must be made in the door or side panel of the enclosure. In principle, the mounting cut-out is identical for all three mounting options. A special mounting cut-out is only required for external mounting on the side panel of a 500 mm deep enclosure.



Note:

The dimensions of the mounting cut-outs can be found in section 12.1 "Representation of mounting cut-outs".

- Using the diagrams in section 12.1 "Representation of mounting cut-outs", calculate the required dimensions for your mounting cut-out .
- Drill all the required holes and make the mounting cut-out.
- Carefully deburr all drilled holes and the cut-out to prevent injuries caused by sharp edges.



**Caution!**

**Drilled holes and cut-outs that have not been fully deburred may cause cut injuries, particularly when assembling the cooling unit.**

## 5.3.4 External mounting of the cooling unit



Note:

The description in this section does **not** apply to external mounting of the cooling unit on the side panel of a 500 mm deep enclosure. This is described in section 5.3.5 "Mounting the cooling unit externally on a 500 mm deep enclosure".

- Cut the sealing tape in the dispatch bag to the required length so that it can be placed all the way round the rear of the cooling unit once.
- Start by positioning the sealing tape on the bottom edge, so that the joint between the two ends of the sealing tape is likewise on the lower edge of the unit.
- Carefully stick the sealing tape as close to the edge as possible on the rear of the cooling unit.
- Screw the four threaded bolts into the blind nuts in the corners at the rear of the cooling unit.

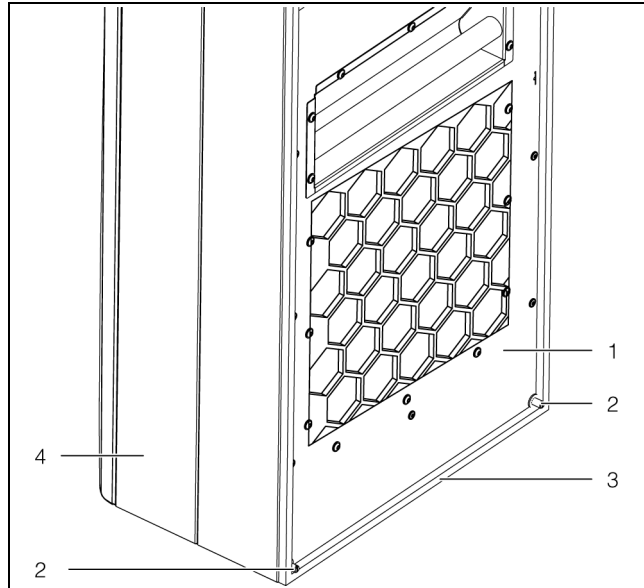


Fig. 7: Threaded bolts at the rear of the cooling unit

**Key**

- 1 Rear of cooling unit
- 2 Lower threaded bolt
- 3 Joint of sealing tape
- 4 Cover

- Push the clip included with the supply into the relevant hole at the top edge of the cooling unit at the rear. This clip will prevent the cooling unit from falling out of the mounting cut-out later on if it is not yet adequately secured with the threaded bolt.

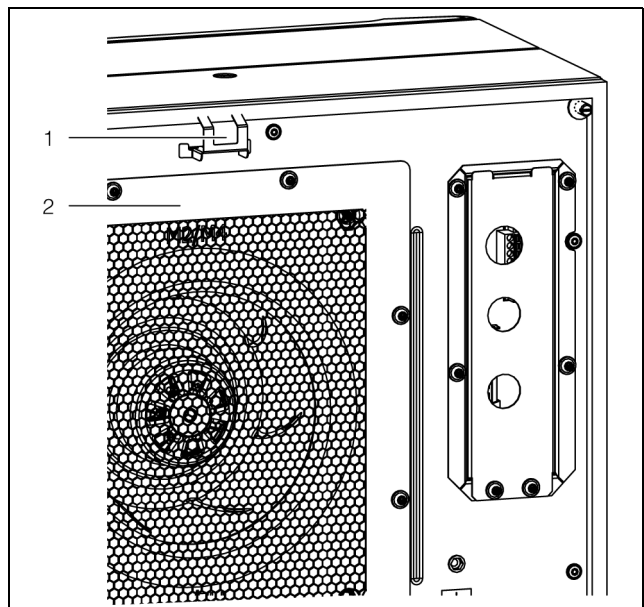


Fig. 8: Clip at the rear of the cooling unit

**Key**

- 1 Clip
- 2 Rear of cooling unit

- Lift up the cooling unit, preferably from a lifting eye using suitable lifting gear, and initially set the cooling unit down with the two bottom threaded bolts on the door or side panel of the enclosure.
- If transportation by crane is not possible, lift the cooling unit into the mounting cut-out in the same way using the handle.

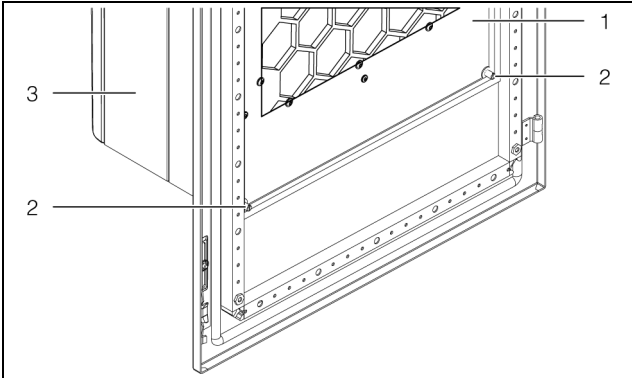


Fig. 9: Threaded bolt in door cut-out

**Key**

- 1 Inside of enclosure door
- 2 Threaded bolts at bottom (2x)
- 3 Cooling unit on the outside of the enclosure door

- Slide the cooling unit into the mounting cut-out at the top until the clip behind the cut-out latches home.

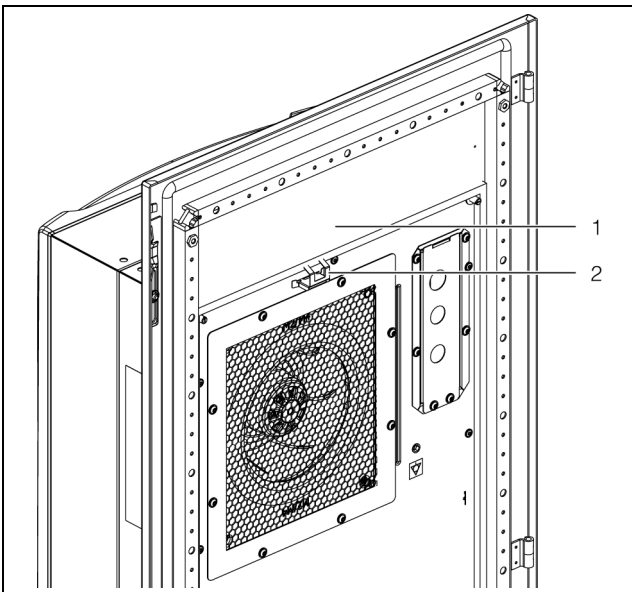


Fig. 10: Clip in mounting cut-out

**Key**

- 1 Inside of enclosure door
- 2 Clip

- Attach the two corner brackets to the threaded bolts at the top and secure with the corresponding nuts.

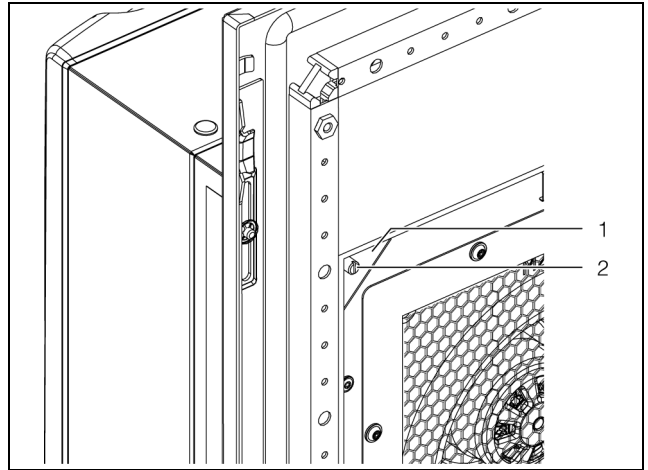


Fig. 11: Corner brackets on the threaded bolts

**Key**

- 1 Corner bracket
- 2 Threaded bolt

- Next, attach the two corner brackets to the threaded bolts at the bottom and secure with the corresponding nuts.

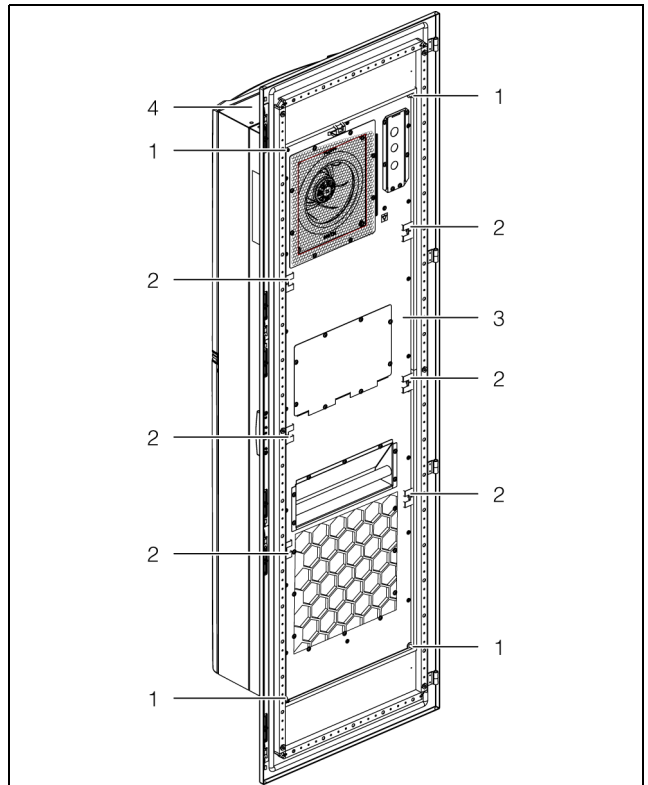


Fig. 12: Threaded bolts at rear

**Key**

- 1 Threaded bolts (4x)
- 2 Fastening clamps (6x)
- 3 Rear of cooling unit
- 4 Cooling unit in front of enclosure door

- Insert the six fastening clamps into the rear of the cooling unit.

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These fastening clamps ensure that the cooling unit is directly in contact with the mounting cut-out of the enclosure door over the entire height.

- If applicable, re-attach the door or side panel including cooling unit to the enclosure, if not mounted directly on the enclosure.

### 5.3.5 Mounting the cooling unit externally on a 500 mm deep enclosure



Note:

The description in this section applies to external mounting of the cooling unit on the side panel of a 500 mm deep enclosure. External mounting on deeper enclosures is also possible with this type of installation.

In principle, external mounting on the side panel is carried out in the same way as described in section 5.3.4 "External mounting of the cooling unit". However, please note the following differences:

- Six threaded bolts are required for installation, rather than four.

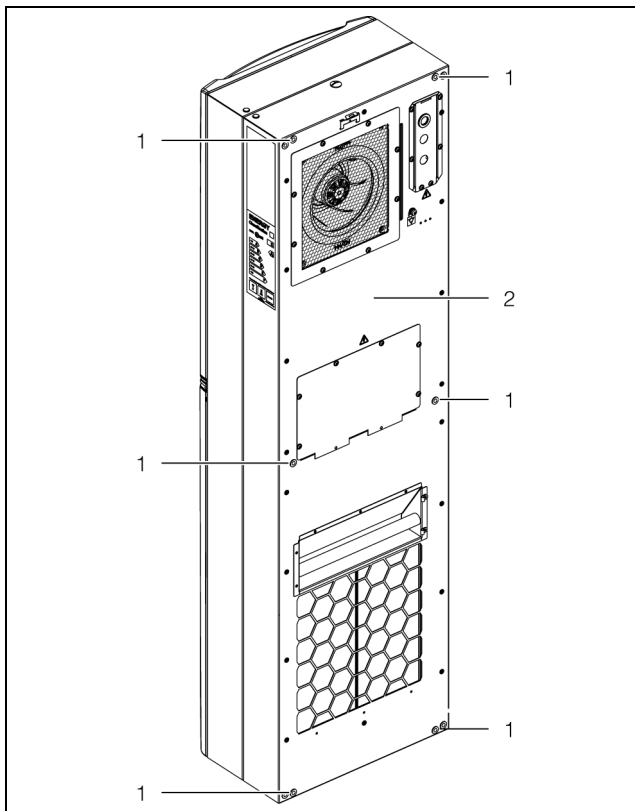


Fig. 13: Threaded bolts at rear

**Key**

- 1 Threaded bolts (6x)
- 2 Rear of cooling unit

- The unit with the threaded bolts is lowered into the relevant holes, rather than on the mounting cut-out.
- No fastening clamps are fitted into the rear of the unit.

### 5.3.6 Partial internal mounting of the cooling unit

- At the front of the cooling unit, pull the top louvred grille away from the mounting clips on the cover, and place or lay it down somewhere safe.

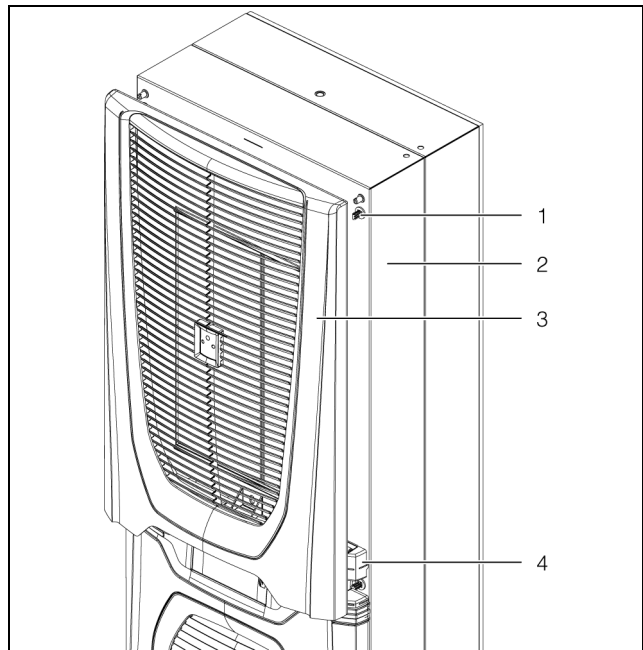


Fig. 14: Remove the top louvred grille

**Key**

- 1 Mounting clip
- 2 Cover
- 3 Top louvred grille
- 4 Infill panel on cooling unit

- Flip open the bottom louvred grille below the infill panel.
- Release the two stays in the hinge mechanism at the top from the brackets attached to the cover of the cooling unit.

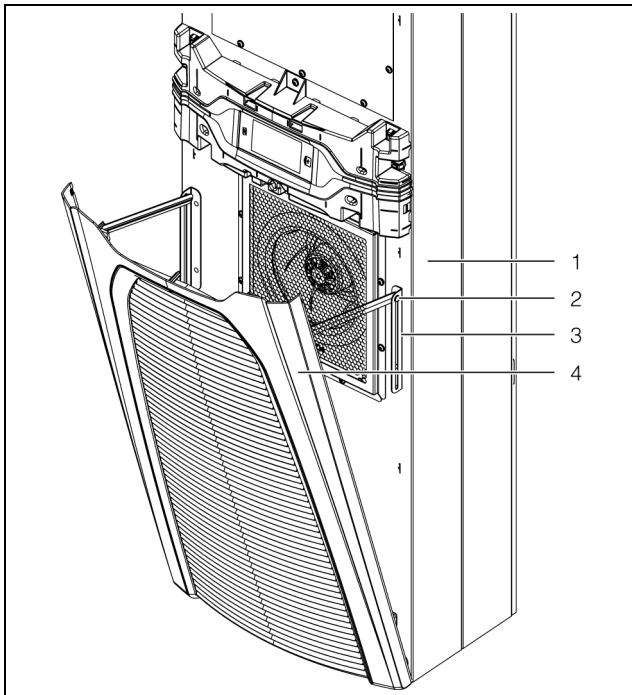


Fig. 15: Attachments on hinge mechanism

**Key**

- 1 Cover
- 2 Stays in hinge mechanism
- 3 Bracket
- 4 Bottom louvred grille

■ Pull the bottom louvred grille forwards out of its holders, and place or lay it down somewhere safe.

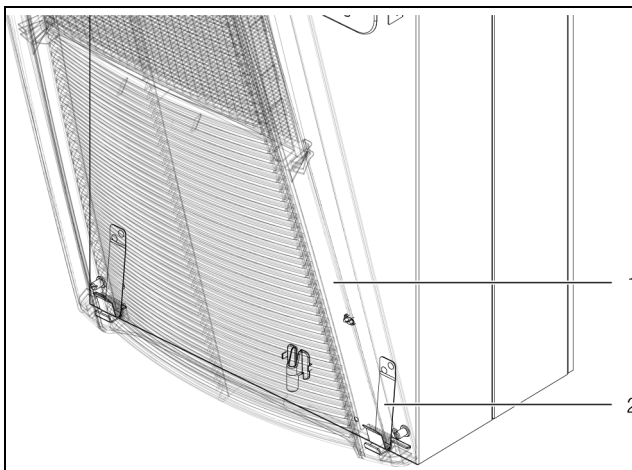


Fig. 16: Bottom holders of louvred grille

**Key**

- 1 Bottom louvred grille
- 2 Holders

■ Gently pull the infill panel including display forwards to release it from the mounting clips on the cover.

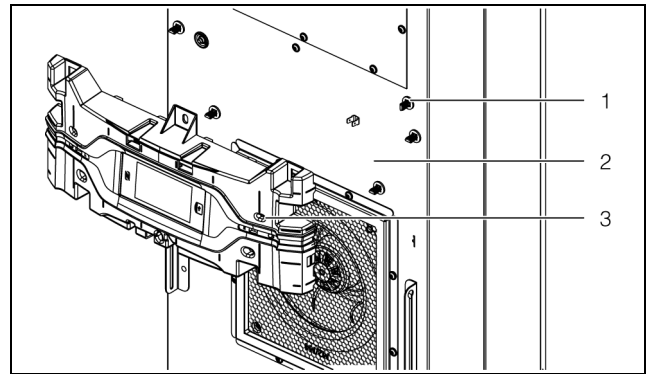


Fig. 17: Remove the infill panel

**Key**

- 1 Mounting clips
- 2 Cover
- 3 Infill panel

■ On the rear of the display, disconnect both of the connectors (PE conductor and connection) and remove the infill panel completely from the cooling unit.

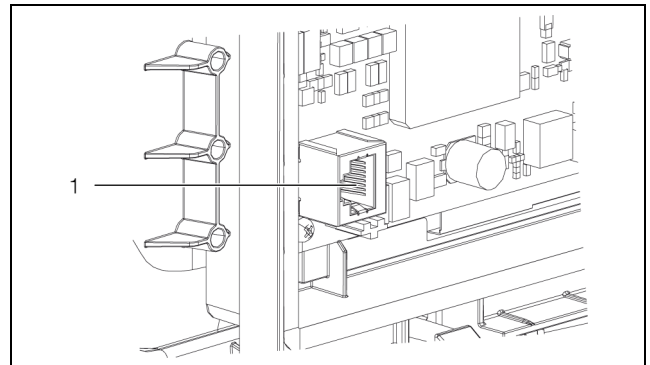


Fig. 18: Connection point on the rear of the cooling unit

**Key**

- 1 Connection point

■ Place the infill panel somewhere safe.

■ Carefully push the connector including connection cable inwards through the cable gland in the cover.

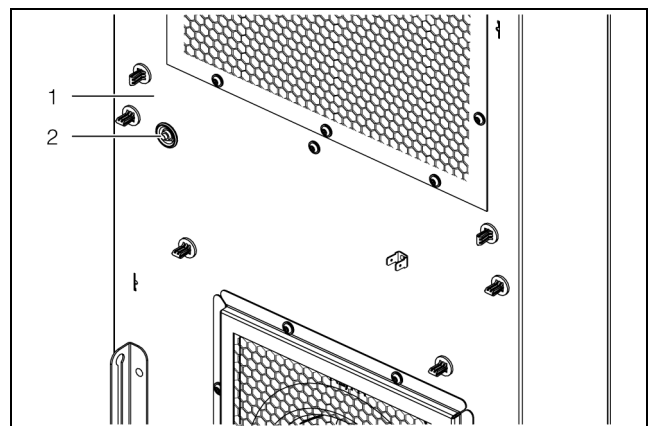


Fig. 19: Cable gland in the cover

**Key**

- 1 Cover
- 2 Cable gland

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**Caution!**

The cooling unit will only be stable as long as the cover and chassis are connected. For this reason, be sure to brace the chassis, in particular, to prevent it from falling over before removing the cover.

- Loosen the four threaded bolts in the corners of the cover which connect the cover to the chassis.
- Carefully pull the cover forwards (approx. 5 cm) from the chassis.  
The PE conductor connection between the cover and the chassis is located on the right-hand side, approximately halfway up.

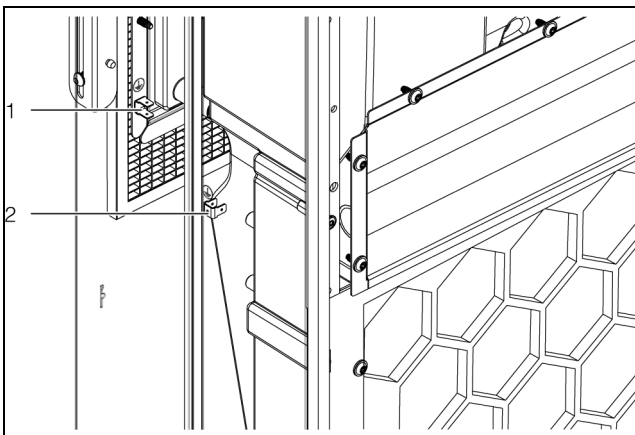


Fig. 20: PE conductor connection (viewed from behind)

**Key**

- 1 PE conductor connection, cover
- 2 PE conductor connection, chassis

- Pull the flat-pin connector of the PE conductor off inwards, preferable on the chassis.
- Remove the cover completely from the chassis, and place or lay it down somewhere safe.  
There is a clip prefitted to the top edge of the chassis on the front. This clip will later prevent the chassis from falling out of the mounting cut-out before it is properly secured with the threaded bolt.

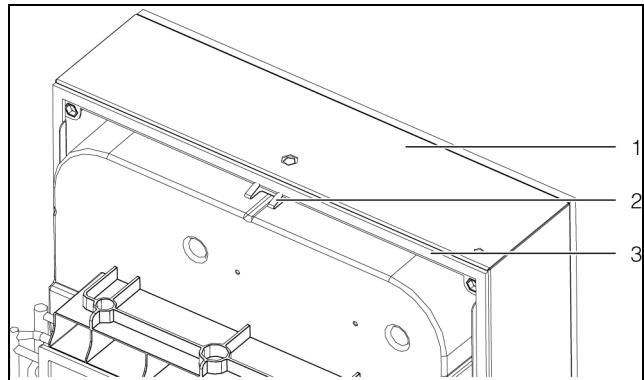


Fig. 21: Clip on the top edge of the chassis

**Key**

- 1 Chassis
- 2 Clip in chassis
- 3 Seal

- Lift up the chassis, preferably with a lifting eye using suitable lifting gear, and insert it into the mounting cut-out in the door or side panel of the enclosure from the inside with the edge fold at the bottom of the chassis.
- If transportation by crane is not possible, lift the chassis into the mounting cut-out in the same way using the handle.

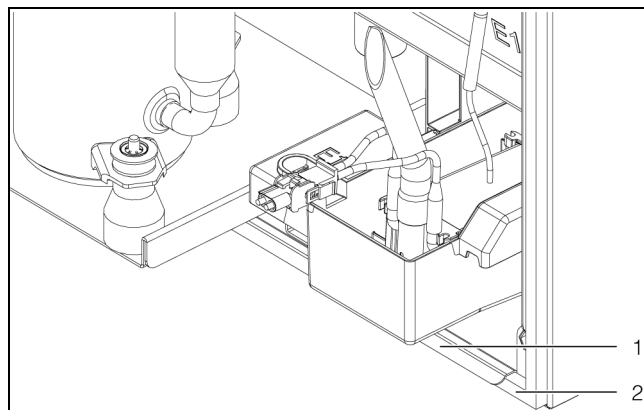


Fig. 22: Edge fold at bottom of chassis

**Key**

- 1 Edge fold on chassis (towards cover)
- 2 Outside of enclosure door

- Push the chassis into the mounting cut-out at the top until the clip behind the cut-out latches home.



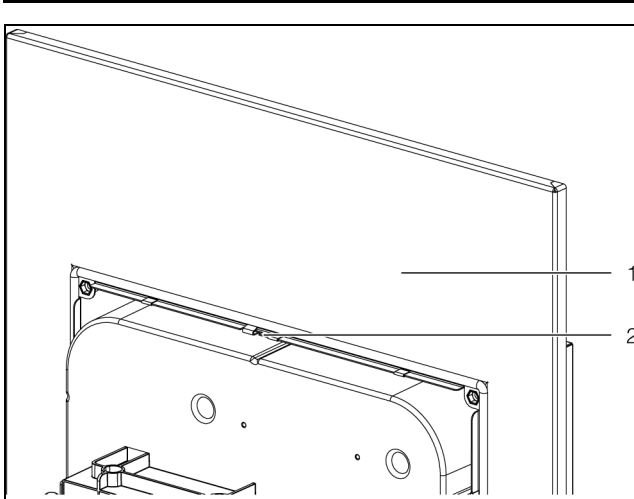


Fig. 23: Clip on the top edge of the chassis

**Key**

- 1 Outside of enclosure door
- 2 Clip in chassis

- Make sure that the clip behind the cut-out is fully snapped in towards the top.

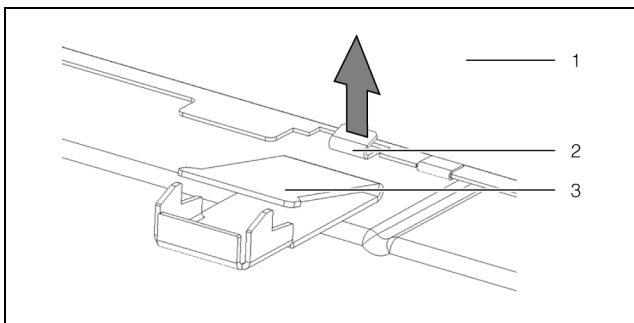


Fig. 24: Mounting of the wedge element

**Key**

- 1 Outside of enclosure door
- 2 Clip in chassis
- 3 Wedge element

- Please also insert the wedge element from the exterior up to the stop in order to fasten the clip in the upper position.

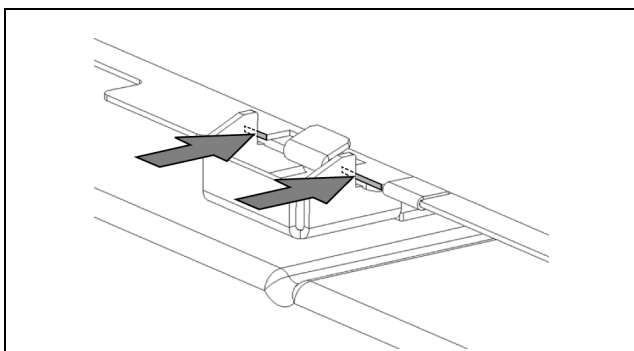


Fig. 25: Fully inserted wedge element

- Set the cover down at the front near the chassis, and thread the connection cable of the display outwards through the cable gland in the cover.

- Slide the flat-pin connector of the PE conductor into place, and ensure that the cover and chassis are connected.



**Warning!**

**The PE conductor which connects the cover and the chassis must be connected to both connectors in all cases. Otherwise, there is a risk of injury from electric shock if the unit connection was faulty or defective.**

- Place the cover fully over the chassis, and connect the cover and the chassis using the four threaded bolts in the corners of the cover.

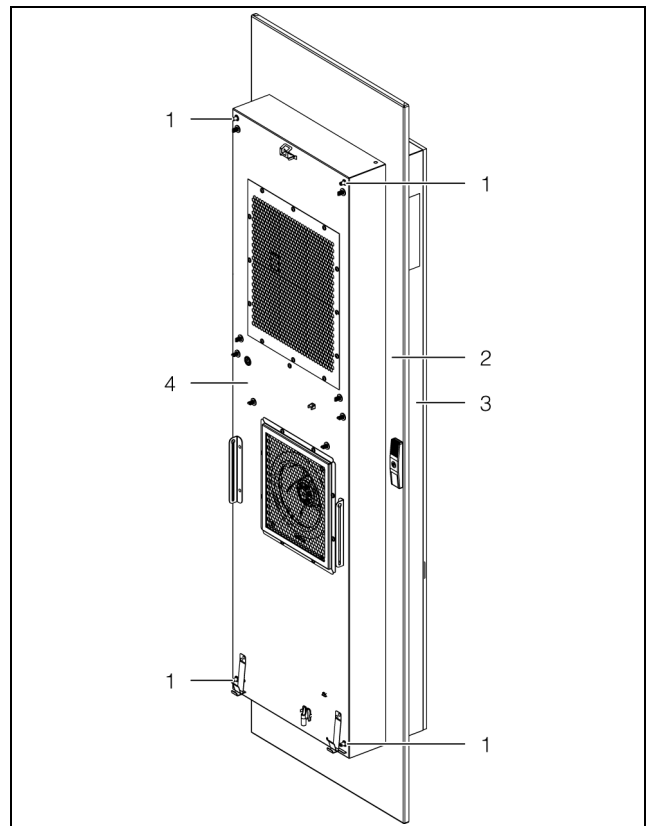


Fig. 26: Cover on the chassis

**Key**

- 1 Threaded bolts (4x)
- 2 Outside of enclosure door
- 3 Chassis
- 4 Cover

- Connect the display to the connector and insert the entire infill panel on the cooling unit.
- Place the bottom louvred grille onto the holders and secure the two stays at the top of the hinge mechanism into the brackets attached to the cover of the cooling unit.
- Finally, replace the top louvred grille onto the cover.
- If applicable, re-attach the door or side panel including cooling unit to the enclosure, if not assembled directly on the enclosure.

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## 5.3.7 Full internal mounting of the cooling unit

- First, dismantle the top and bottom louvred grilles as well as the infill panel and the display in the same way as for partial internal mounting (see section 5.3.6 "Partial internal mounting of the cooling unit").
- Cut the sealing tape in the dispatch bag to the required length so that it can be placed all the way round the cover once.
- Start sticking the sealing tape at the bottom edge, so that the joint between the two ends of the sealing tape is likewise on the bottom edge of the unit.
- Carefully stick the sealing tape as close as possible to the edge of the cover.
- On the front top edge of the cover, push the clip included with the supply into the relevant hole. This clip will prevent the cooling unit from falling out of the mounting cut-out later on before it is properly secured with the threaded bolt.

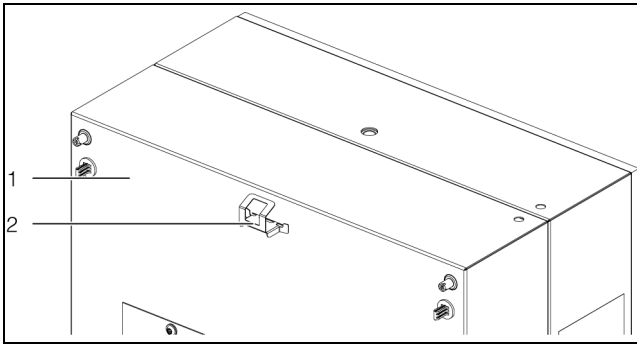


Fig. 27: Clip at top edge of cover

### Key

- 1 Cover
- 2 Clip on the cover

- Lift up the cooling unit, preferably with a lifting eye using suitable lifting gear, and insert it into the mounting cut-out in the door or side panel of the enclosure with the two brackets at the bottom of the cover.
- If transportation by crane is not possible, lift the cooling unit into the mounting cut-out in the same way using the handle.

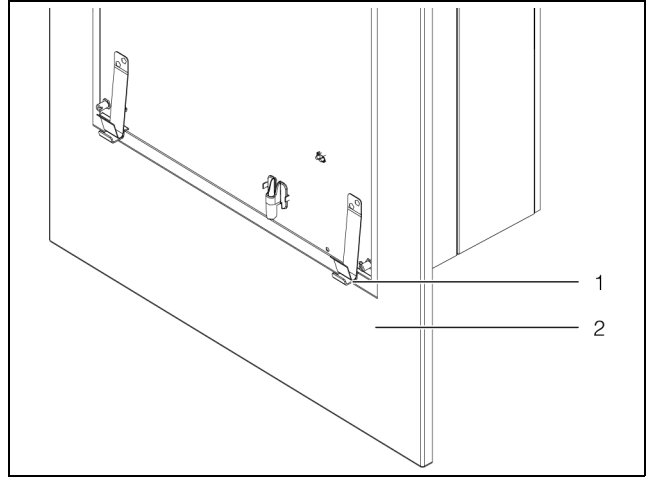


Fig. 28: Bracket at the bottom of the cover

### Key

- 1 Bracket in mounting cut-out
- 2 Outside of door

- Push the cooling unit into the mounting cut-out at the top until the clip behind the cut-out latches home.

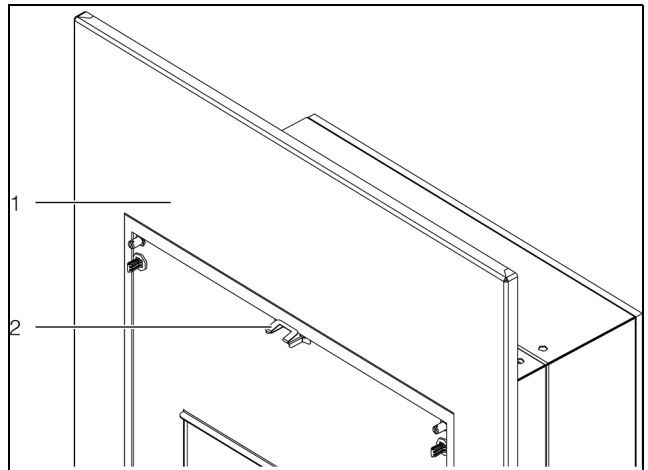


Fig. 29: Clip at top edge of cooling unit

### Key

- 1 Outside of enclosure door
- 2 Clip in mounting cut-out

- Mount the corner brackets onto the top two threaded bolts from the outside.

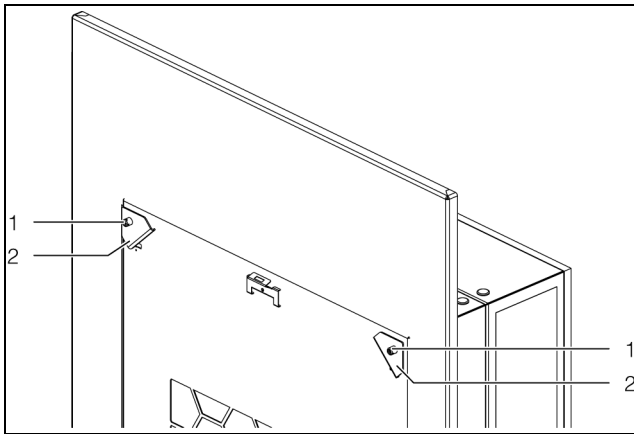


Fig. 30: Corner brackets on top threaded bolts

**Key**

- 1 Threaded bolt
- 2 Corner bracket

- Mount the L-shaped brackets onto the bottom two threaded bolts from the outside.

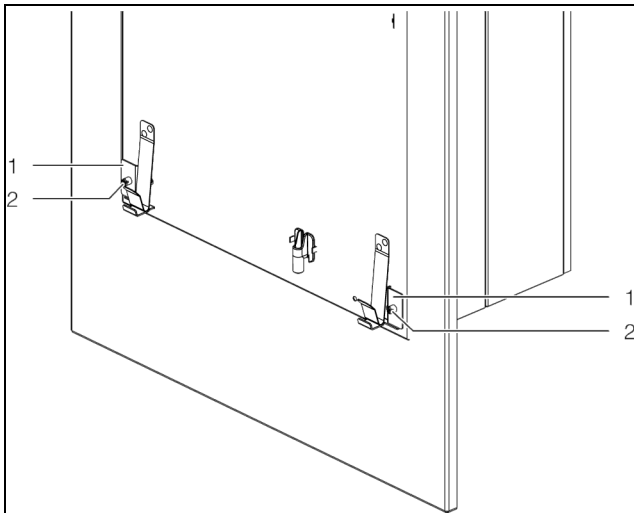


Fig. 31: L-shaped brackets on bottom threaded bolts

**Key**

- 1 L-shaped bracket
- 2 Threaded bolt

- Next, working from the outside of the enclosure, secure the four threaded bolts in the corners of the cover using the corresponding nuts from the dispatch bag.

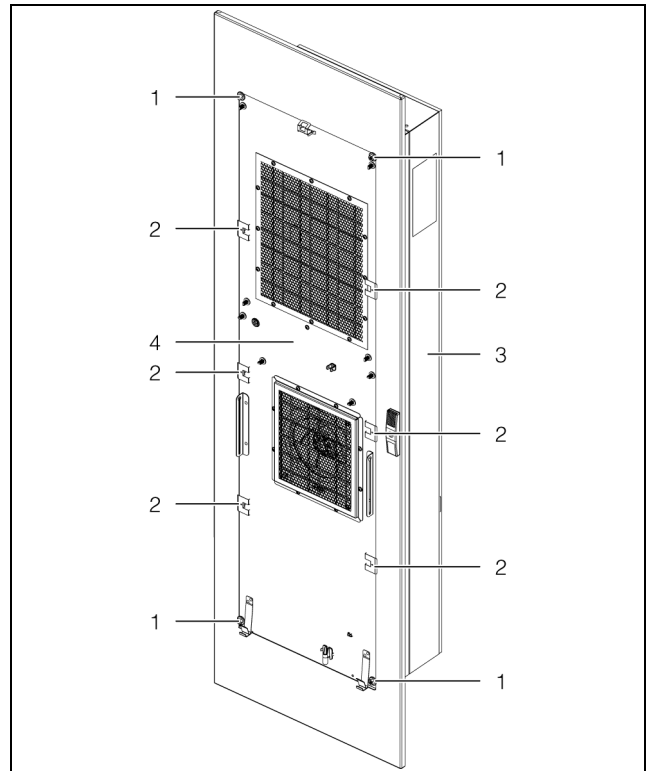


Fig. 32: Mounting points on cooling unit

**Key**

- 1 Threaded bolts with nuts (4x)
- 2 Fastening clamps
- 3 Cooling unit behind enclosure door
- 4 Front of cooling unit (without louvred grille)

- Insert the six fastening clamps into the cover of the cooling unit.  
These fastening clamps ensure that the cooling unit is directly in contact with the mounting cut-out of the enclosure door over the entire height.
- Connect the display to the connector and fit the entire infill panel to the cooling unit.
- Place the bottom louvred grilles onto the holders and secure the two stays of the top hinge mechanism into the brackets attached to the cooling unit cover.
- Finally, replace the top louvred grille onto the cover.
- If applicable, re-attach the door or side panel including cooling unit to the enclosure if not mounting directly on the enclosure.

**5.3.8 Connect the condensate water discharge**

There is a condensate water evaporator fitted in the external circuit of the cooling unit. With an enclosure connected, this condensate water evaporator may typically evaporate condensate water volumes of up to 100 ml/h. If larger quantities of condensate water are produced, a condensate water discharge hose may additionally be fitted. This hose allows condensate water to be routed out of the cooling unit pressurelessly. A suitable hose is available as an accessory from Rittal (see section 13 "Accessories").

Please follow the instructions given below:

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- The hose must be laid with an adequate and constant gradient to prevent siphoning.
- The hose must be laid without any kinks.
- If extended, the cross-section of the hose must not be reduced.
- The hose should be routed to a drain or external condensate water evaporator by the customer.

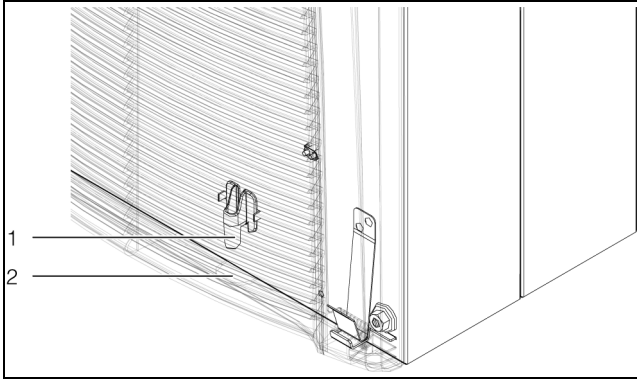


Fig. 33: Connection for condensate water discharge hose

## Key

- 1 Connection point
- 2 Hole in enclosure for hose

- Connect a suitable hose to the condensate water discharge nozzle and secure using a hose clip.
- Lay the hose as per the instructions above.

## 5.4 Electrical connection

### 5.4.1 Notes on electrical installation

- When carrying out the electrical installation, it is important to observe all valid national and regional regulations as well as the provisions of the responsible power supply company.
- Electrical installation must only be carried out by a qualified electrician who is responsible for compliance with the existing standards and regulations.
- The mains infeed and the signal cable must be of a shielded design. The shielding can be connected to the earth lug provided in the connection area of the mains connector.
- All cables routed into the wiring compartment have to be insulated for the maximum voltage of the power supply.

### Connection data

- The connected voltage and frequency must correspond to the ranges stated on the rating plate. The units support multiple voltages.
- The cooling unit must be connected to the mains via an all-pole disconnect to overvoltage category III (IEC 61058-1).
- No additional temperature control may be connected upstream of the unit at the supply end
- Install a pre-fuse to match the supply voltage used and the specific electrical output of the cooling unit. The

rated values may be taken from section 10 "Technical specifications" below.

- Low-noise potential equalisation must be guaranteed with the mains connection.
- In order to prevent EMC interference, the unit should be incorporated into the existing potential equalisation system with a larger cable cross-section (10 mm<sup>2</sup>).

### Overvoltage protection and supply line load

- The unit does not have its own overvoltage protection. Measures must be taken at the supply end by the switchgear manufacturer or operator to ensure effective protection against lightning and overvoltage. The limits specified in standard UL/IEC/EN 60335-2-40 must be observed.
- The units are classified as overvoltage category III. The mains voltage must not deviate by more than the tolerance specified in section 10 "Technical specifications".
- The discharge current may exceed 3.5 mA.
- The units are high-voltage tested ex works. An additional high voltage test must only be carried out with a DC voltage supply source (1500 VDC max.).

### Three-phase devices

- There is no need to observe a counterclockwise or clockwise phase rotation when making the electrical connection for inverter devices in the three-phase version. The electronics incorporated into the devices automatically create the required phase rotation.
- In three-phase devices, the absence of a phase is detected, and the device is switched off.
- Outgoing equipment is monitored by the inverter, and deactivated in the event of a malfunction in the electricity supply.

### Door limit switch

- Each door limit switch can only be assigned to one cooling unit.
- Several door limit switches may be operated in parallel with one cooling unit.
- The minimum cross-section for the connection cable is 0.3 mm<sup>2</sup> for a cable length of 2 m.
- The line resistance to the door limit switch must not exceed a maximum of 50 Ω.
- The maximum admissible line length is 10 m.
- The door limit switch only supports a floating connection; no external voltages.
- The contact of the door limit switch must be closed when the door is open.
- The safety extra-low voltage for the door limit switch is provided by the internal power pack: Current approx. 5 mA DC.
- Connect the door limit switch to terminals 5 and 6 of the signal connector.

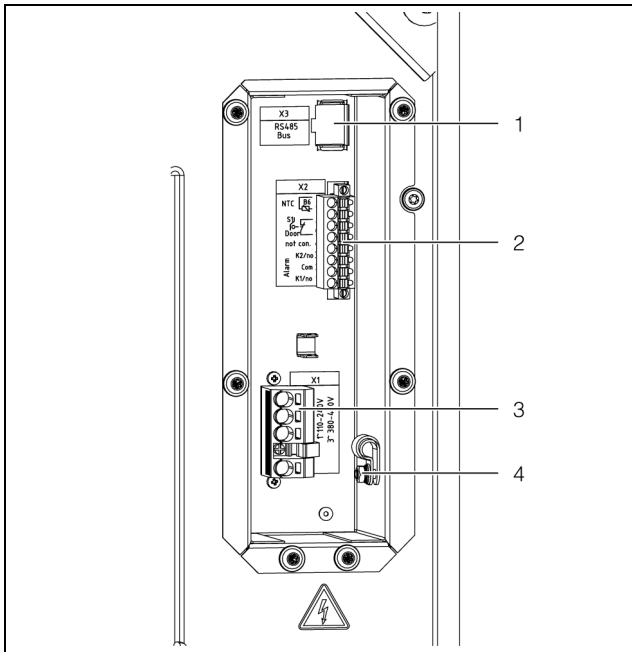


Fig. 34: Connections at rear

**Key**

- 1 Connection for communication module (X3)
- 2 Connection for signal connector (X2)
- 3 Connection for mains connector (X1)
- 4 Bolt (here with fitted earth clamp)

**Potential equalisation**

If the unit is to be integrated into the customer's existing potential equalisation system for EMC reasons, a conductor with a larger nominal cross-section of at least 10 mm<sup>2</sup> can be connected to the potential equalisation connection point (attachment points) on wall-mounted cooling units. The connection point is labelled with the required switch symbol.

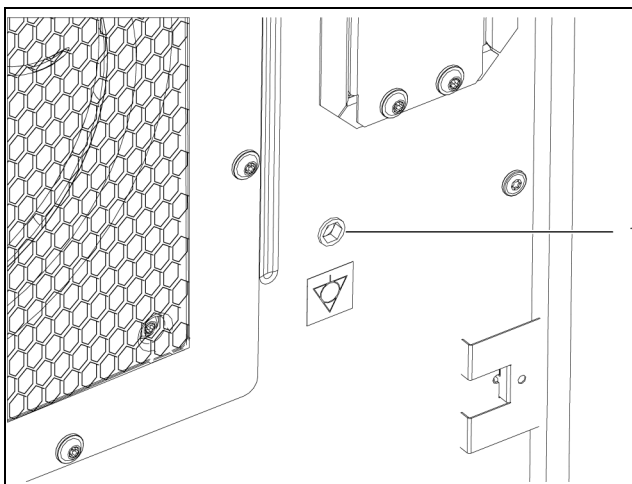


Fig. 35: Connection point for potential equalisation

**Key**

- 1 Connection point

- Attach the potential equalisation to the unit's connection point using the screw, washer and contact washer.

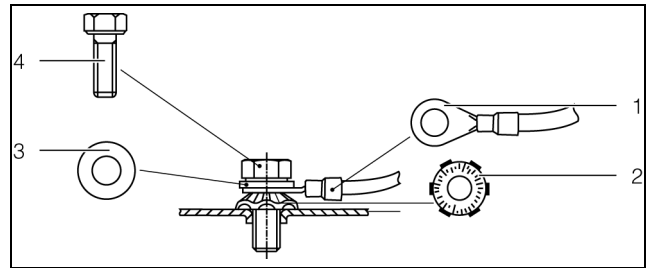


Fig. 36: Potential equalisation arrangement

**Key**

- 1 Ring terminal with PE conductor
- 2 Contact washer
- 3 Washer
- 4 Screw



**Note:**

According to the standard, the PE conductor in the mains connection cable is not classed as an equipotential bonding conductor.

**5.4.2 Install the power supply**



**Note:**

- The mains supply must be of a shielded design with preferred EMC types in order to achieve the values required by the standard.
- The earth clamp may be used to contact the cable shielding with the enclosure inside the connection box (fig. 34, item 4).

- Remove the mains connector from the dispatch bag and connect to the mains as shown on the connection diagram (fig. 37 or fig. 38).

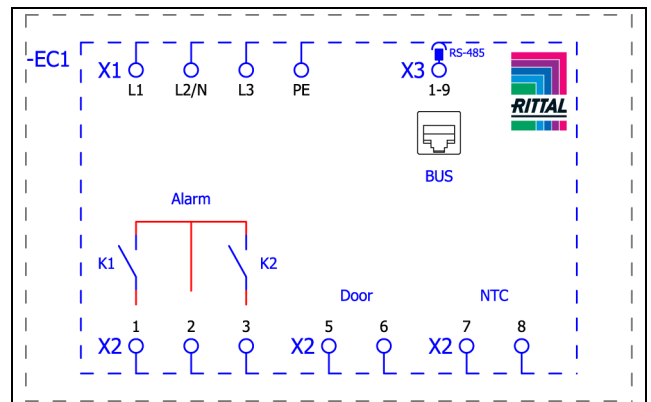


Fig. 37: Circuit diagram SK 3186930 and SK 3187930

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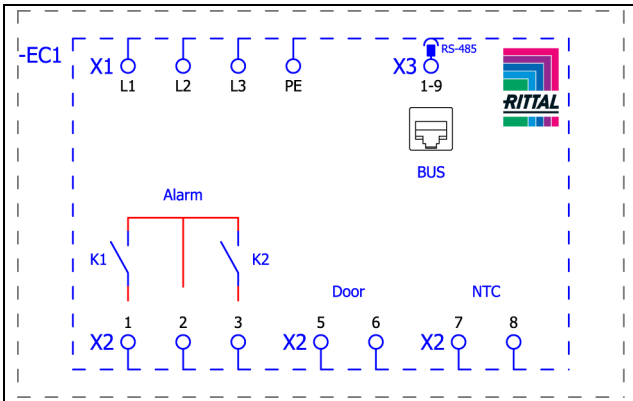


Fig. 38: Circuit diagram SK 3188940 and SK 3189940

There is also a cover for the connection box included in the dispatch bag.

- Insert the EMC cable gland included with the supply into the openings in the cover to ensure adequate strain relief for the connection cable.
- Close the connection box with the cover.
- Cover any unused openings in the cover with sealing bungs.

When connecting the cooling unit in accordance with NFPA 70 (NEC):

- Use a conduit fitting instead of the cable gland.
- Use copper conductors only to connect the supply cable to the mains connector.

### 5.4.3 Connect the alarm relays

System messages from the cooling unit may be output to an external signal source via two floating relay outputs.



Note:

The factory setting of the relay outputs in their de-energised state is NO (Normally Open).

- Connect a suitable connection cable to the connection terminals 1 (Alarm K1) and/or 3 (Alarm K2) of the signal connector (X2).
- Configure the alarm relays you wish to use to output error messages (see section 7.4.2 "Alarm relays").

**AC**  
**cos φ = 1**

I max. = 2 A  
U max. = 250 V

Tab. 2: Contact data

### 5.4.4 Interfaces

The cooling unit has the following interfaces for communicating with external systems:

- Micro-USB interface on the front
- RS 485 interface on the rear
- NFC interface

### Micro-USB interface

A micro-USB interface is located on the front, to the right of the display. A tablet or laptop may be connected here for easy configuration of the unit.

- Connect a tablet or laptop with installed RiDiag software to the micro-USB interface.
- No other USB devices will be detected on this connection.

### RS 485 interface

An RS 485 interface is located on the rear of the connection box. The communication module with which you can connect the cooling unit to a monitoring system (Rittal CMC), may be connected here.

- Connect the communication module (available as an accessory) to the RS 485 interface.



Note:

A direct connection to the cooling unit via the RS 485 interface is not possible.

### NFC interface

The cooling unit may be accessed with a smartphone app via the integral NFC interface. Access is only possible with the app supplied by Rittal.

## 6 Commissioning

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Note:

The oil must collect in the compressor in order to ensure adequate lubrication and cooling. For this reason, do not operate the cooling unit for at least 30 minutes after assembling the equipment.

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- Observe the aforementioned waiting period of at least 30 minutes before commissioning the unit after assembly.
  - Next, switch on the voltage supply to the cooling unit. The Rittal logo will initially appear on the display, followed a short time later by the start screen.
  - You can now make your individual settings on the unit, e.g. set the temperature or assign the network identifier, etc. (refer to chapter 7 "Operation").
- 



Note:

It is **not** necessary to carry out leak or pressure tests on the cooling unit prior to commissioning. Rittal has already done this in the factory.

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# 7 Operation

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## 7 Operation

### 7.1 General

The cooling unit is equipped with a touch function display for making basic settings and displaying error messages. This is an industrial-grade touch display which is pressure-sensitive and may therefore be operated with gloves.

As well as operating directly on the cooling unit itself, there is also a smartphone app available. This offers almost the same functions as the actual display, and additionally provides extended explanations of error messages, as well as the option of contacting the Rittal Service team directly.

### 7.2 Layout of the display

The display is divided into a top section on a dark background, and a bottom section with the menu bar. This layout is always identical, but the content of the two sections will vary according to the menu selected.

#### 7.2.1 Start screen

The start screen is always displayed while the cooling unit is in normal operation, provided there are no error messages.



Fig. 39: Layout of the start screen

#### Key

Item	Description	Possible icons
1	Internal temperature display (2-digit °C/3-digit °F)	Numbers from 0-9
2	EER scale: Range 0...20 / current average EER value of the last 24 hours	EER
3	Ti scale: Range 20 ...60 / value: Average enclosure internal temperature of the last 24 hours	
4	Display temperature unit	°C °F

Tab. 3: List of all icons with descriptions

Item	Description	Possible icons
5	USB connection (if connected)	
6	Self-test (if initiated)	
7	NFC connection (max. 120 seconds after connecting)	
8	Type of cooling	
9	Control based on ...	
10	External sensor	
11	Information menu	
12	System messages (where applicable)	
13	Service icon (if required)	
14	Configuration	

Tab. 3: List of all icons with descriptions

### Type of cooling

The current form of cooling is indicated by one of the following four icons.

Symbol	Parameters
	Cooling in compressor mode without support from the heat pipe
	Cooling in compressor mode with support from the heat pipe
	Cooling via the heat pipe only
	No cooling

Tab. 4: Possible icons for the current type of cooling

#### 7.2.2 Changing a parameter value

If a parameter value is changed, the display including the menu bar will also change.



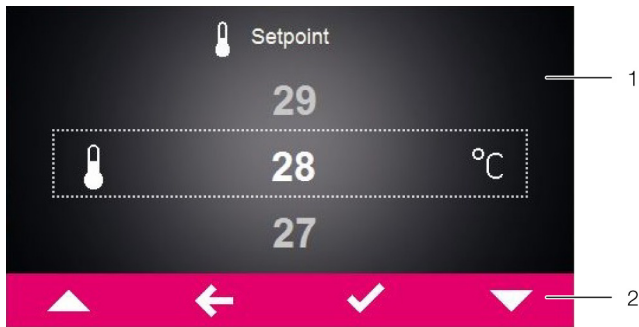


Fig. 40: Screen for changing a parameter value

**Key**




- 1 Main screen
- 2 Control bar

The currently selected parameter value is displayed in the centre of the main screen. To change this value, you always proceed in the same way, as described below with the example of adjusting the set temperature:

- On the start screen, click on the "Configuration" button.
- Enter the PIN to gain access to the lower-level screen pages of the "Configuration" zone. "22" is the default PIN.
- Click on the "Temperature" symbol.
- Click on the "Control mode" symbol.
- Select your preferred control mode from the display.
- Change the setting to the required temperature using the "Up" and "Down" arrows.
- Alternatively, you can also select the one of the displayed higher or lower values directly.
- Finally, confirm the set value with "OK".
- Exit this screen page with the "Back" button.

**7.3 Information menu**



- Click on the "Information" symbol to display a list of lower-level screen pages.

Symbol	Parameters
	Temperature information
	Device information
	Efficiency information

Tab. 5: "Information" zone

**7.3.1 Temperature information**










- Click on the "Temperature information" symbol. The ambient temperature and internal temperature are displayed, in each case as an average for the last 24 hours of operation.

Symbol	Parameter
	Ambient temperature Average ambient temperature (external temperature) over the last 24 hours of operation.
	Internal temperature Average internal temperature over the last 24 hours of operation.

Tab. 6: "Temperature information" zone

**7.3.2 Device information**


- Click on the "Device information" symbol. A list of general information about the device will be displayed.
- Page through the list using the "Up" and "Down" arrows.

Symbol	Parameter
	Serial number
	Production date YYYY-MM-DD
	Hardware Release x.xx.xx
	Firmware Release x.xx.xx
	Software Release x.xx.xx
	Last updated YYYY-MM-DD
	Last serviced YYYY-MM-DD
	Customer device name Name assigned to the cooling unit by the customer. This title can be assigned using the RiDiag software or the Blue e+ app to distinguish between individual units.
	Current control mode

Tab. 7: "Device information" zone

# 7 Operation

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Symbol	Parameter
	If the unit is configured as a "slave": Slave number.

Tab. 7: "Device information" zone

### 7.3.3 Efficiency information

- Click on the "Efficiency information" symbol.

The average energy efficiency ratio (EER) for the last 24 hours of operation will be displayed. The energy efficiency ratio is the ratio of the cooling output generated to the electrical power used.

Symbol	Parameter
<b>EER</b>	Efficiency information Average energy efficiency ratio (EER) of the last 24 hours of operation.

Tab. 8: "Efficiency information" zone

### 7.4 Configuration menu

- Click on the "Configuration" symbol.





A screen page will appear asking you to enter the PIN in order to access the lower-level screen pages.



Note:  
"22" is preset in the factory as the default PIN.

- For the first digit, page through the digits "0" to "9" using the "Up" and "Down" arrows until the required digit appears in the box.
- Confirm your selection with "OK".
- For the second digit, once again page through the digits "0" to "9" using the "Up" and "Down" arrows until the required digit appears in the box.
- Confirm your selection with "OK".




A list of lower-level screen pages will be displayed.

Symbol	Parameter
	Temperature Settings for set temperature and control mode
	Alarm relay Settings for the alarm relays.
	Display language Choice of language for display texts.
	Self-test Perform a self-test.

Tab. 9: "Configuration" zone

### 7.4.1 Temperature

- Click on the "Temperature" symbol to display a list of lower-level screen pages.

Symbol	Parameter
	Change unit Set the unit "°C" or "°F"
	Control mode
	Alarm limit Temperature limit which will trigger an alarm message if exceeded.

Tab. 10: "Temperature" zone

### Unit

All temperature values for the unit may be displayed either in degrees Celsius "°C" or degrees Fahrenheit "°F".



- Click on the "Change unit" symbol.
- Change the required unit ("°C" or "°F") using the "Up" or "Down" arrows.
- Confirm your entry with "OK".

### Control mode

The cooling unit is able to control cooling output according to one of the following two temperature values:

- Internal temperature:** The temperature at which air is drawn out of the enclosure into the cooling unit.
- External sensor:** The temperature measured with an external temperature sensor at a so-called hot spot in the enclosure.

- Click on the "Control mode" symbol.  
The setpoint for the currently set control mode is displayed.
- Choose your preferred control mode by selecting it from the display:

Symbol	Parameter
	Internal temperature
	External sensor

Tab. 11: "Control mode" zone

The corresponding symbol for the chosen control mode is likewise displayed on the overview page.



Note:  
The external temperature sensor is available as accessory from Rittal.

- Change the setpoint using the "Up" and "Down" arrows or select the required temperature directly.  
Setting range: 20°C (68°F)...50°C (122°F)  
Factory setting: 35°C (95°F)
- Confirm your entry with "OK".

### Alarm limit

This limit is used for an alarm message. The set value must therefore be at least 3 K and up to a maximum of 15 K above the actual setpoint to which the cooling unit is set.

For example:

- Setpoint: 35°C (95°F)
- Alarm limit min.: 38°C (100°F)
- Alarm limit max.: 50°C (122°F)



The setpoint must likewise be modified accordingly if the control mode is changed.

- Click on the "Alarm limit" symbol.
- Change the setpoint using the "Up" and "Down" arrows or select the required temperature directly (Factory setting: 38°C (100°F)).
- Confirm your entry with "OK".

### 7.4.2 Alarm relays

There are two floating relay outputs in the connection box on the rear of the unit, which may be used to output system messages from the cooling unit to an external signal source (see section 5.4.3 "Connect the alarm relays"). The relay outputs may be configured here.

- Click on the "Alarm relay" symbol to display a list of lower-level screen pages.

Symbol	Parameter
	Change NO/NC Switch the alarm relay as a normally closed or normally open contact.
	List of functions Allocation of a function to the respective alarm relay.

Tab. 12: "Alarm relay" zone





Note:

For the factory setting of alarm relay allocation see section 7.6 "List of system messages" (Tab. 15).

### Change NO/NC

The switch logic of the relay output, i.e. whether it is to be used as a normally closed or normally open contact, may be set here.

- Click on the "Change NO/NC" symbol.
- Choose your preferred switch logic by selecting it from the display.
- Confirm your entry with "OK".

Symbol	Parameters
	Normally Open Switch the alarm relay as a normally open contact.
	Normally Closed Switch the alarm relay as a normally closed contact.

Tab. 13: Switch logic of the alarm relay





Note:

The factory setting of the relay outputs in their de-energised state is NO (Normally Open).

### List of functions

This is where you specify which error messages should lead to switching of the respective relay output.

- Click on the "Relay 1" or "Relay 2" symbol, and select the alarm relay to which you wish to assign a function.
- From the list of errors, select the function which should cause the previously selected relay output to switch.
- If applicable, assign further functions to the relay output, and the output will then be switch if **at least one** of the assigned functions leads to an error message.
- Confirm your entry with "OK".
- If applicable, configure the other relay output with other functions.

Symbol	Parameter
	Assign relay 1
	Assign relay 2

Tab. 14: List of functions

### 7.4.3 Language settings

All the unit's displays may be shown in different languages. The languages "English" and "German" are available as standard on the unit. Other languages may be installed using the RiDiag software or with the aid of an online tool available on the Rittal website.

- Click on the "Display language" symbol.
- Page through to the required language using the "Up" and "Down" arrows.
- Confirm the chosen language with "OK".

The language will change over immediately, and all menu displays will appear in the chosen language.

### 7.4.4 Self-test

In the event of a malfunction in the unit which fails to produce an error message, it may be useful to check the key functions of all components with a self-test. You

# 7 Operation

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may continue to operate the unit as normal while the self-test is being carried out.

- Click on the "Self-test" symbol.

- Confirm the start of the self-test with "OK".

While the self-test is being carried out, a progress indicator will appear on the display. Once the test is complete, either the message "Unit OK" or "Check error" will be displayed.

- If applicable, use the error list to determine which malfunction applies.

## 7.5 System messages

We distinguish between three different types of system messages on the unit:

- Malfunctions ⚠
- Errors ⚠
- Servicing 🛠

If a corresponding message applies, the "System messages" symbol is displayed in the menu bar (fig. 39, item 13). A list of all possible system messages may be found in section 7.6 "List of system messages".

- Click on the "System messages" symbol.

A list of all active system messages will be displayed. The individual messages are arranged in ascending order as they occur according to the above three categories.

If an error message can only be resolved by the Rittal Service team, the "Service" symbol Ⓢ will additionally appear after the error message.

- In such cases, please contact Rittal Service (see section 14 "Customer service addresses").

### 7.5.1 Occurrence of a malfunction

In the event of a malfunction, the start screen will be superimposed with an error message.

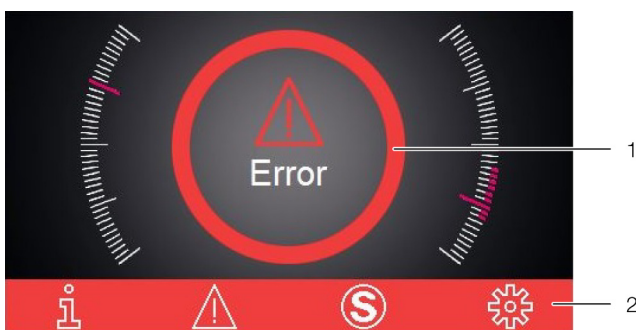


Fig. 41: Screen in the event of a malfunction

#### Key

- 1 Superimposed
- 2 Menu bar in red

The start screen is superimposed with a message in the following three cases:

- There is a malfunction on the unit itself.
- There is a malfunction on one of the units in the master-slave combination.
- The enclosure door is open and a connected door contact is emitting a corresponding message.

If the malfunctions cannot be resolved by the operator himself, the Service symbol will additionally be displayed (Fig. 39, item 14).

- Contact the Rittal Service team if you are unable to resolve the malfunction yourself (see section 14 "Customer service addresses").

### 7.5.2 Display in case of errors

If errors have occurred or servicing is required, the "System messages" symbol will appear in the menu bar (see section 7.5 "System messages").

Most system messages are reset automatically once the fault has been resolved.

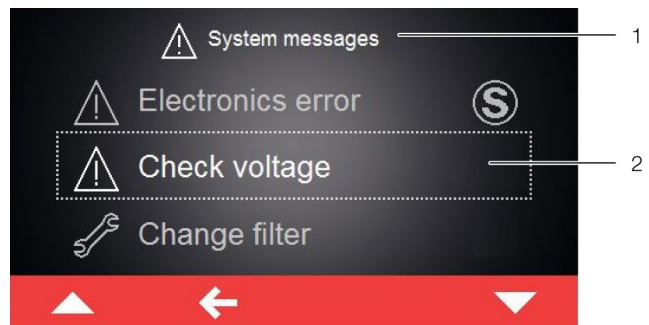


Fig. 42: Screen showing error messages

#### Key

- 1 "Errors" menu
- 2 Error message

If an error message applies that cannot be resolved by the operator himself and which is not reset automatically, the "Service" symbol will appear after the error message and in the control bar next to the symbol for system messages (fig. 43, item 2).

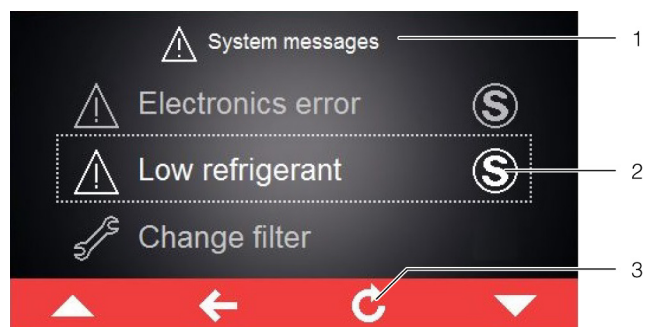


Fig. 43: Screen showing error messages

#### Key

- 1 "Errors" menu
- 2 Error message
- 3 "Return" button











- Contact Rittal Service (see section 14 "Customer service addresses").

- Acknowledge the error message by pressing the "Return" button.

## 7.6 List of system messages

The applicable error messages are displayed with the corresponding symbol in the Errors list (see section 7.5 "System messages"). Extended information for resolving individual faults may be found in this section.













Contact details for the Rittal Service team can be found in section 14 "Customer service addresses".

System message	Alarm relay output (factory setting)	Troubleshooting measures/solutions
Door open 	–	Please close the enclosure door and check the door contact switch. The error message will terminate automatically approximately 30 seconds after it has been resolved.
Interior temperature too high 	–	The measured interior temperature exceeds the set alarm limit for your cooling unit. Please check any maintenance and error messages, and check the rating of your cooling unit. For any further questions, please contact Rittal Service directly.
Change filter 	–	The filter mat in your cooling unit is dirty. Please replace or clean the filter mat and confirm this by pressing reset in the list of system messages on the cooling unit display.
Clean condenser 	–	The condenser in your cooling unit is dirty. Please remove the top louvred grille and clean the heat exchanger, e.g. using compressed air. The error message will terminate automatically approximately 30 seconds after it has been resolved.
Air routing EC 	1	The air inlet or outlet in the external circuit is blocked. Please remove the blockage and ensure that minimum distances from the air inlet or outlet are observed.
Air routing IC 	–	The air inlet or outlet in the internal circuit is blocked. Please remove the blockage and ensure that minimum distances from the air inlet or outlet to components inside the enclosure are observed.
EEV defective 	–	A malfunction has been detected in the electronic expansion valve. Please contact your Rittal Service.
External temperature too high 	–	Your cooling unit is being operated outside of the admissible ambient temperature. Please ensure that the ambient temperature does not exceed the admissible range (-20°C...+60°C).
Refrigerant shortage 	2	Your cooling unit is reporting a lack of cooling in the active refrigerant cycle. Please contact the Rittal Service team immediately. The system message will need to be acknowledged manually once the cause has been rectified.
Condensate warning 	1	Please check whether the condensate water drain of your cooling unit is blocked, and remove the blockage. If you are unable to resolve the fault, please contact your Rittal Service team.







Tab. 15: Error messages

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System message	Alarm relay output (factory setting)	Troubleshooting measures/solutions
Internal fan Alarm 1 	1	The fan in the internal circuit of your cooling unit is blocked. Please check if you can see a blockage and remove it. If no blockage is visible, please replace the fan in the internal circuit. The required spare part may be ordered directly from Rittal using the Blue e+ app. Please use the contact form "Generate service order".
Internal fan Alarm 2 	1	The fan in the internal circuit of your cooling unit is defective. Please replace the fan in the internal circuit. The required spare part may be ordered directly from Rittal using the Blue e+ app. Please use the contact form "Generate malfunction report".
External fan Alarm 1 	1	The fan in the external circuit of your cooling unit is blocked. Please check if you can see a blockage and remove it. If no blockage is visible, please replace the fan in the external circuit. The required spare part may be ordered directly from Rittal using the Blue e+ app. Please use the contact form "Generate service order".
External fan Alarm 2 	1	The fan in the external circuit of your cooling unit is defective. Please replace the fan in the external circuit. The required spare part may be ordered directly from Rittal using the Blue e+ app. Please use the contact form "Prepare malfunction report".
Inverter cooler 	–	The cooling body of the inverter in your cooling unit is dirty. Please remove the filter grille and the cover at the front and clean the cooling body, e.g. using compressed air. The error message will terminate automatically approximately 30 seconds after it has been resolved.
Compressor defective 	2	The compressor in your cooling unit is reporting a malfunction. Please contact the Rittal Service team immediately.
Sensor xx defective 	1	Sensor xx in your cooling unit is reporting a sensor failure. Please contact the Rittal Service team.
Ext. sensor missing 	1	The external sensor is not connected or has a malfunction. Please check the connection or select another control mode.
Check voltage 	1	You are operating your cooling unit outside of the admissible voltage ranges. Please check the power supply to the cooling unit and observe the specifications on the rating plate. With a three-phase infeed, please also check that all three phases are correctly connected.
Electronic fault 	2	The electronics in your cooling unit are reporting an electronic fault. Please contact the Rittal Service team.
Check parameters 	–	Due to an error, the cooling unit has been reset to the factory defaults. Please check the current messages or contact your Rittal Service team.
Inverter fault 	2	The inverter in your cooling unit is reporting a malfunction. Please contact the Rittal Service team.

Tab. 15: Error messages

System message	Alarm relay output (factory setting)	Troubleshooting measures/solutions
Emergency operation active 	–	Due to a previous error your cooling unit is only operating with a performance of 50%. Please remedy this error and/or contact your Rittal Service team.
Compressor phase  	2	The compressor in your cooling unit is reporting a malfunction. Please contact your Rittal Service team.
Overload 	1	Please check the rating of your cooling unit. For any further questions, please contact your Rittal Service team directly.
Alarm active cooling  	–	The active cooling function of your unit is defective. Please contact the Rittal Service team immediately, and/or check the rating of your cooling unit.

Tab. 15: Error messages

# 8 Inspection and maintenance

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## 8 Inspection and maintenance

### 8.1 Safety instructions for maintenance work

The unit must be opened in order to carry out maintenance work. There is a risk of injury from electric shock.

- Switch off the power supply before carrying out maintenance work.
- Secure the power supply to prevent it being switched back on accidentally.
- Disconnect the electrical connection cable of the cooling unit from the power supply at the connection box.
- Wait at least five minutes before handling the unit. Only then will the capacitors built into the unit have discharged themselves.
- When handling the enclosure, be aware of any exposed power sources, where applicable.
- If possible, disconnect the entire enclosure from the power.

There is also a risk of injury from sharp edges, such as the louvres of the heat exchanger.

- Wear cut-resistant gloves for all maintenance work. After removing the cover, there is a risk of burn injuries from hot surfaces on the components inside the unit.
- Before carrying out any work on the interior of the unit, allow it to cool down for at least ten minutes.

### 8.2 Notes on the refrigerant circuit

The cooling unit is filled with the amount of refrigerant required at the factory, checked for leaks, and subjected to a functional test run. The refrigerant circuit is designed in the form of a maintenance-free, hermetically sealed system. For this reason, the operator should not carry out any maintenance work on the refrigerant circuit.



**Caution!**  
**Maintenance tasks on the refrigerant circuit must only be undertaken by a qualified refrigeration specialist.**

### 8.3 Maintenance work on the cooling unit

If there is visible dirt present, the components in the outer air circuit should be cleaned using a vacuum cleaner or compressed air.



**Note:**  
The maintenance intervals given below depend to a large extent on the level of contamination in the ambient air. For heavily contaminated air, the maintenance intervals will be reduced accordingly.

- Clean the cooling unit inside and out at least every 5,000-8,000 operating hours as described in section 8.4 "Compressed air cleaning".

- Any stubborn, oily stains may additionally be removed using a non-flammable detergent, such as degreaser.



**Caution!**  
**Never use flammable liquids for cleaning the unit.**

The installed maintenance-free fans are mounted on ball bearings, protected against moisture and dust, and fitted with a temperature monitor.

- Rittal recommends that the cooling unit fans should be checked e.g. for unusual running noises after around 40,000 operating hours.

### 8.4 Compressed air cleaning

#### 8.4.1 Dismantling a unit with full internal mounting

Cooling units with full internal mounting in the enclosure must first be completely removed from the mounting cut-out before cleaning with compressed air.

- Remove the cooling unit from the rack mount in the reverse order as for installation (see section 5.3.7 "Full internal mounting of the cooling unit")
- Hold the threaded bolts in place with a screwdriver in order to loosen the nuts.
- Then dismantle the unit as described in section 8.4.2 "Dismantling the unit".

#### 8.4.2 Dismantling the unit



**Note:**  
In principle, the unit is dismantled in the reverse order from assembly.

- At the front of the cooling unit, pull the top louvred grille away from the mounting clips on the cover, and place or lay it down somewhere safe.



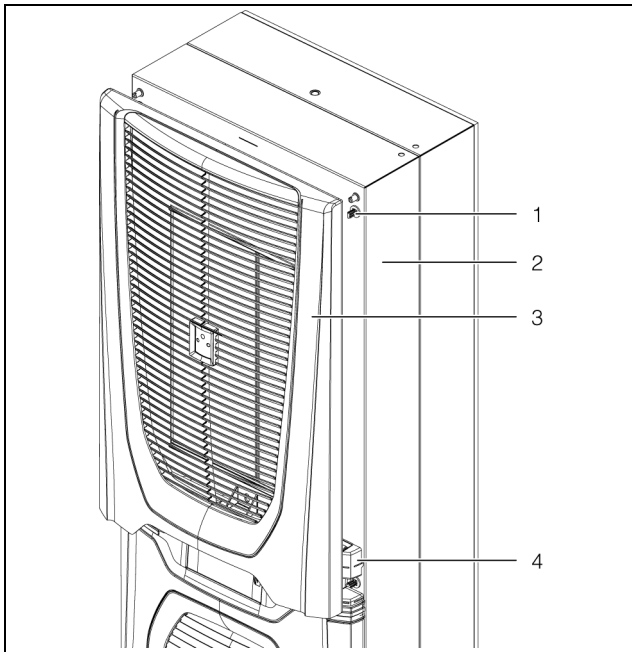


Fig. 44: Remove the top louvred grille

**Key**

- 1 Mounting clip
- 2 Cover
- 3 Top louvred grille
- 4 Infill panel on cooling unit

- Flip open the bottom louvred grille below the infill panel.
- Release the two stays in the top hinge mechanism from the brackets attached to the cover of the cooling unit.

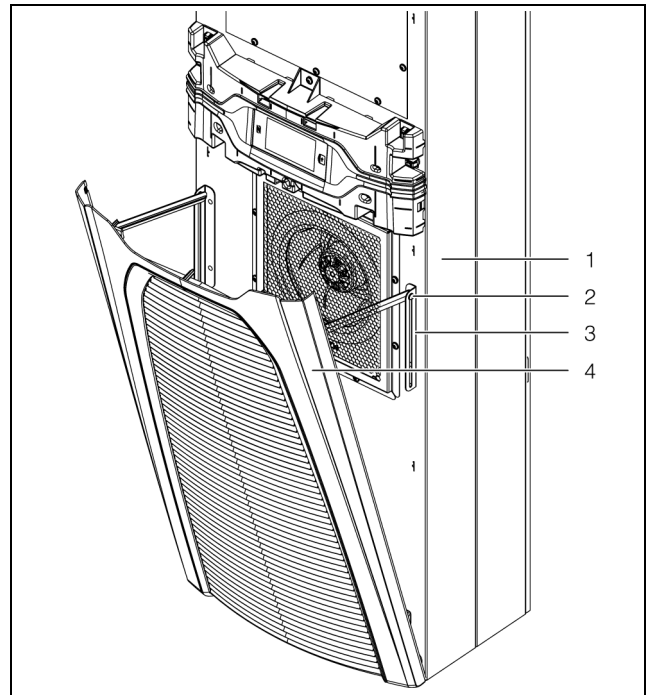


Fig. 45: Attachments on hinge mechanism

**Key**

- 1 Cover
- 2 Stays in hinge mechanism
- 3 Bracket
- 4 Bottom louvred grille

- Pull the bottom louvred grille forwards out of its holders, and place or lay it down somewhere safe.

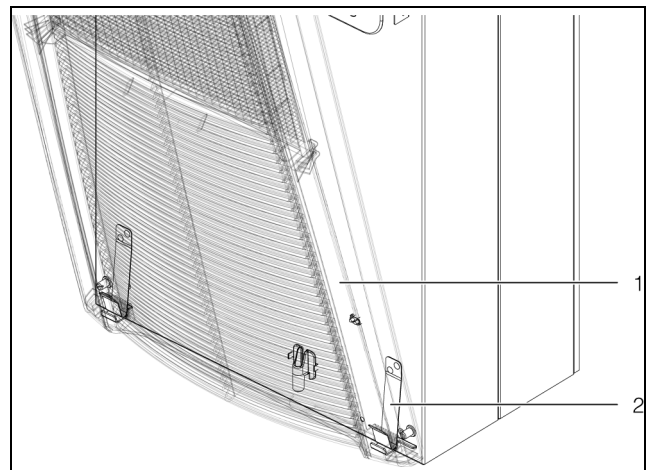


Fig. 46: Bottom holders of louvred grille

**Key**

- 1 Bottom louvred grille
- 2 Holders

- Gently pull the infill panel, including display, forwards to release it from the mounting clips on the cover.

## 8 Inspection and maintenance

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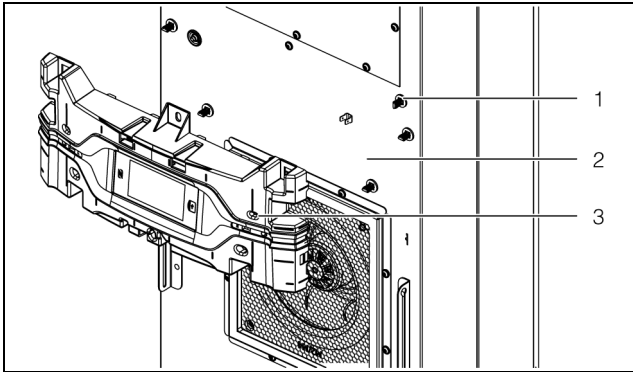


Fig. 47: Remove the infill panel

### Key

- 1 Mounting clips
- 2 Cover
- 3 Infill panel

- On the rear of the display, disconnect both of the connectors (PE conductor and connection) and remove the infill panel completely from the cooling unit.

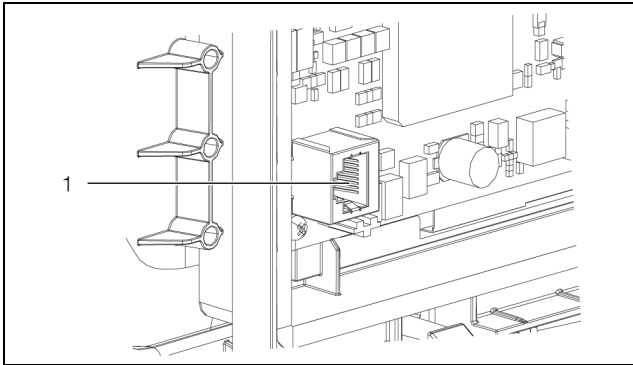


Fig. 48: Connection point on rear of cooling unit

### Key

- 1 Connection point

- Place the infill panel somewhere safe.
- Carefully push the connector including connection cable inwards through the cable gland in the cover.

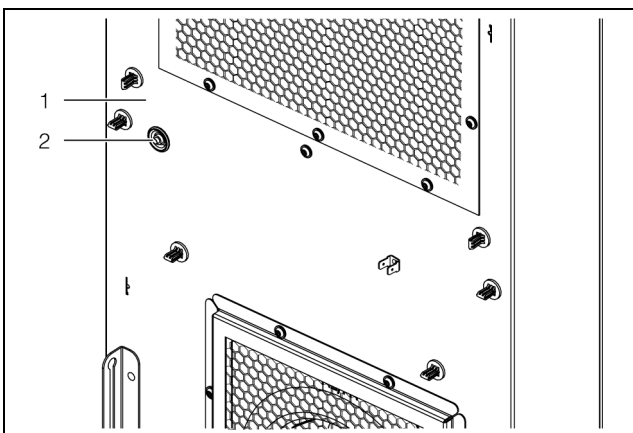


Fig. 49: Cable gland in cover

### Key

- 1 Cover
- 2 Cable gland



### Caution!

The cooling unit will only be stable as long as the cover and chassis are connected. For this reason, be sure to brace the chassis, in particular, to stop it falling over before removing the cover.

- Loosen the six fixing clamps used to connect the cooling unit and enclosure door or side panel. You may wish to use a screwdriver to press the stays back and remove the fixing clamps.

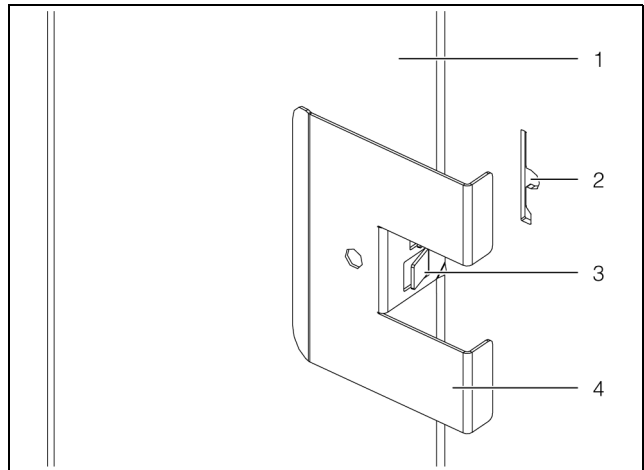


Fig. 50: Loosen the fixing clamps

### Key

- 1 Enclosure door or side panel
- 2 Opening for screwdriver in cooling unit
- 3 Stays
- 4 Fixing clamps



### Caution!

After removing the cover, there is a risk of burn injuries from hot component surfaces inside the unit.

- Allow the unit to cool down for at least ten minutes before removing the cover. This should allow hot surfaces inside the unit to cool down sufficiently.
- Loosen the four threaded bolts in the corners of the cover which connect the cover to the chassis.
- Carefully pull the cover forwards (approx. 5 cm) from the chassis. The PE conductor connection between the cover and the chassis is located on the right-hand side, around half-way up.

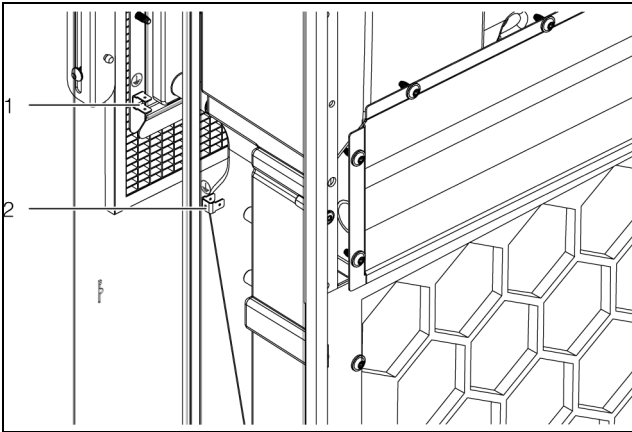


Fig. 51: PE conductor connection (viewed from behind)

#### Key

- 1 PE conductor connection, cover
- 2 PE conductor connection, chassis

- Disconnect the PE conductor's flat-pin connector from the inside, preferably on the chassis.
  - Remove the cover completely from the chassis, and place or lay it down somewhere safe.
- Dismantling of the unit is now complete.

#### 8.4.3 Cleaning the components with compressed air

After removing the cover from the unit, you will be able to access the components in the outer circuit, particularly the condenser, the condenser fan and the compressor chamber.

- Wear cut-resistant gloves when cleaning with compressed air, so as to avoid injuries caused by sharp edges inside the unit.
- When cleaning the components with compressed air, blow dirt sideways out of the cooling unit.
- Alternatively, use a suitable vacuum cleaner to clean all components.

#### 8.4.4 Re-assembling the cooling unit

Once the cleaning work is complete, the cooling unit must be sealed and, in the case of full internal mounting, fitted back into the mounting cut-out.

- First, completely re-assemble the cooling unit.  
It is assembled in the reverse order from dismantling (see section 8.4.2 "Dismantling the unit"), in the same way as for the initial assembly (see section 5.3 "Assembly procedure").
- For full internal mounting of the cooling unit, re-insert it into the mounting cut-out.
- Make the electrical connection for the cooling unit.

# 9 Storage and disposal

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## 9 Storage and disposal

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Note:

When storing the cooling unit, please observe the temperature range given in the technical specifications.

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- Store the cooling unit in the appropriate position for transport.

The closed refrigerant circuit contains refrigerant and oil which must be properly disposed of for the sake of the environment. Facilities for disposal are available at the Rittal plant or a specialist company. Give us a call (see section 14 "Customer service addresses").




## 10 Technical specifications

Technical specifications		SK 3186930	SK 3187930	SK 3188940	SK 3189940
<b>General specifications</b>					
Model number		SK 3186930	SK 3187930	SK 3188940	SK 3189940
Dimensions (width x height x depth) [mm]		450 x 1600 x 294		450 x 1600 x 393	
<b>Cooling output</b>					
Total cooling output $P_c$ to EN 14511 [kW]	L35 L35	2.00	2.60	4.20	5.80
	L35 L50	1.29	1.82	3.02	4.20
Sensible cooling capacity $P_c$ to EN 14511 [kW]	L35 L35	2.00	2.60	4.20	5.30
Power consumption $P_{el}$ to EN 14511 [kW]	L35 L35	0.57	0.99	1.21	2.20
	L35 L50	0.60	0.94	1.28	2.20
Energy efficiency ratio (EER)	L35 L35	3.5	2.63	3.46	2.64
<b>Electrical specifications</b>					
Rated voltage [V, ~], tolerance	+10%/ -10%	110...240, 1		-	
	+5%/ -15%	380...480, 3			
Rated frequency [Hz]		50...60			
Rated insulation voltage $U_i$ [V]		500			
Rated output [kW]		0.73	1.05	1.30	2.20
Rating of overcurrent protective device [A]		15			
Minimum circuit ampacity [A]		15			
Input ampere range [A]		7,3 @110 V – 1,3 @380 V	11@110 V – 1.8@380 V	2.3@380 V – 1.8@480 V	3.7@380 V – 2.94@480 V
Pre-fuse T [A] (Time delay fuse type: CCMR)		15			
Overvoltage category		III			
Level of contamination		III			
<b>Protection category to IEC 60 529</b>					
Internal circuit		IP 55			
External circuit		IP 24			
NEMA		Type 12			
<b>Electromagnetic compatibility</b>					
Immunity to interference		For industrial areas to EN 61000-6-2			
Emitted interference		For residential, business and commercial areas and small companies to EN 61000-6-3			

Tab. 16: Technical specifications Blue e+

# 10 Technical specifications

EN

Technical specifications	SK 3186930	SK 3187930	SK 3188940	SK 3189940
<b>Refrigerant circuit</b>				
Admissible pressure (PS) HP/LP [MPa]		2.4		
Operating temperature range [°C]		-20...+60		
Heat pipe active mode [°C]		0...+60		
Refrigerant cycle active mode [°C]		+10...+60		
Setting range set value [°C]		+20...+50		
Refrigerant identification		R134a, Tetrafluorethane (CH <sub>2</sub> FCF <sub>3</sub> )		
Refrigerant filling mass compression system/heat pipe system [g]		650/500	700/1050	
<b>Other</b>				
Weight [kg]		55.2	72.4	
Storage temperature range [°C]		-40...+70		
Noise pressure level Lp [dB(A)]		<67	<70	<74
Further information				

Tab. 16: Technical specifications Blue e+

## 11 List of spare parts

Spare parts may be ordered directly from the Rittal web-site:

– [http://www.rittal.com/com\\_en/spare\\_parts](http://www.rittal.com/com_en/spare_parts)

■ Select the item number of your unit.



Note:

The components used are Rittal-specific components. We recommend using only original Rittal spare parts to ensure the guaranteed unit properties (output).

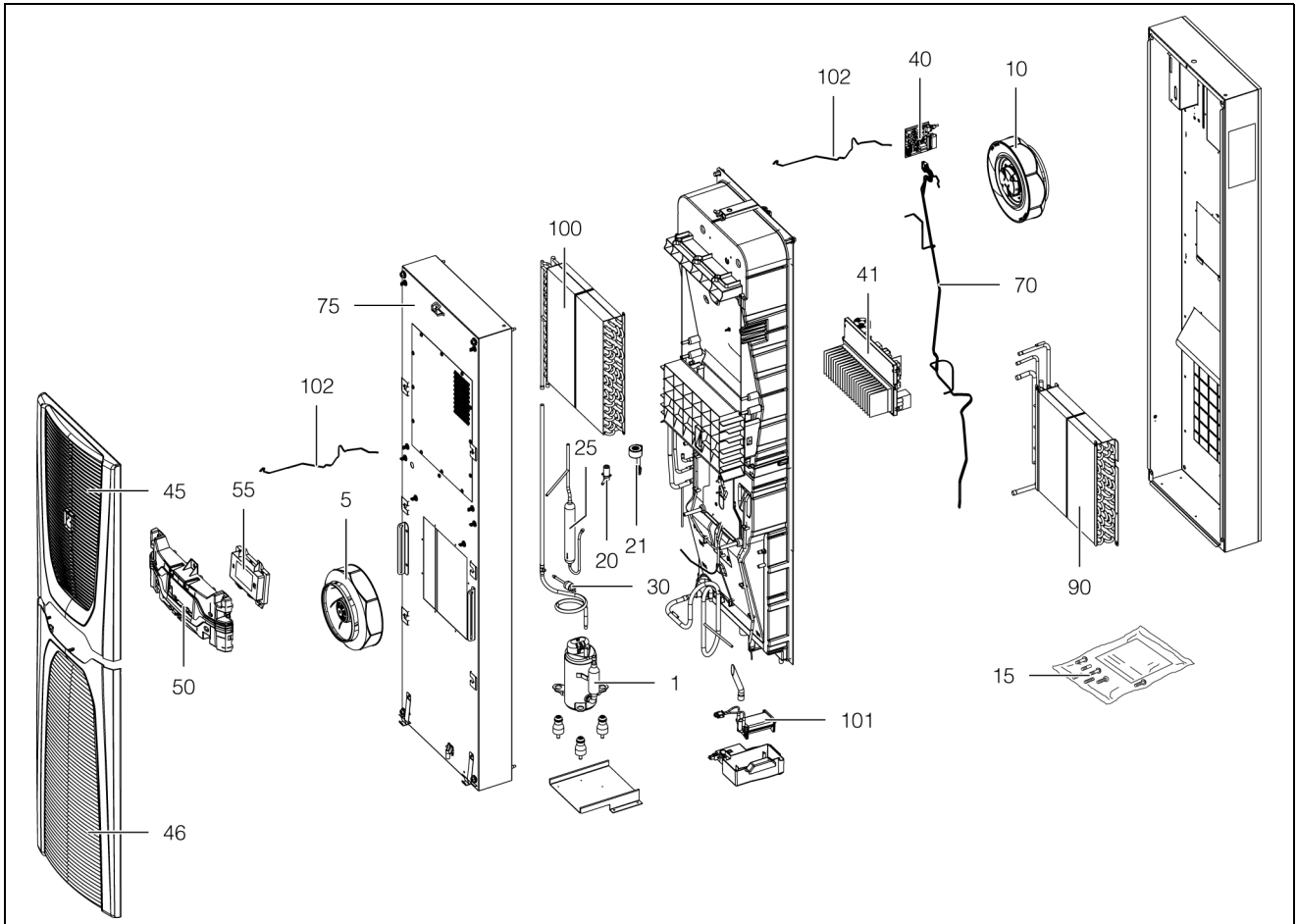


Fig. 52: Spare parts

### Key

- 1 Compressor
- 5 Condenser fan
- 10 Evaporator coil fan
- 15 Dispatch bag as accessories bag
- 20 Expansion valve
- 21 Coil for expansion valve
- 25 Filter dryer
- 30 PSA<sup>H</sup> pressure-operated switch as pressostat
- 40 I/O-board
- 41 Inverter
- 45 Louvred grille, top
- 46 Louvred grille, bottom
- 50 Infill panel
- 55 Display/controller
- 70 Temperature sensor kit
- 75 Cover
- 90 Evaporator coil
- 100 Condenser
- 101 Condensate water evaporator
- 102 Display cable

## 12 Drawings

### 12.1 Representation of mounting cut-outs

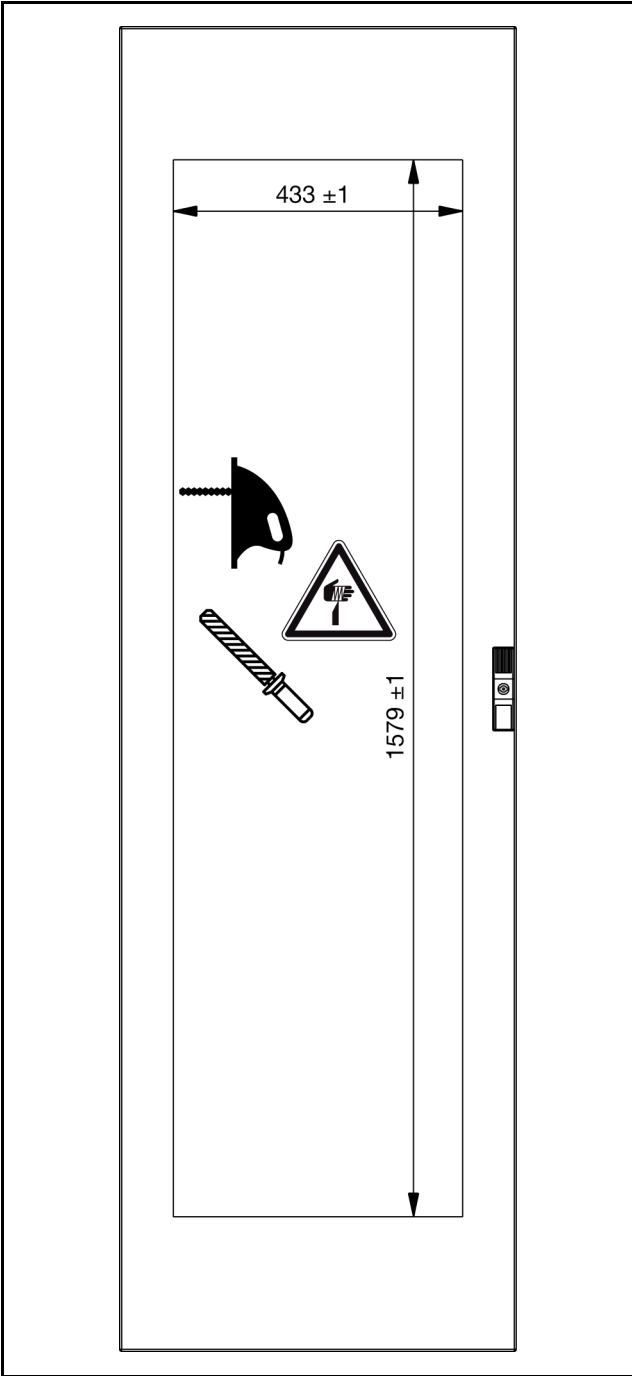


Fig. 53: Mounting cut-out

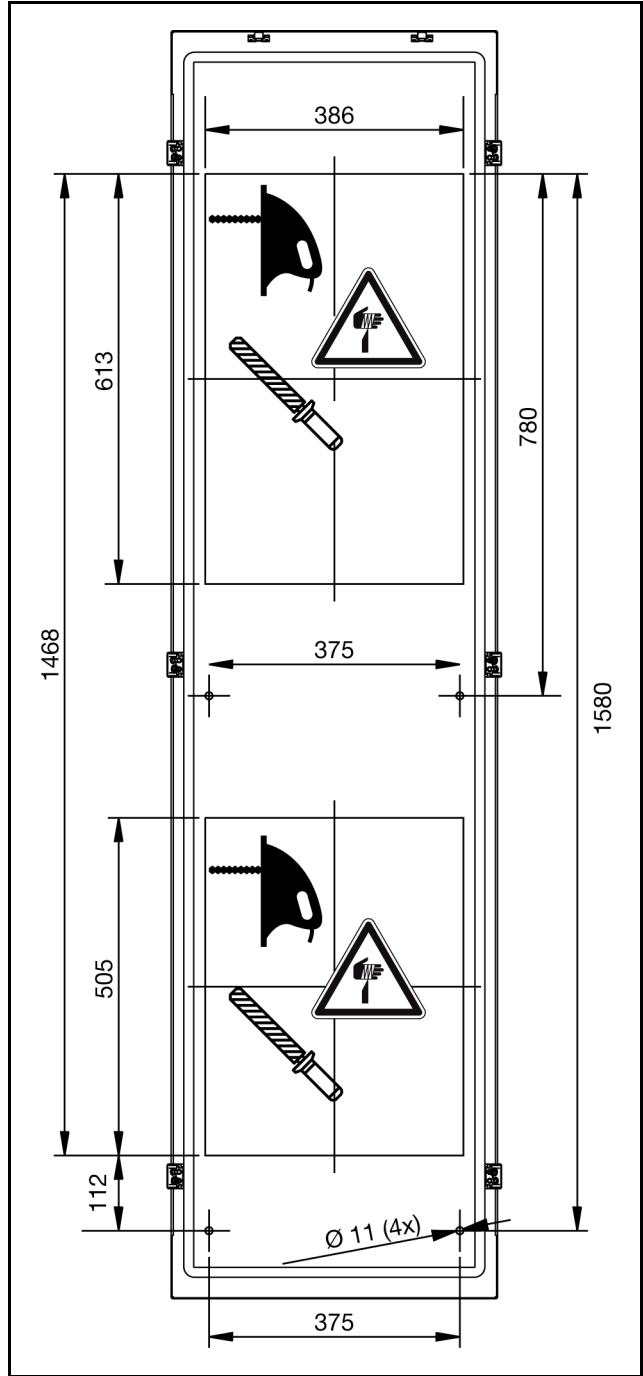


Fig. 54: Mounting cut-out for 500 mm deep enclosure



## 12.2 Dimensions and installation depths

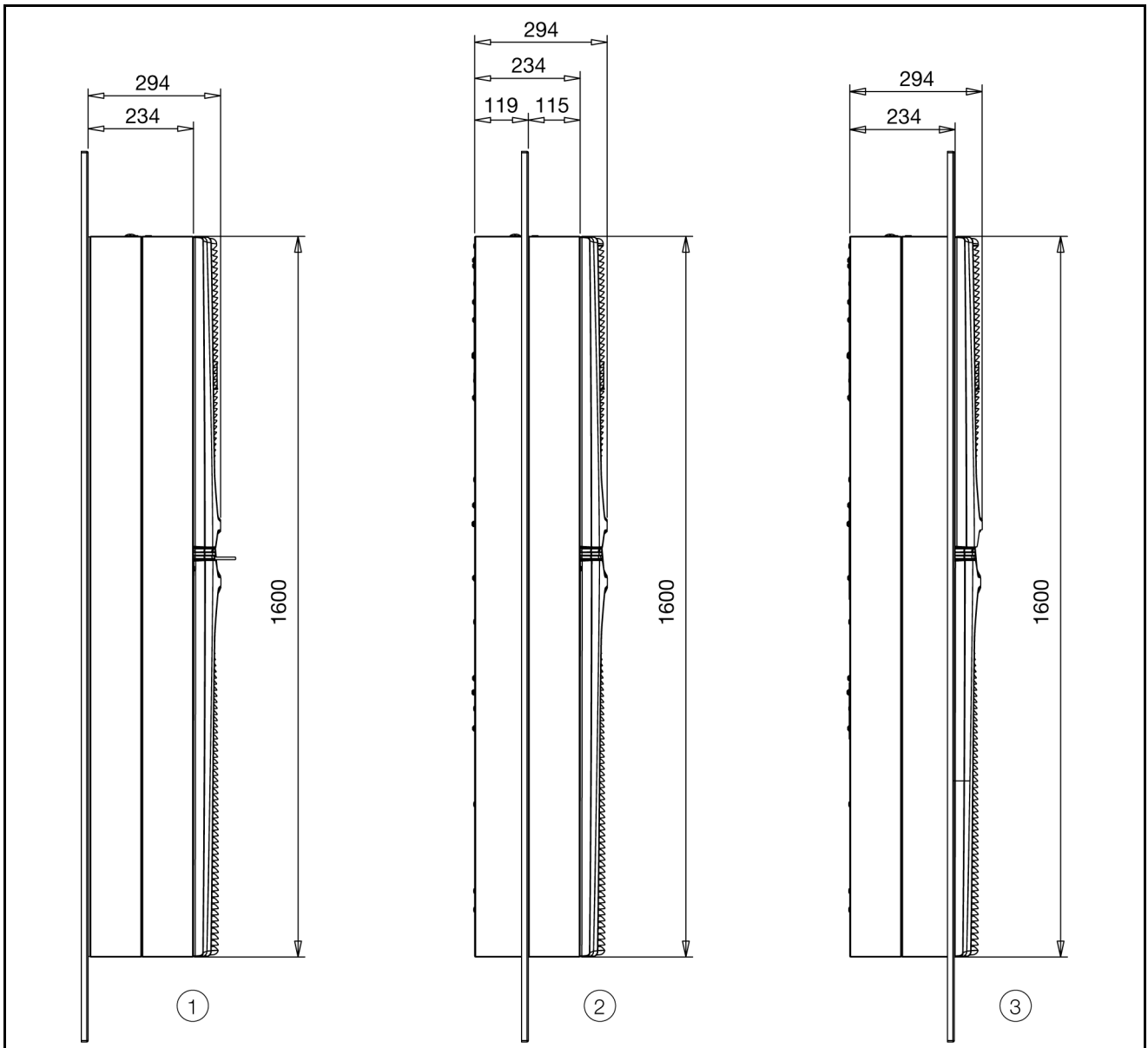


Fig. 55: Dimensions SK 3186930 and SK 3187930

**Key**

- 1 External mounting
- 2 Partial internal mounting
- 3 Full internal mounting

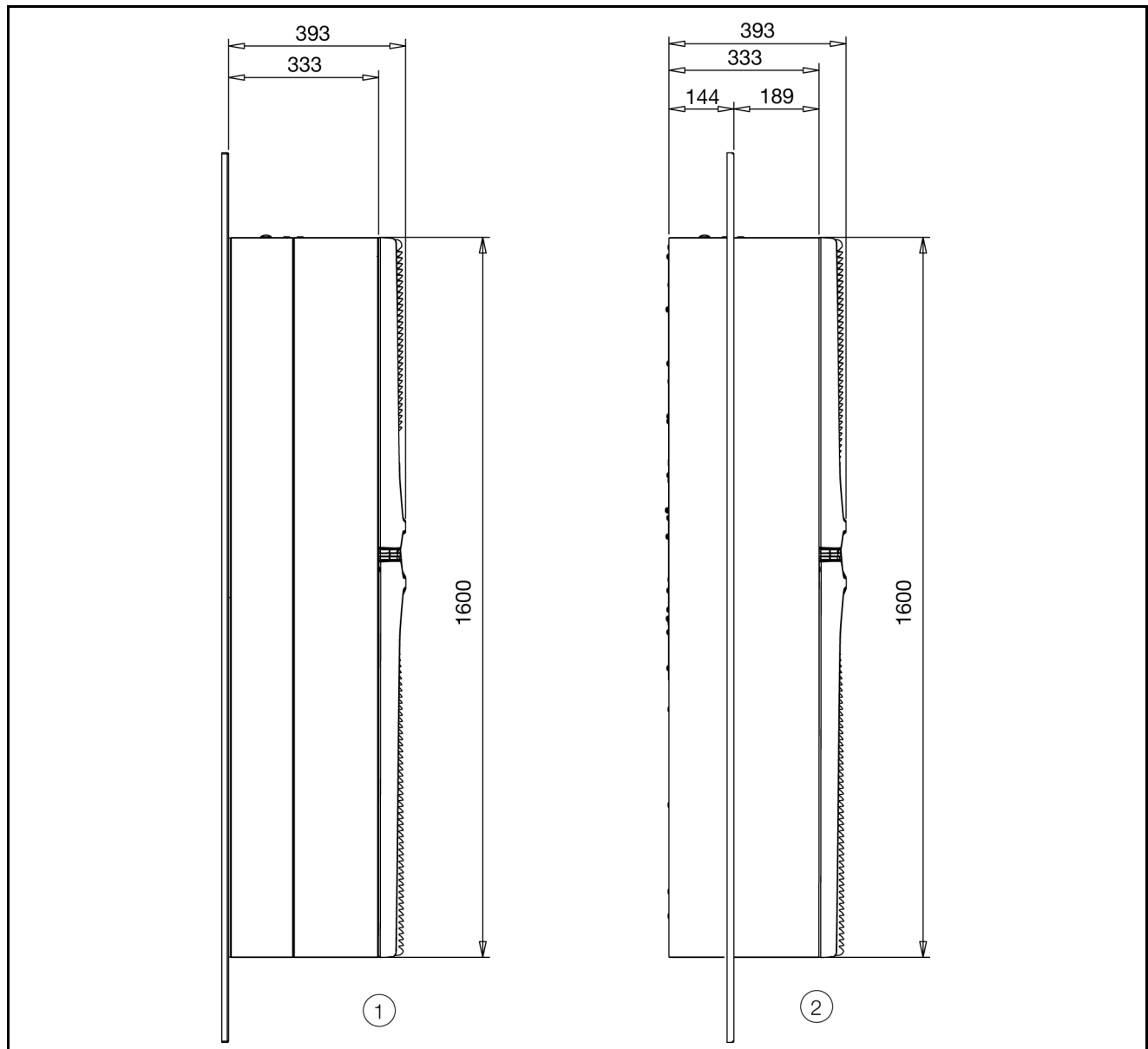


Fig. 56: Dimensions SK 3188940 and SK 3189940

**Key**

- 1 External mounting
- 2 Partial internal mounting

## 13 Accessories

As well as the components listed below, a detailed list of the entire range of accessories may be found on the website given in section 14 "Customer service addresses".

Item	Model No.
Door limit switch	SK 4127010
M12 eyebolt	SK 4568000
Filter mats (polyurethane foam)	SK 3285900
Metal filter	SK 3285910
Condensate water hose	SK 3301612
External temperature sensor	SK 3124400

Tab. 17: List of accessories

# 14 Customer service addresses

EN

## 14 Customer service addresses

■ For technical queries, please contact:

Phone: +49(0)2772 505-9052

E-mail: [info@rittal.com](mailto:info@rittal.com)

Homepage: [www.rittal.com](http://www.rittal.com)

■ For complaints or service requests, please contact your local Rittal organisation.

### Argentina

Phone: +54 (11) 4760 6660

E-mail: [service@rittal.com.ar](mailto:service@rittal.com.ar)

### Australia

Phone: +61 (2) 95 25 27 66

E-mail: [service@rittal.com.au](mailto:service@rittal.com.au)

### Austria

Phone: +43 (0) 599 40 -0

E-mail: [service@rittal.at](mailto:service@rittal.at)

### Belarus

■ Please contact Lithuania.

E-mail: [service@rittal.lt](mailto:service@rittal.lt)

### Belgium

Phone: +32 (9) 353 91 45

E-mail: [service@rittal.be](mailto:service@rittal.be)

### Bosnia-Herzegovina

■ Please contact the headquarters in Germany.

Phone: +49 (0) 2772 505 1855

E-mail: [service@rittal.de](mailto:service@rittal.de)

### Brazil

Phone: +55 (11) 3622 2377

E-mail: [service@rittal.com.br](mailto:service@rittal.com.br)

### Bulgaria

Phone: +359 (2) 8890055

E-mail: [service@rittal.bg](mailto:service@rittal.bg)

### Canada

Phone: +1 (905) 877 COOL 292

E-mail: [service@rittal.ca](mailto:service@rittal.ca)

### Chile

Phone: +56 2 9477 400

E-mail: [info@rittal.cl](mailto:info@rittal.cl)

### China

Phone: +86 800 820 0866

E-mail: [service@rittal.cn](mailto:service@rittal.cn)

### Columbia

Phone: +571 621 8200

E-mail: [service@rittal.com.co](mailto:service@rittal.com.co)

### Costa Rica

■ Please contact Mexico.

E-mail: [servicemx@rittal.com.mx](mailto:servicemx@rittal.com.mx)

### Croatia

Phone: +385 1 3455 256

E-mail: [service@rittal.hr](mailto:service@rittal.hr)

### Cyprus

■ Please contact the headquarters in Germany.

E-mail: [service@rittal.de](mailto:service@rittal.de)

### Czech Republic

Phone: +420 234 099 068

E-mail: [servis@rittal.cz](mailto:servis@rittal.cz)

### Denmark

Phone: +45 70 25 59 20

E-mail: [info@rittal.dk](mailto:info@rittal.dk)

### Dubai

Phone: +971 3416855 206

E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

### Ecuador

■ Please contact Brazil.

E-mail: [service@rittal.com.br](mailto:service@rittal.com.br)

### El Salvador

■ Please contact Mexico.

E-mail: [servicemx@rittal.com.mx](mailto:servicemx@rittal.com.mx)

### Estonia

■ Please contact Lithuania.

E-mail: [service@rittal.lt](mailto:service@rittal.lt)

### Finland

Phone: +358 9 413 444 50

E-mail: [service@rittal.fi](mailto:service@rittal.fi)

### France

Phone: +33 (1) 49836070

E-mail: [service@rittal.fr](mailto:service@rittal.fr)

### Germany

Phone: +49(0)2772 505-1855

E-mail: [service@rittal.de](mailto:service@rittal.de)

# 14 Customer service addresses

EN

## Greece

Phone: +30 210 271 79756  
E-mail: [service@rittal.gr](mailto:service@rittal.gr)

## Guatemala

■ Please contact Mexico.  
E-mail: [servicemx@rittal.com.mx](mailto:servicemx@rittal.com.mx)

## Honduras

■ Please contact Mexico.  
E-mail: [servicemx@rittal.com.mx](mailto:servicemx@rittal.com.mx)

## Hong Kong

■ Please contact China.  
E-mail: [marvis.lun@rittal.com](mailto:marvis.lun@rittal.com)

## Hungary

Phone: +36 1 399 800  
E-mail: [rittal@rittal.hu](mailto:rittal@rittal.hu)

## Iceland

■ Please contact the headquarters in Germany.  
E-mail: [srj@sminor.is](mailto:srj@sminor.is)

## India

Phone: +91 (80) 33720783  
E-mail: [service@rittal-india.com](mailto:service@rittal-india.com)

## Indonesia

■ Please contact Singapore.  
E-mail: [service@rittal.com.sg](mailto:service@rittal.com.sg)

## Iran

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## Ireland

Phone: +353 (59) 9 18 21 00  
E-mail: [sales@rittal.ie](mailto:sales@rittal.ie)

## Israel

Phone: +972 (4) 6275505  
E-mail: [service@rittal.co.il](mailto:service@rittal.co.il)

## Italy

Phone: +39 (02) 95 930 308  
E-mail: [service@rittal.it](mailto:service@rittal.it)

## Japan

Phone: +81 280 87 5130  
E-mail: [service@rittal.co.jp](mailto:service@rittal.co.jp)

## Jordan

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## Kazakhstan

■ Please contact Lithuania.  
E-mail: [service@rittal.lt](mailto:service@rittal.lt)

## Latvia

■ Please contact Lithuania.  
E-mail: [service@rittal.lt](mailto:service@rittal.lt)

## Lebanon

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## Lithuania

Phone: +37 (0) 52105738  
E-mail: [service@rittal.lt](mailto:service@rittal.lt)

## Luxembourg

■ Please contact the headquarters in Germany.  
E-mail: [services@dme.lu](mailto:services@dme.lu)

## Morocco

■ Please contact the headquarters in Germany.  
E-mail: [service@rittal.ma](mailto:service@rittal.ma)

## Malaysia

■ Please contact Singapore.  
E-mail: [service@rittal.com.sg](mailto:service@rittal.com.sg)

## Macedonia

■ Please contact Austria.  
E-mail: [siskon@mt.net.mk](mailto:siskon@mt.net.mk)

## Mexico

Phone: +52 (55) 59 5369  
E-mail: [servicemx@rittal.com.mx](mailto:servicemx@rittal.com.mx)

## Netherlands

Phone: +31 (316) 59 1692  
E-mail: [service@rittal.nl](mailto:service@rittal.nl)

## New Zealand

■ Please contact Australia.  
E-mail: [service@rittal.com.au](mailto:service@rittal.com.au)

## Norway

Phone: +47 64 85 13 00  
E-mail: [service@rittal.no](mailto:service@rittal.no)

# 14 Customer service addresses

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EN

## **Oman**

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## **Pakistan**

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## **Peru**

■ Please contact Brazil.  
E-mail: [service@rittal.com.br](mailto:service@rittal.com.br)

## **Philippines**

■ Please contact Singapore.  
E-mail: [service@rittal.com.sg](mailto:service@rittal.com.sg)

## **Poland**

Phone: +48 (22) 724 2784  
E-mail: [service@rittal.pl](mailto:service@rittal.pl)

## **Portugal**

Phone: +351 256780210  
E-mail: [service@rittal.pt](mailto:service@rittal.pt)

## **Qatar**

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## **Romania**

Phone: +40 351 76 47  
E-mail: [service@rittal.ro](mailto:service@rittal.ro)

## **Russia**

Phone: +7 (495) 775 02 30  
E-mail: [service@rittal.ru](mailto:service@rittal.ru)

## **Saudi Arabia**

■ Please contact Dubai.  
E-mail: [service@rittal-middle-east.com](mailto:service@rittal-middle-east.com)

## **Serbia**

■ Please contact the headquarters in Germany.  
E-mail: [sloba@vesimpex.co.yu](mailto:sloba@vesimpex.co.yu)

## **Singapore**

Phone: +65 6309 7327  
E-mail: [service@rittal.com.sg](mailto:service@rittal.com.sg)

## **Slovak Republic**

Phone: +421 2 5363 0651  
E-mail: [service@rittal.sk](mailto:service@rittal.sk)

## **Slovenia**

Phone: +386 1 5466370  
E-mail: [service@rittal.si](mailto:service@rittal.si)

## **Spain**

Phone: +34 902 504 678  
E-mail: [service@rittal.es](mailto:service@rittal.es)

## **South Africa**

Phone: +27 (11) 609 82 94  
E-mail: [service@rittal.co.za](mailto:service@rittal.co.za)

## **South Korea**

Phone: +82 2 577 6525 114  
E-mail: [service@rittal.co.kr](mailto:service@rittal.co.kr)

## **Sweden**

Phone: +46 (431) 442600  
E-mail: [service@rittal.se](mailto:service@rittal.se)

## **Switzerland**

Phone: +41 56 416 0690  
E-mail: [service@rittal.ch](mailto:service@rittal.ch)

## **Taiwan**

Phone: +886 (3) 3971745 18  
E-mail: [sales.info@rittal.com.tw](mailto:sales.info@rittal.com.tw)

## **Thailand**

Phone: +66 (2) 369 2896 99 13  
E-mail: [service@rittal.co.th](mailto:service@rittal.co.th)

## **Turkey**

Phone: +90 (216) 383 74 44  
E-mail: [servis@rittal.com.tr](mailto:servis@rittal.com.tr)

## **Turkmenistan**

■ Please contact Lithuania.  
E-mail: [service@rittal.lt](mailto:service@rittal.lt)

## **UK**

Phone: +44 8448 006 007  
E-mail: [service.desk@rittal.co.uk](mailto:service.desk@rittal.co.uk)

## **Ukraine**

Phone: +38 (44) 536 9944  
E-mail: [service@rittal.com.ua](mailto:service@rittal.com.ua)

## **USA**

Phone: +1 800-477-4000, option 3  
E-mail: [rittal@rittal.us](mailto:rittal@rittal.us)

## **Uzbekistan**

■ Phone: Please contact Lithuania.  
E-mail: [service@rittal.lt](mailto:service@rittal.lt)

## **Venezuela**

■ Please contact Brazil.  
E-mail: [service@rittal.com.br](mailto:service@rittal.com.br)

## **Vietnam**

■ Please contact Singapore.  
E-mail: [service@rittal.com.sg](mailto:service@rittal.com.sg)

# 15 Compact service information

EN

## 15 Compact service information

Step	See	OK/comment
<b>Assembly and connection</b>		
– Installation site requirements taken into account	Section 5.2	
<b>Assembly instructions</b>		
– Observe the relevant assembly instructions	Section 5.3.1	
– Condensate water discharge connected	Section 5.3.8	
– Electrical installation (overvoltage protection, door limit switch)	Section 5.4	
<b>Commissioning</b>		
Check the assembly – All attachments checked, filter mat fitted		
Commissioning – At least 30 minutes after assembly	Section 6	
– Download the Blue e+ app to support commissioning and subsequent operation		
– Commissioning check carried out via Blue e+ app		
<b>Operation</b>		
– Check the device status during operation using the Blue e+ app		
– Read maintenance instructions and warnings or fault messages using the Blue e+ app		

Tab. 18: Quick installation check

For all other service enquiries:

Original spare parts	Maintenance, warranty extensions (up to 5 years), service contracts
<ul style="list-style-type: none"> <li>– Enquire directly via Blue e+ app</li> <li>– <a href="http://www.rittal.com">http://www.rittal.com</a></li> </ul>	<ul style="list-style-type: none"> <li>– Enquire directly via Blue e+ app</li> <li>– <a href="http://www.rittal.com">http://www.rittal.com</a></li> <li>– Enquire at the relevant national company</li> <li>– <a href="http://www.rittal.com/de_de/service_contact/index.asp">http://www.rittal.com/de_de/service_contact/index.asp</a></li> </ul>
<b>Other service contacts worldwide Rittal International Service HUBs (see section 14 "Customer service addresses")</b>	

Tab. 19: Service contacts worldwide





# Rittal – The System.

---

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RITTAL GmbH & Co. KG  
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E-mail: [info@rittal.de](mailto:info@rittal.de) · [www.rittal.com](http://www.rittal.com)

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP