

## Remote Isolation Switch (RIS)



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# 1. GENERAL INFORMATION

## 1.1. RIS equipment functions

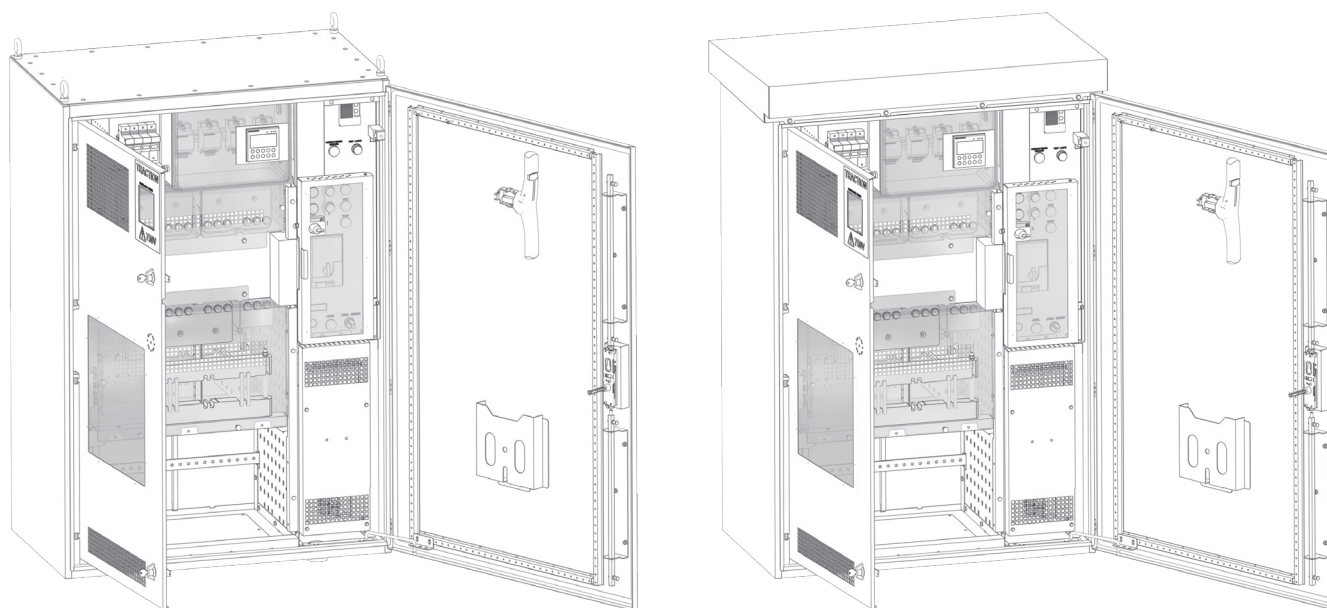
The Remote Isolation Switch (RIS) equipment allows the electrical disconnection of the rolling stock supply line (e.g. the overhead line or the 3rd rail). It also performs the function of a switch, or on-load opening.

The RIS monitors the voltage of the supply line (optional) to indicate the presence of the power supply but also to log the voltage parameters and report anomalies, in order to monitor the voltage level the traction infrastructure and its equipment require to function properly

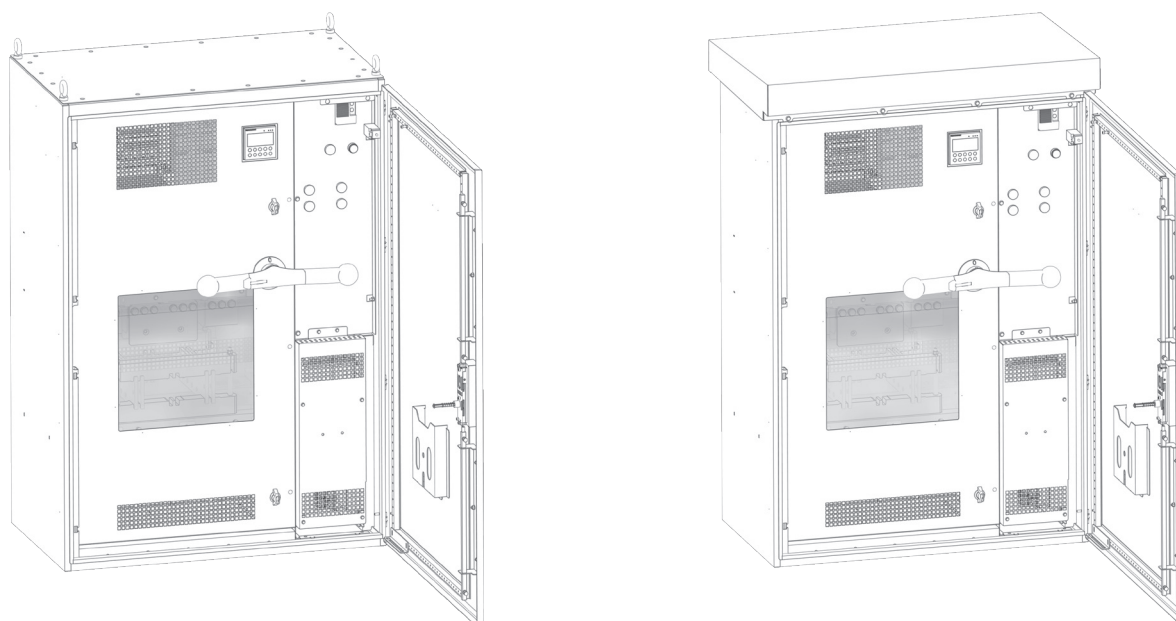
## 1.2. General description of the RIS equipment

### System overview:

Motorised version for indoor and outdoor use



Manual version for indoor and outdoor use



## 2. MANUFACTURER WARRANTY

Socomec guarantees the PROVISION against any non-compliance or hidden defect proven in the design or manufacturing. The warranty period is 12 (twelve) months after the PROVISION is put into use, but cannot exceed 18 (eighteen) months from its delivery date. The warranty applies to the CLIENT only after the final settlement of the PROVISION.

The Socomec warranty is strictly limited to the PROVISION and does not extend to equipment the PROVISION may relate to, nor to the performance of this equipment. Socomec's obligation only covers the repair or replacement of all or part of the PROVISION recognised as faulty; at its discretion and at its own expense, in its own workshops. As soon as the fault is known, the CLIENT will notify Socomec in writing of the defects it attributes to the PROVISION, providing any evidence available and specifying the destination and terms of use of the PROVISION. Socomec reserves the right to modify the PROVISION with a view to fulfilling its warranty.

Repairing, replacing or modifying all or part of the PROVISION during the warranty period must not result in prolonging the duration of the PROVISION. Defective parts replaced free of charge will be provided to Socomec under its re-ownership; Parts invoiced to the CLIENT are guaranteed for 3 (three) months under normal operating conditions.

The warranty is excluded in the following cases:

- If there is a fault or defect either in the materials supplied by the CLIENT or from a design drawn up by the CLIENT
- In the event of a deterioration or accident due to transport or from negligence, failure to install, monitor or maintain by the CLIENT or a third party
- If the PROVISION is used, installed or stored under abnormal conditions or not in accordance with Socomec requirements or the regulations
- If the CLIENT has made or had modifications, adjustments or repairs made to the PROVISION without the express agreement of Socomec
- In the event of damage resulting from unintentional events, force majeure or wrongful act of the CLIENT or a third party.

The warranty does not cover the replacement or repair of parts resulting from the normal wear and tear of the PROVISION.

### 3. SAFETY NOTES

The manufacturer cannot be held responsible for any failure to comply with the instructions attached or available for download at: [www.socomec.com](http://www.socomec.com).

Risk of electric shock!

Servicing personnel must be familiar with the installation, commissioning and operation of the enclosure and be aware of potential hazard sources. They must also be fully trained and qualified for the repair, maintenance and commissioning of the equipment.

This qualification should cover:

- The mechanical installation of the product: Certified installers with basic skills in electrics
- The electrical installation of the product: Certified electricians
- Commissioning: Certified electricians
- The instructions are valid together with the specific instructions for the device.
- The device is designed only for its intended purpose as set out in the instructions.
- Only accessories authorised or recommended by Socomec may be used in association with the device.
- Before starting any work on the product, such as setup, commissioning, configuration, cleaning, disconnection, disassembly, wiring or maintenance, make sure that the product and the installation are powered off. Under certain conditions, with certain means and subject to certain qualifications and authorisations, work on a live unit may be recommended under specific instruction.
- This device is not designed to be repaired by the user.
- For any questions related to the disposal of the device, please contact Socomec.
- **Failure to comply with the instructions of the device and this safety information can cause bodily injury, electric shock, burns, death or damage to property.**

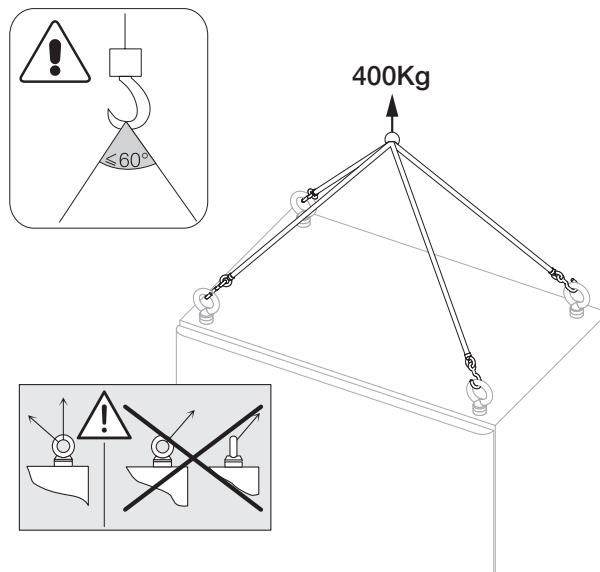
## 4. TECHNICAL SPECIFICATIONS

Electrical specifications	
Nominal voltage $U_n$	750 VDC
Max. permanent voltage $U_{max1}$	900 VDC
Max. non-permanent voltage $U_{max2}$	1000 VDC
Rated isolation voltage $U_{Nm}$	1800 VDC
Overvoltage category	OV4
Impulse resistance voltage $U_{Ni}$	To earth and between phases: 15kV Between isolation distances: 18kV
Industrial power resistance voltage $U_a$	To earth and between phases: 6.9kV Between isolation distances: 8.3kV
Resistance to auxiliary impulse voltage	2kV
Rated current (Cat IV, Cat I)	630A – 800A – 1200A – 2000A
Rated short-time withstand current $I_{ncw}$ (0.25 sec.)	40kA – 40kA – 40kA – 50kA
Overload 1min (Class VI EN 50328)	Min 3. $I_n$
Overload 2h (Class VI EN 50328)	Min 1.5. $I_n$
Mechanical characteristics	
Pollution Degree (PD)	PD4A
Protection degree (IP)	Indoor: IP31 / outdoor: IP55
Resistance to shock (IK)	IK10
Wiring Considerations	Low/low, up to 8x240mm <sup>2</sup>
Mechanical endurance (opening then closing)	4000 - 4000 - 4000 - 3000 actions
Dimensions (HxLxW) in mm.	630A - 800A: 1450 x 100 x 600 1200A - 2000A: 1450 x 800 x 600 Roof: 150 x 1000 x 600
Base (optional)	400mm (others on request)

Standards	
Load break switches, isolators and earth isolators for indoor use	EN 50123-3 (2003 + A1 2013)
Switches, isolators, load break switches and fuse combinations	IEC/EN 60947-3 (2021)
Electrical equipment assemblies for indoor railway applications	EN 50123-6 (2003 + A1 2014)
Low voltage switchgear and controlgear assemblies	IEC/EN 61439-2 (2021)
European Low Voltage Directive	2014/35/EU
European EMC Directive	2014/30/EU

## 5. TRANSPORT

Always use the 4 lifting rings when handling the equipment:



Due to the weight of the RIS, the use of equipment suitable for transporting heavy goods is required.

The RIS equipment must be transported and kept upright during transport to avoid the risk of tipping over.

## 6. STORAGE

Storage environment: indoors.

Storage temperature:  $-25^\circ\text{C}$  to  $+55^\circ\text{C}$ .

Storage humidity: up to 90%.

In case of prolonged storage in a humid environment, provide power to the auxiliary part to activate the anti-condensation resistance and help preserve the equipment.



# 7. INSTALLATION

## 7.1. Delivery

Check the details of the order before submitting any complaints.

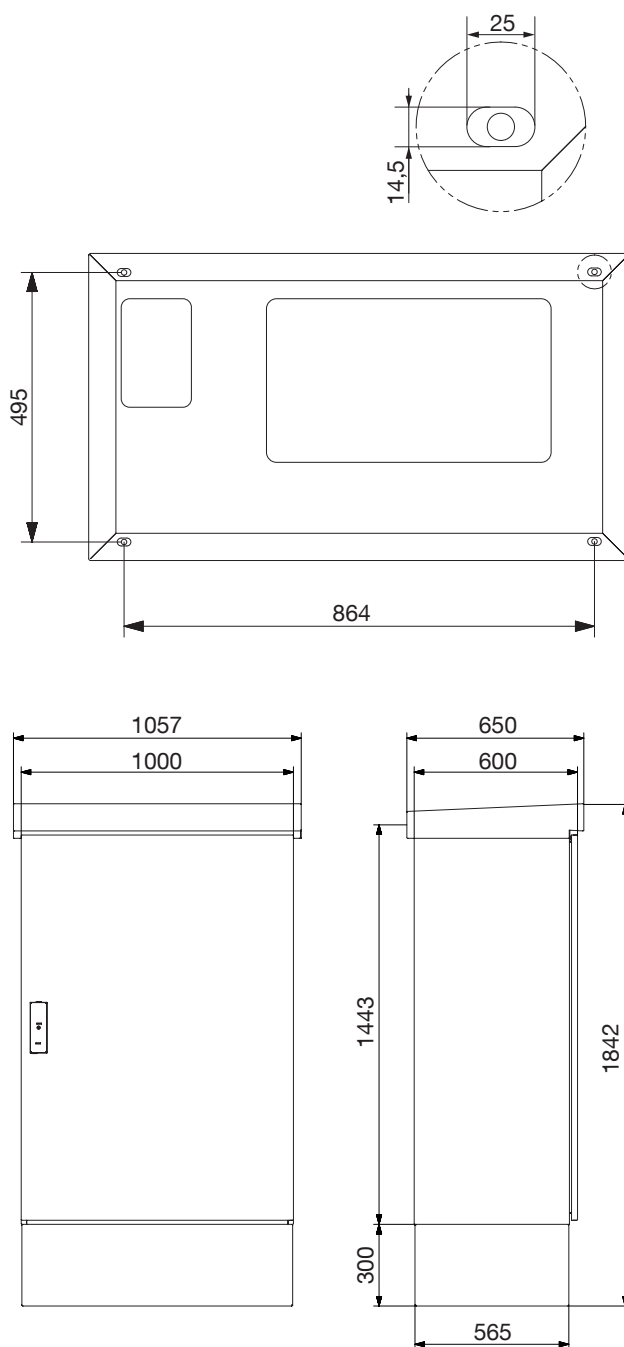
If the equipment shows visible signs of transport damage then it should not be installed or put into service. Please check the integrity of the equipment.

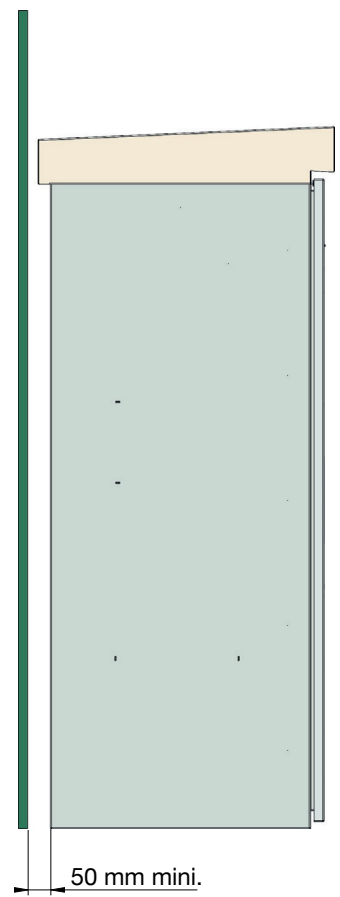
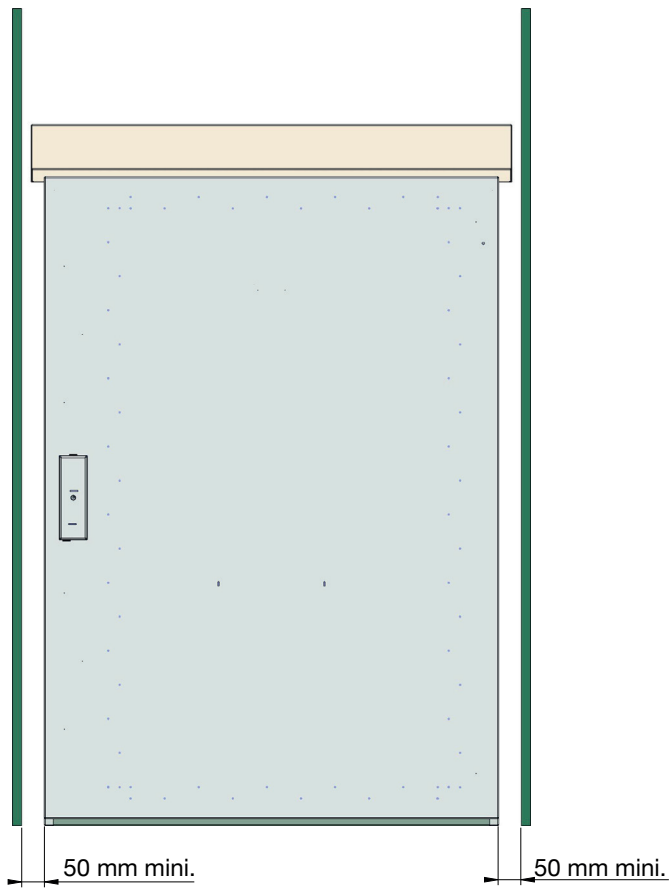
For insurance reasons, visible defects such as external damage to the packaging and/or product must be notified to the shipper within 7 days. The manufacturer's representative and local office should also be notified of the damage.

## 7.2. Mounting

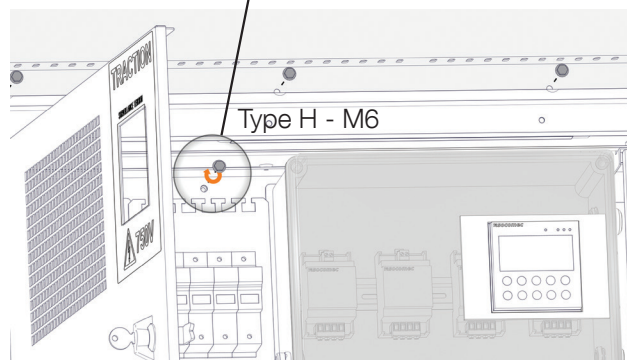
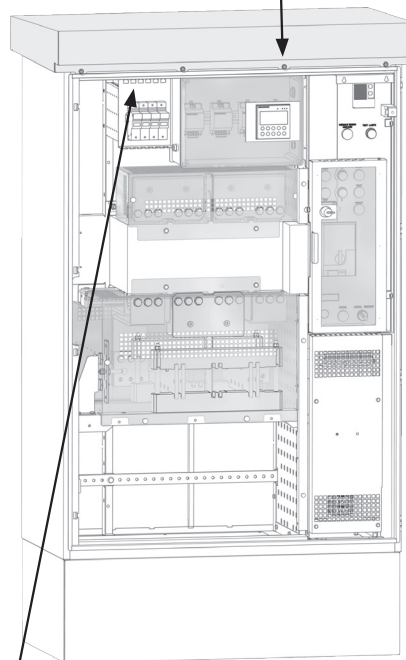
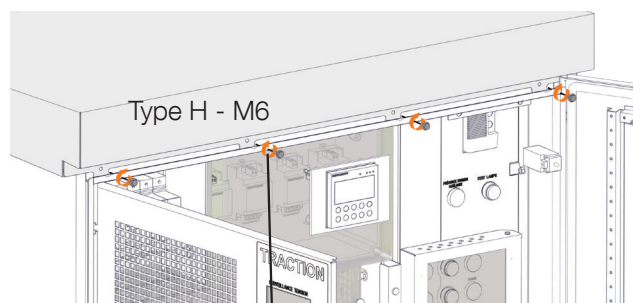
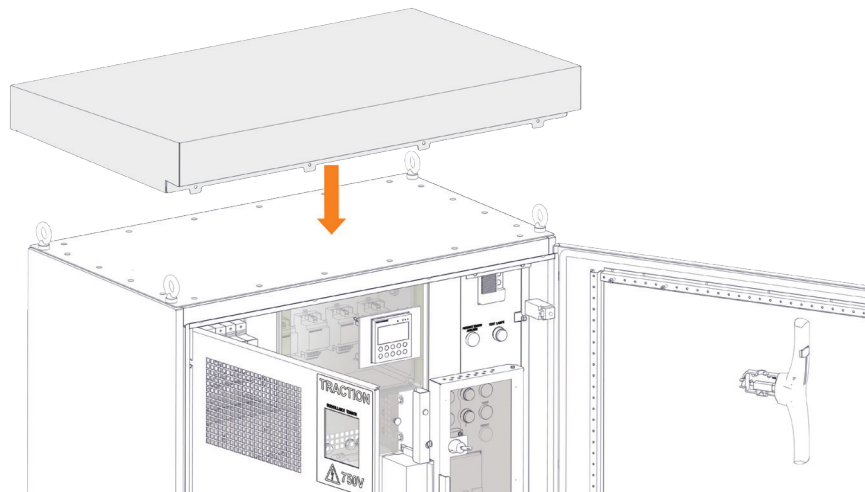
The RIS equipment is designed to be floor-mounted. An optional pedestal is available:

Dimensions in mm





### 7.3. Roof installation (outdoor version)



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## 7.4. Recommended cable cross-sections

RIS rating	Min. cross-section	Max. cross-section
630A	2x185mm <sup>2</sup>	8x300mm <sup>2</sup>
800A	2x240mm <sup>2</sup>	8x300mm <sup>2</sup>
1250A	4x185mm <sup>2</sup>	8x300mm <sup>2</sup>
2000A	5x240mm <sup>2</sup>	8x300mm <sup>2</sup>

Auxiliaries: refer to the instructions for the components.


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## 7.5. Tightening torques

Refer to the instructions for the components.

Screws	Torque (Nm)	
	Min.	Max.
M5	2.4	3
M6	4.5	5.4
M8	8.3	13
M10	20	26
M12	40	45

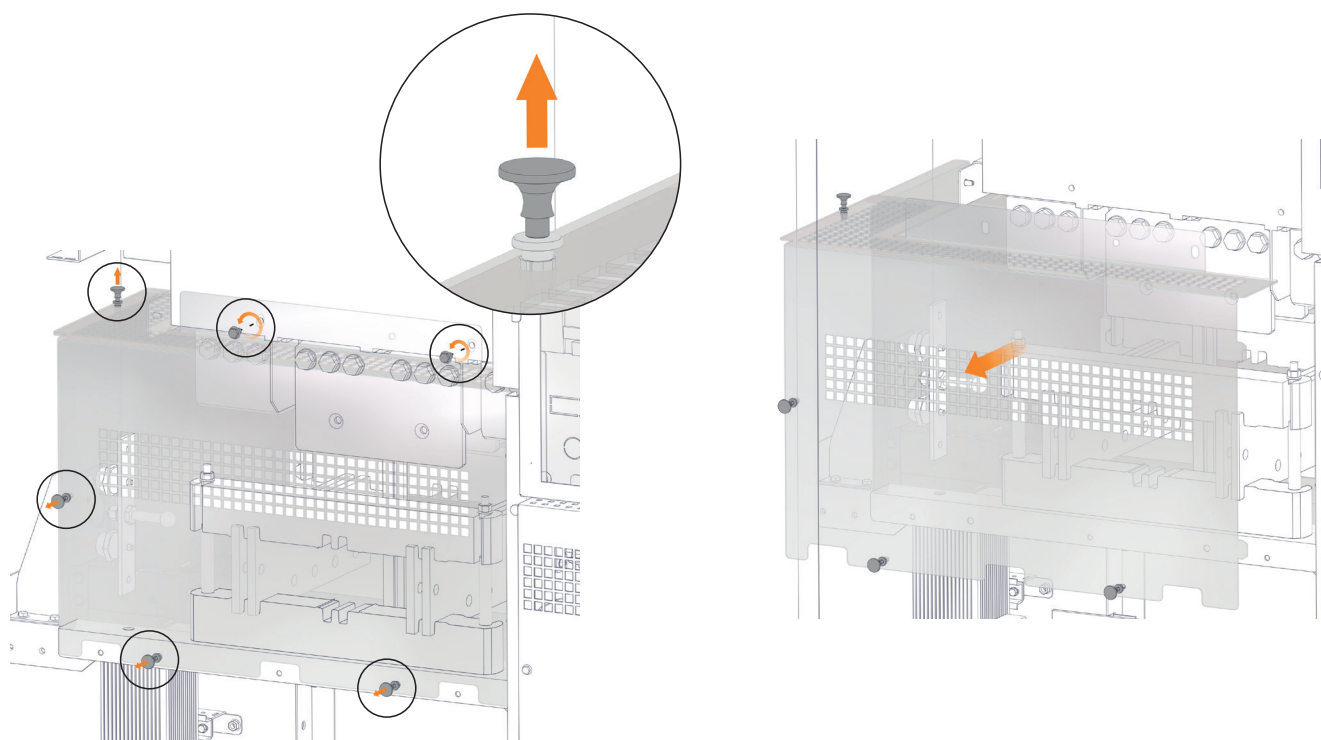
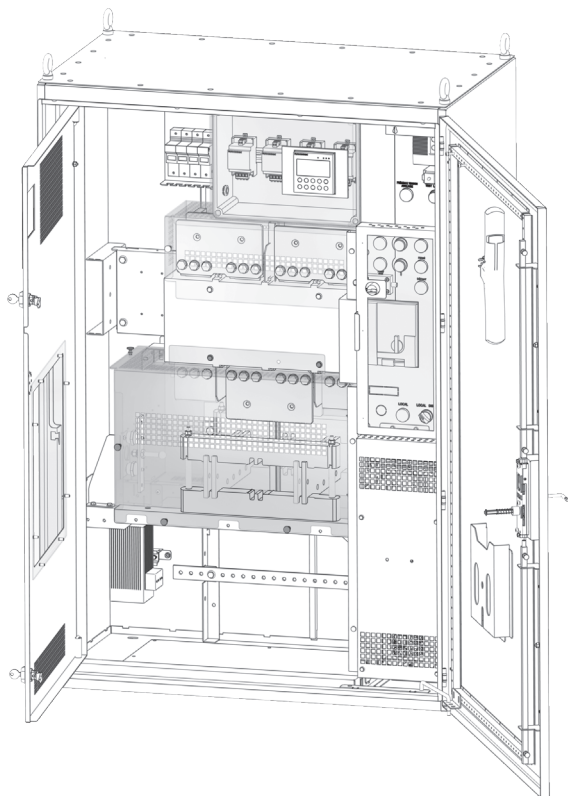
## 7.6. Power and control connections

 The external power supply of the control auxiliaries is max. 230Vac.  
Do not use the auxiliary contacts on the motorisation drive electronics board (contact part numbers are shown on the electrical diagram).

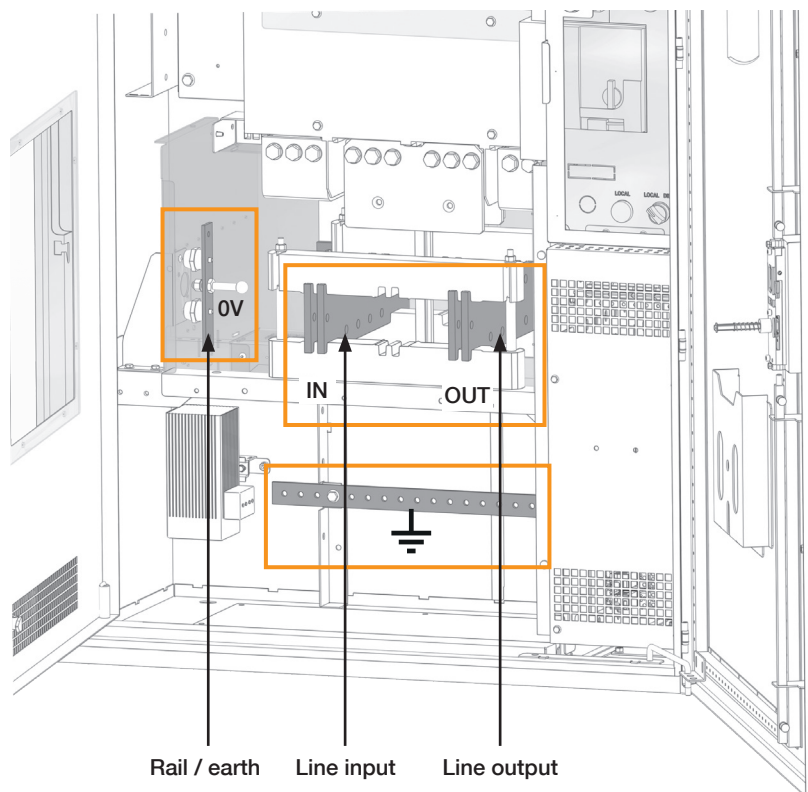
### 7.6.1. Connecting the power section


If necessary, refer to the chapter 9.1, page 20 to open the anti-vandalism door.

#### 7.6.1.1. Disassembling the protective cover



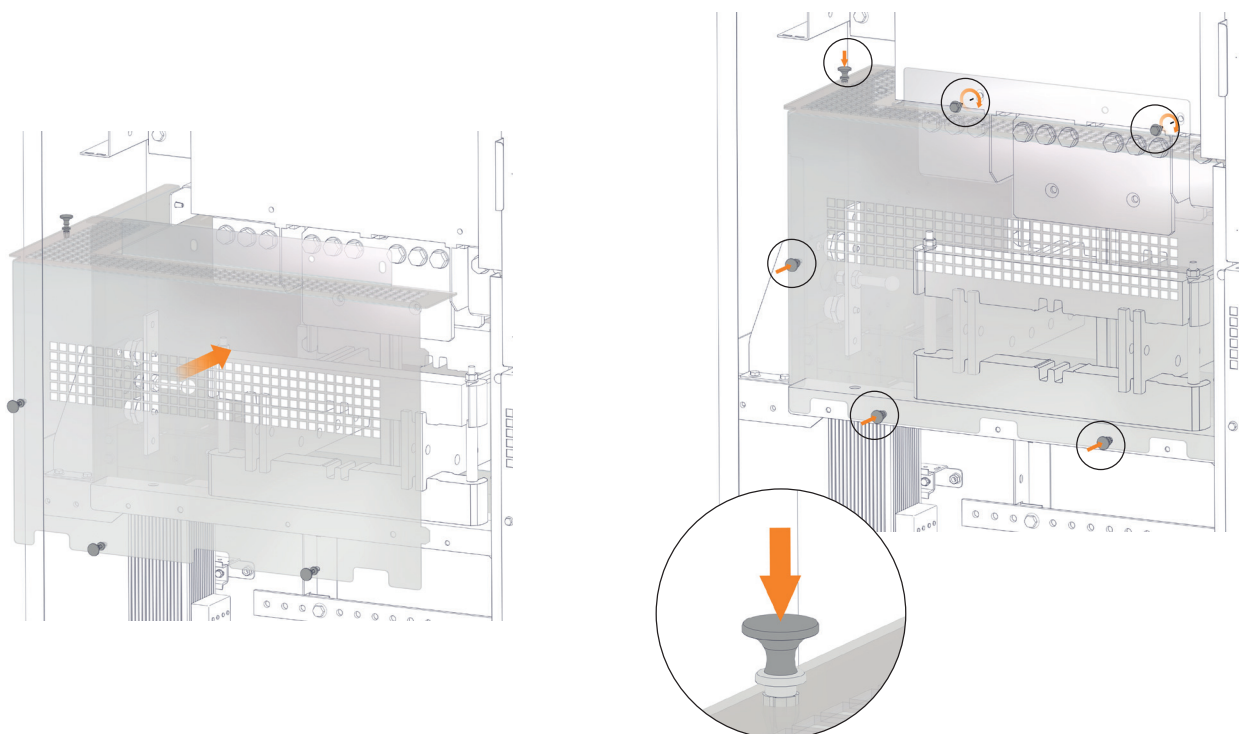
### 7.6.1.2. Connecting the power and earth cables



 Ensure that the tightening torques are respected (see chapter 7.5, page 12).

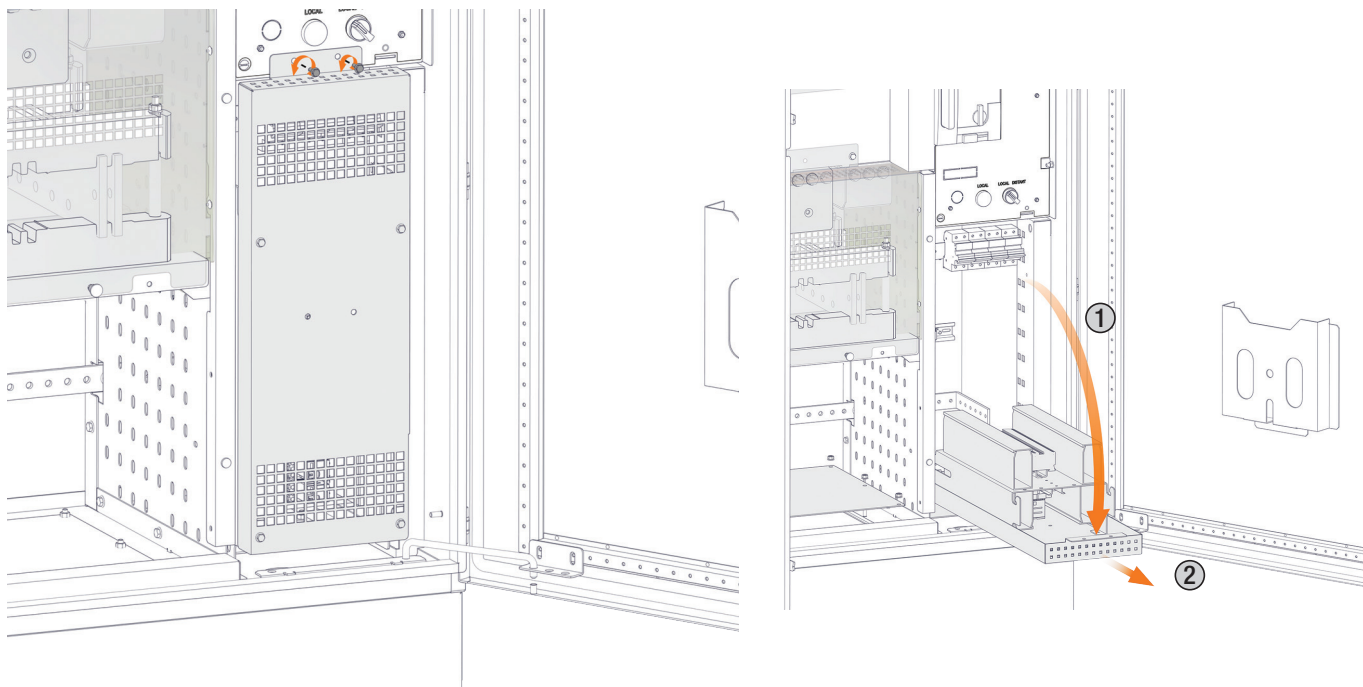
The RIS equipment is not delivered with cable glands or wiring cables external to the cabinet.  
Refer to the wiring diagram issued with the RIS equipment.

### 7.6.1.3. Refitting the protective cover

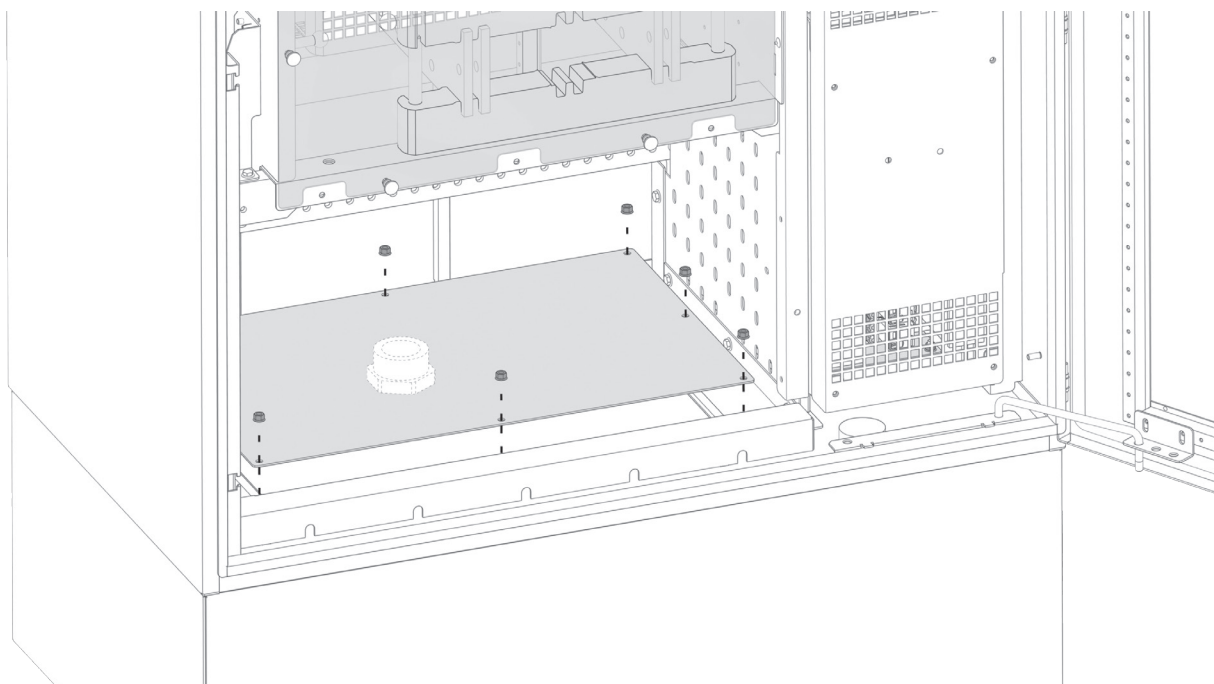


## 7.6.2. Connecting the control element

### 7.6.2.1. Opening the swivel panel



### 7.6.2.2. Routing and connecting auxiliary cables



Ensure that the tightening torques are respected (see chapter 7.5, page 12).

The RIS equipment is not delivered with cable glands or wiring cables external to the cabinet.

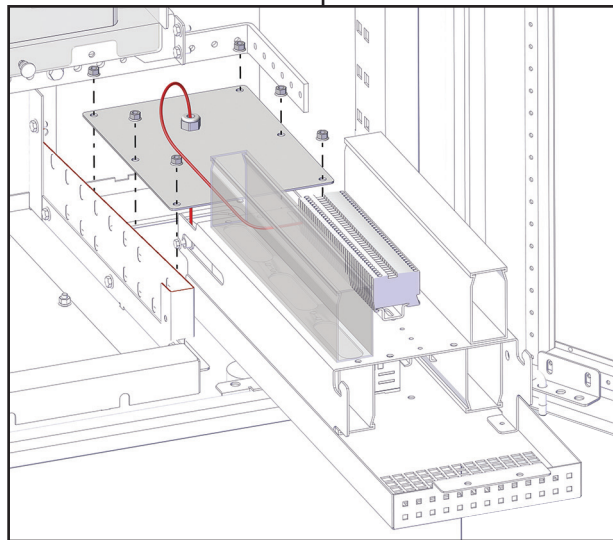
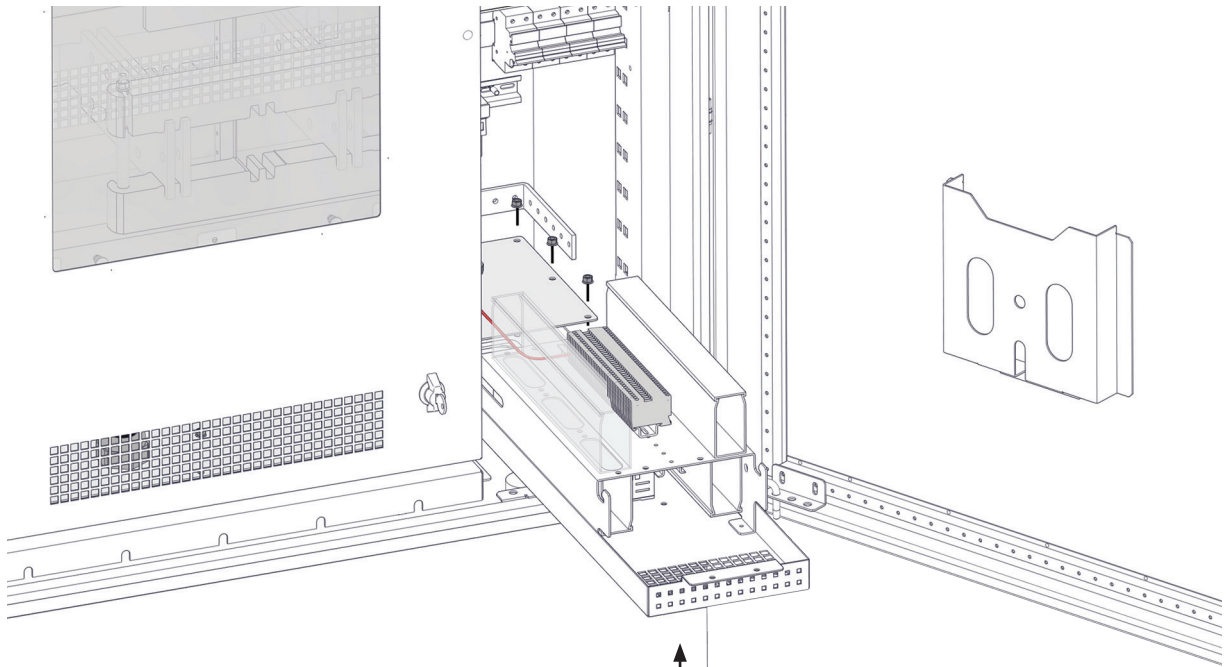
Refer to the wiring diagram issued with the RIS equipment.



The external power supply of the control auxiliaries is max. 230Vac.

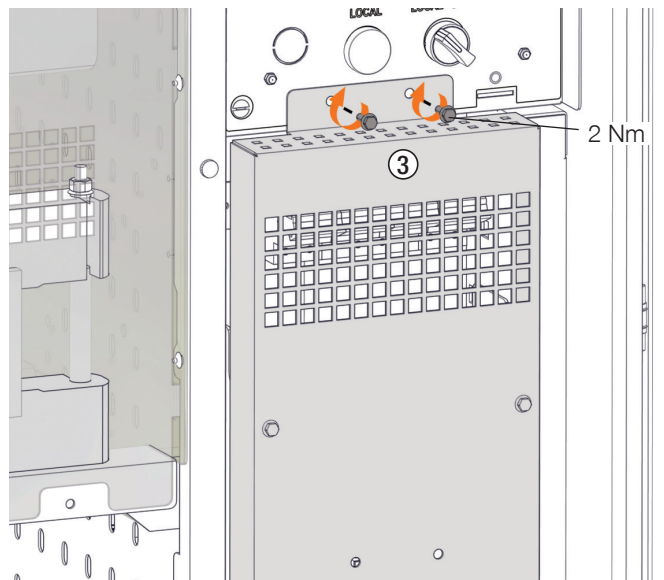
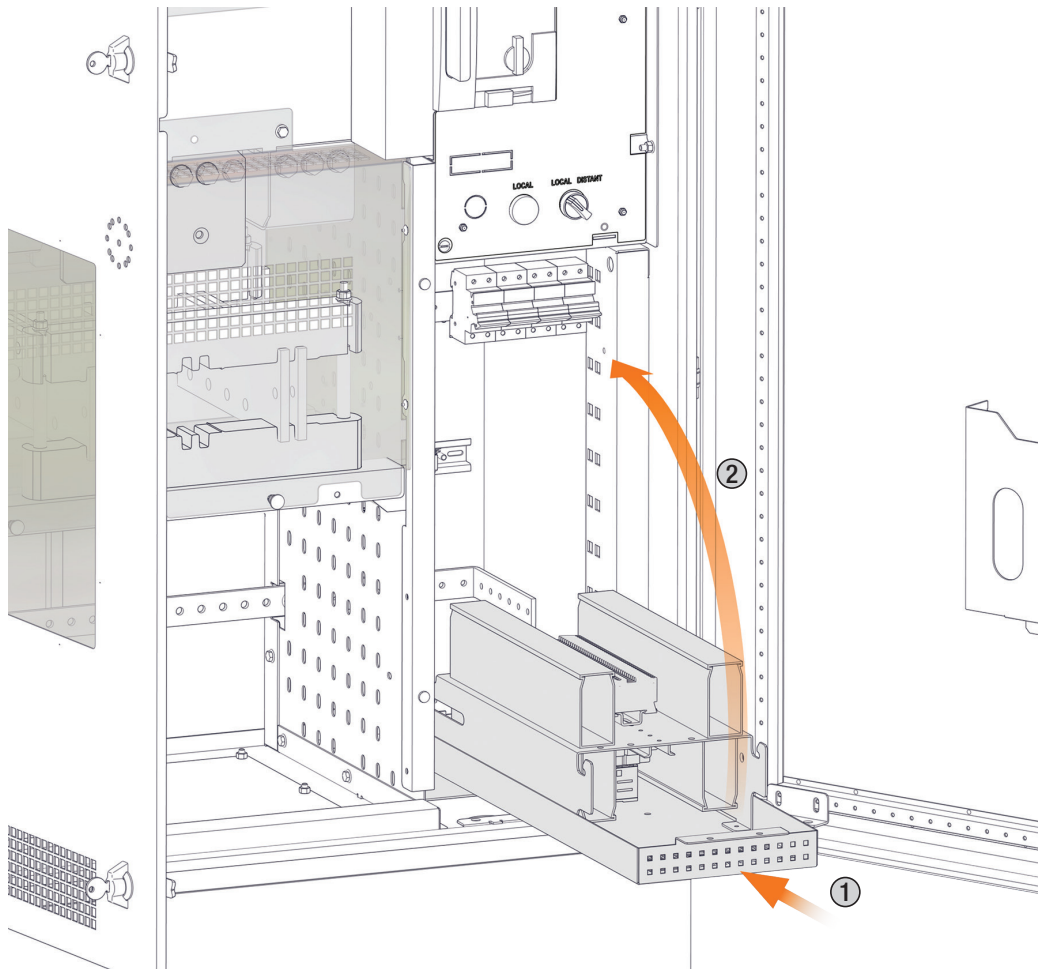
Do not use the auxiliary contacts on the motorisation drive electronics board (contact part numbers are shown on the electrical diagram).







### 7.6.2.3. Closing the swivel panel



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## 7.7. Instructions for auxiliaries and optional parts

There are various auxiliary components available for the RIS equipment:

- Relay to remotely control the motorised load break switch
- Relay to report information on the load break switch and door opening status
- Digiware DC voltage monitoring device (optional)

The instructions for these auxiliary components, including their connections, are available in the manuals for these components, supplied with the RIS equipment.

You can also refer to the electrical diagram, available with each RIS item.

## 8. COMMISSIONING

Before use, check the Diris Digiware voltage threshold parameters (default settings according to the instructions supplied with the order).

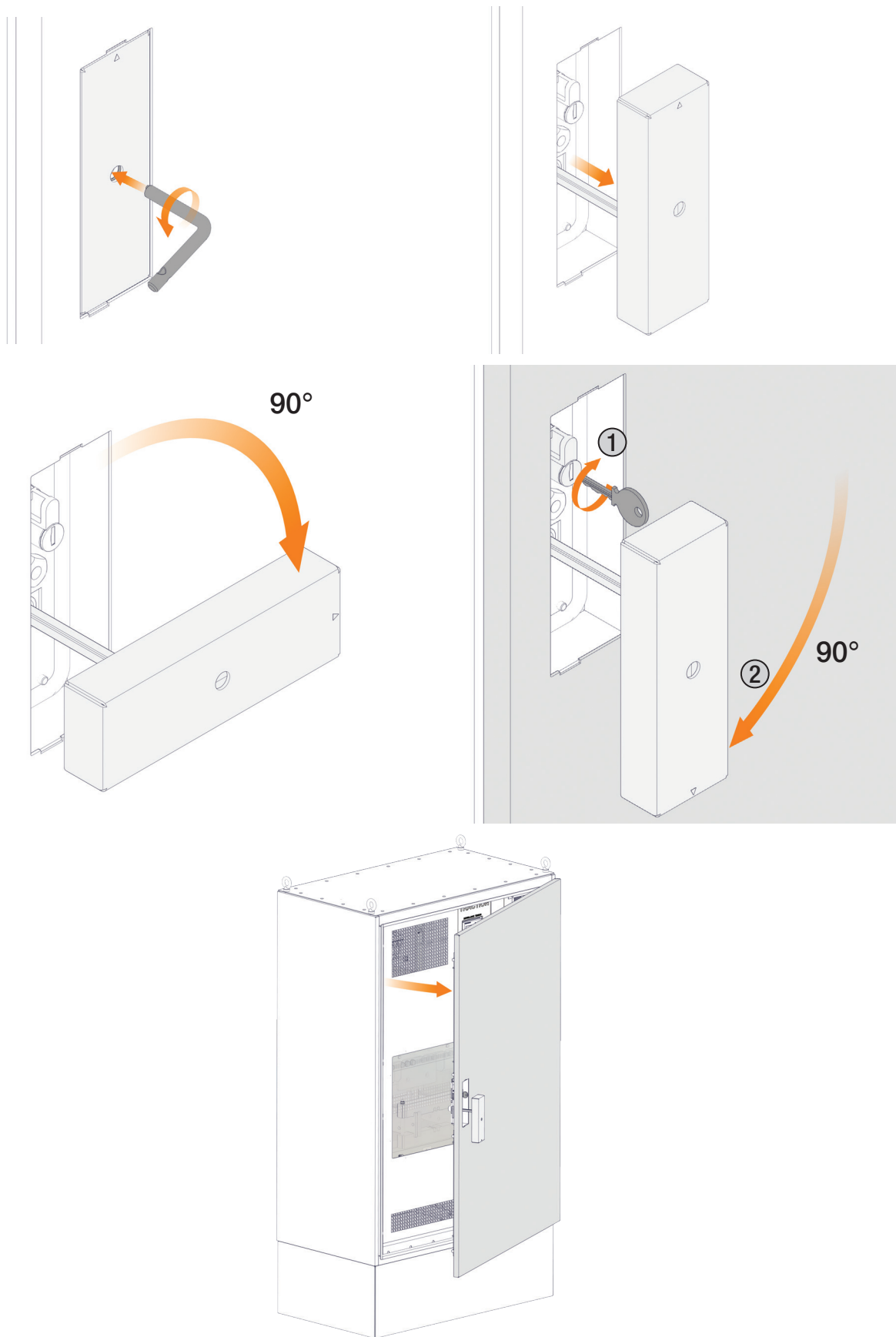
If you would like to change these thresholds, we recommend using the EasyConfig System software.

# 9. USE AND MAINTENANCE

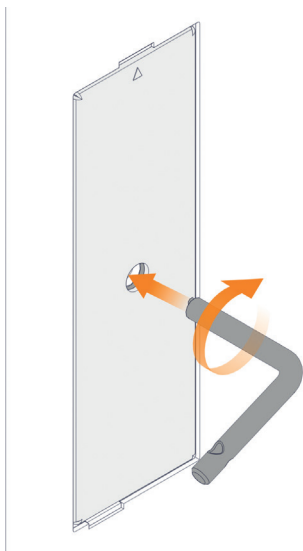
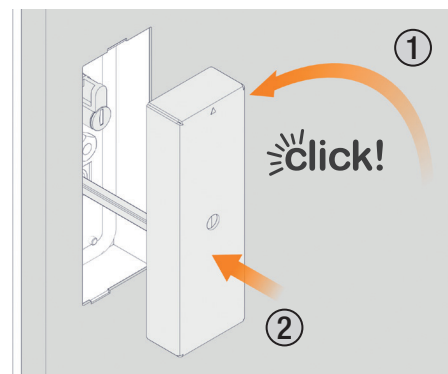
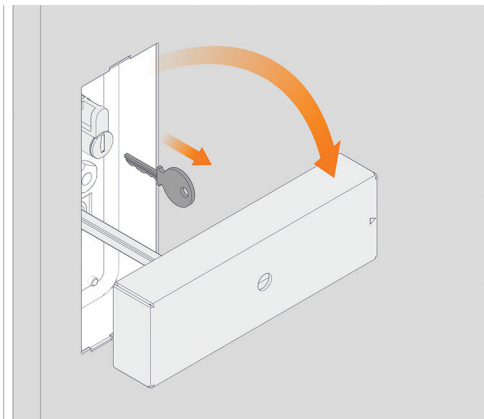
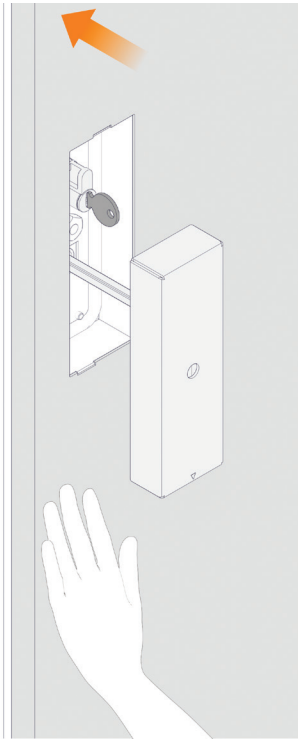
## 9.1. Vandalism-resistant lock protection (optional)

There is an optional vandalism-resistant lock protection available for the RIS equipment.

This Socomec design is based on a built-in handle, which operates as follows:



To close the vandalism-resistant lock protection, operate as follows:



 In case of loss of the Socomec tool for opening the protective lock, please contact Socomec.

## 9.2. Disconnection procedure

- Remote disconnection (motorised version only)

Remote disconnection is performed only when the selector is in the REMOTE position. The disconnection command is given remotely when the relay interface receives the signal (for terminal markings, see the electrical diagram supplied with the RIS equipment).

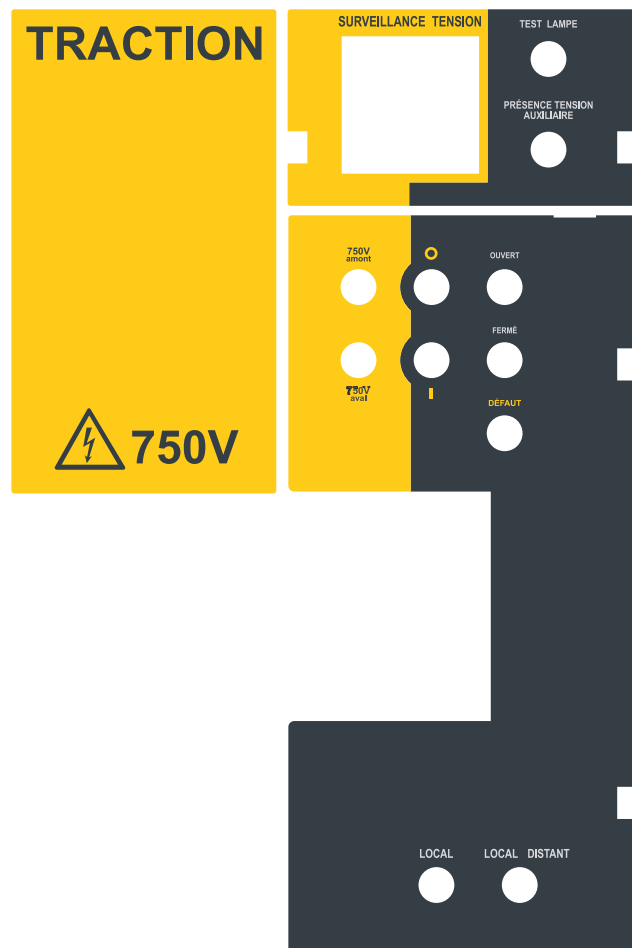
- Motorised local disconnection (motorised version only)

Motorised local disconnection is performed only when the dial is in the LOCAL position. The load break switch motorisation drive must be set to MOTORIZED mode. The disconnection order is given by pressing the pushbutton "O". The closing action of the load break switch is carried out by pressing the pushbutton "I".

- Manual local disconnection

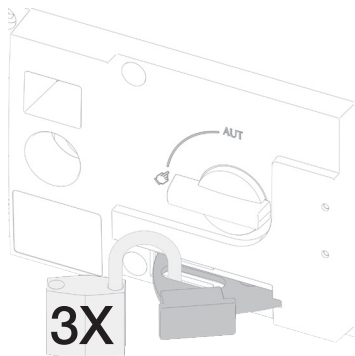
On the motorised load break switch version, manual local disconnection is performed only when the dial is in the LOCAL position. The load break switch motorisation drive must be set to MANUAL mode for the operating handle - located in the cabinet door - to be inserted. Once the handle is in place, manual opening and closing is possible.

On the manual load break switch version, use the operating handle to open and close.

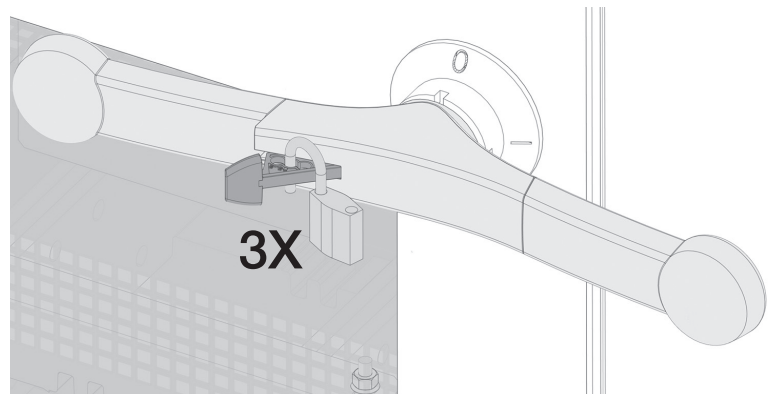


### 9.3. Locking procedure

The load break switch is locked by padlock, as standard. It is possible to add up to 3 padlocks with a diameter of 4mm to 8mm.

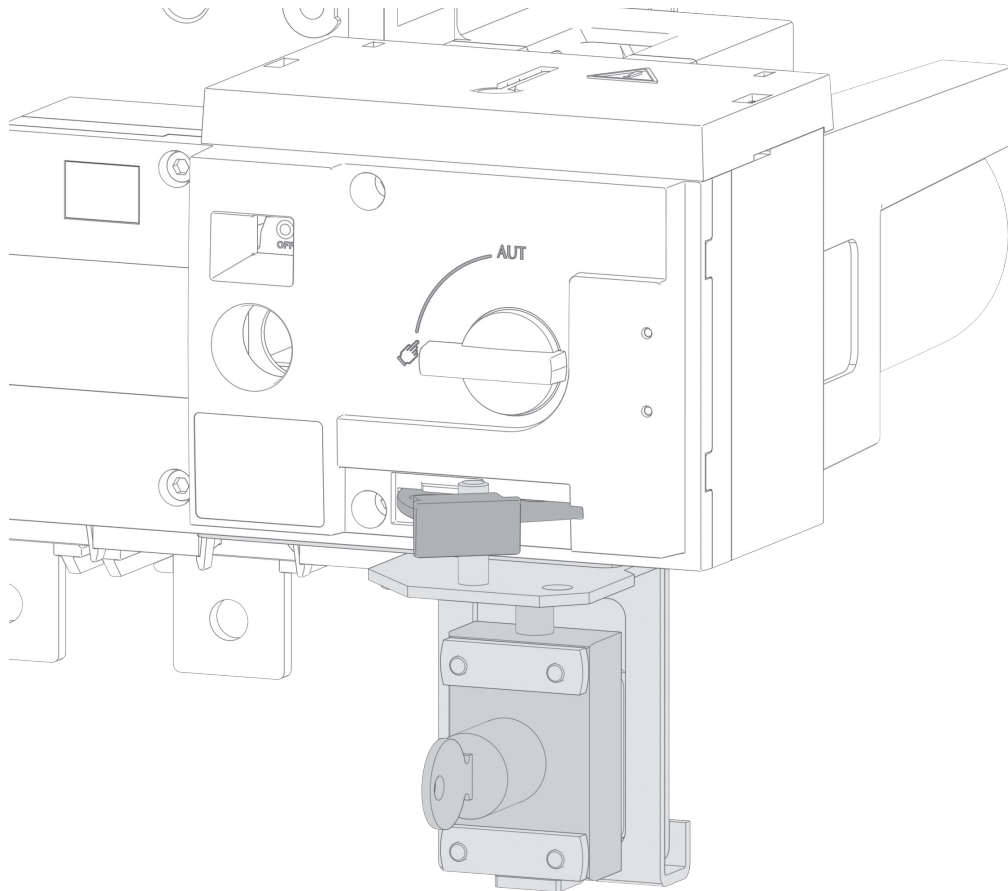


Locking the motorisation drive



Locking the operating handle

On the RIS motorised version, a key locking system is available on request.



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## 9.4. Voltage presence visualisation: LEDs, relays and Digiware screen (optional)

The presence of 750Vdc voltage is monitored by the Diris Digiware DC system. The thresholds defining the acceptable voltage range are set by default to 500Vdc - 900Vdc. These thresholds and hystereses can be adapted before delivery or modified onsite in the EasyConfig System software.

The voltage presence information is also shown locally as follows:

- 750V UPSTREAM indicator for voltage present upstream of the load break switch
- 750V DOWNSTREAM indicator for voltage present downstream of the load break switch
- Digiware DC screen showing realtime voltage, logs and alarms

Contacts on terminals make it possible to relay information remotely:

- Presence of voltage upstream of the load break switch
- Presence of voltage downstream of the load break switch

The following settings are available on the Diris Digiware DC system.

- Showing realtime voltages

MEASUREMENTS menu:

- Displays realtime voltage readings.
- Viewing the log

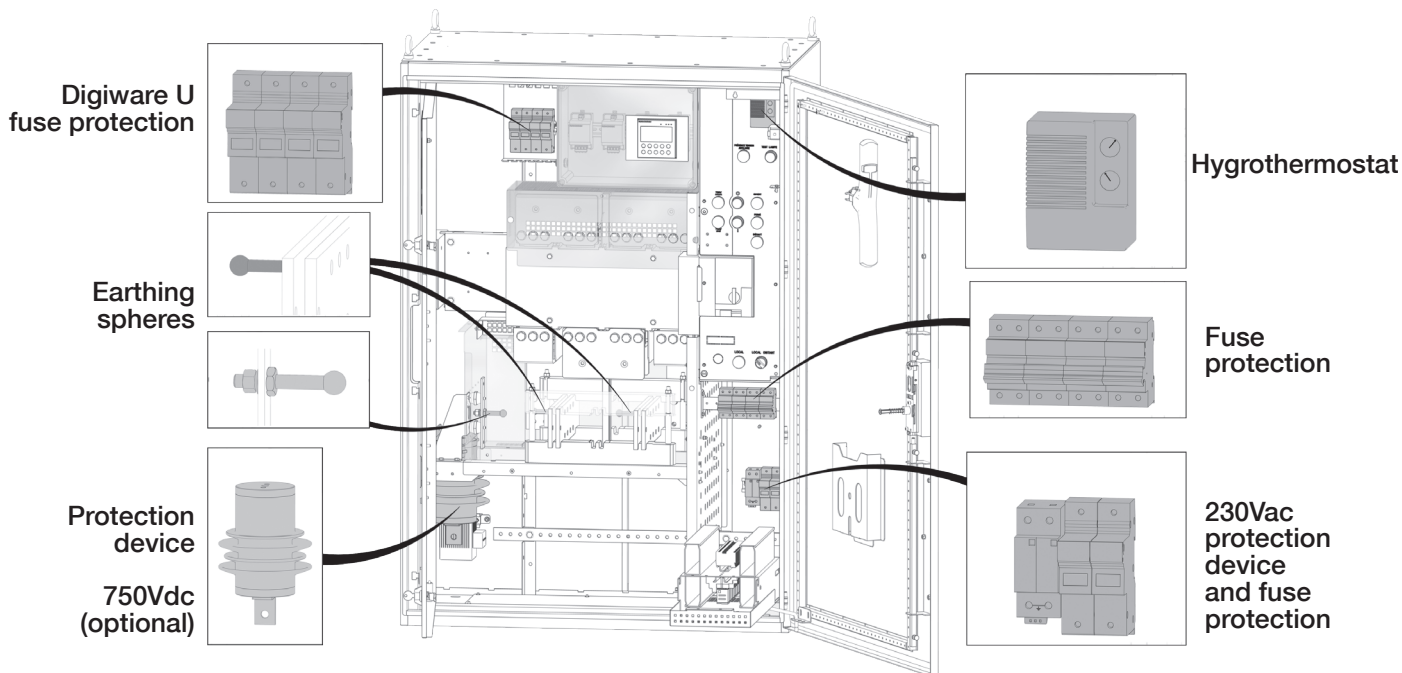
EVENTS menu: shows current alarms and logs

For more information, please see the DIRIS Digiware DC instructions



# 10. MAINTENANCE

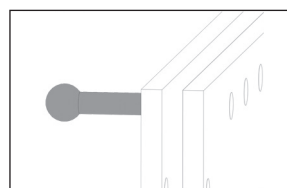
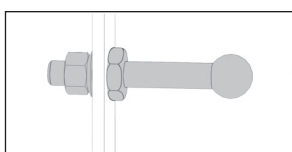
## 10.1. Replacement parts



Refer to the electrical diagram and its labelling to identify the part numbers of the required spare parts, including fuse and protection devices.

## 10.2. Earthing procedure

To ensure safety during maintenance work, the equipment must be powered off and the load break switch earthed. This earthing can be achieved using the 18mm spherical connectors available within the connection ranges of the load break switch and 0V.



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## 10.3. Switch maintenance

Carry out maintenance on the switch without allowing rain or conductive dust to enter the power compartment.

Check the tightening torques of the power cables at regular intervals (see chapter 3, page 6).

Carry out a manoeuvring cycle (open-close) at least annually so that the load break switch contacts can self-clean.

The motorisation module is easily replaceable, even under load (refer to the manual no. 543988 available on our website: [www.socomec.com](http://www.socomec.com)).

### Troubleshooting help:

- The product electrics are not working
  - Check the presence of auxiliary voltage 220Vac on the motorisation power terminals
  - Check that the motorisation dial is set to AUTO
- It is not possible to move the product using the handle
  - Check the motorisation drive dial is set to MANU
  - Check the product is not locked
  - Check the direction of rotation of the handle and the position of the device
  - Exert a gradual but sufficient effort on the handle
- The motorisation drive dial cannot be positioned in AUTO mode
  - Check the handle is not in its housing
  - Check the padlock status (not padlocked)
  - Check that the padlock tab is pressed correctly
- The product cannot be padlocked
  - Check the motorisation drive dial is set to MANU
  - Check the handle is not in its housing
  - Check the position of the load break switch (0 for standard versions, except in case of optional lock I and O)

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## 10.4. Cabinet maintenance

Hinges and door locks must be cleaned and greased annually.

Carry out a visual inspection and remove dust annually, in a powered off state. Contact Socomec if the cabinet is damaged.

## 11. END-OF-LIFE

End-of-life equipment must be returned to an approved recycling point, in particular for the WEEE items on the RIS.  
Find facilities recommended by Socomec on our website at: [www.socomec.com](http://www.socomec.com)

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CORPORATE HQ CONTACT:  
Socomec SAS  
1-4 RUE DE WESTHOUSE  
67235 BENFELD, FRANCE

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