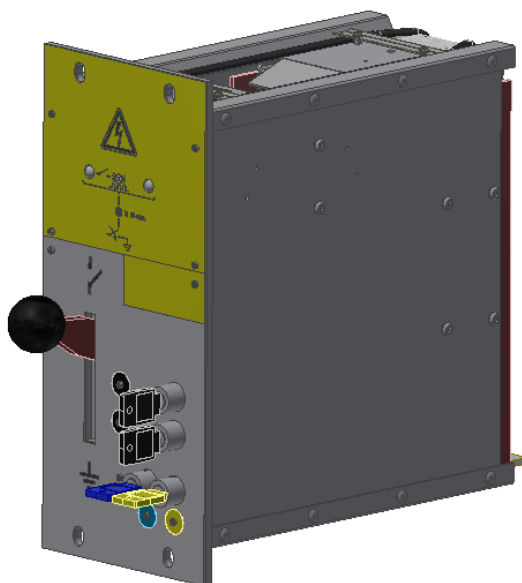


Earthing switch



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1 Main features, use

The earthing switch is used for the safety of driver and workshop personnel during inspections and faults in the traction units.

It can be used to connect the cables connected to it to earth.

Integration into an interlocking concept prevents unauthorized switching on and off of the earthing and contact with live parts.

The earthing switch is characterized by the following features:

- small space requirement
- Robust design
- Minimal maintenance requirements
- safe operation under difficult conditions

2 Technical data

- Number of main contacts 1-12 (special version with different number of contacts on request)
- Incoming and outgoing keys or snap lock according to customer requirements
- Option of position monitoring by means of snap-action switches
- Silver-plated copper contact system
- Voltages up to 4200V (depending on degree of contamination and overvoltage category, higher voltages also possible)
- Mechanical service life min. 10,000 switching operations
- Cable connection M8 or M10
- Operating temperature range -40 - +70°C
- Protection class front panel IP40 or up to IP54 possible
- Rated current up to 400 A per contact (switching only de-energized)
- Further electrical and mechanical data, complied standards and tests available on request.

3 Storage

The separators must be stored in a dry place and protected from dust.

4 Drawings

A documentation set containing the following information is created for each earthing switch:

Dimension drawing

3D model

Test instructions

Documentation

Further documents such as fire protection certificates according to EN45545, lists of hazardous substances or spare parts lists can also be supplied at the customer's request.



Standard arrangement of the earthing contacts:



Horizontally or vertically installed version

Incoming locks maximum 2

Outgoing locks maximum 2

Maximum voltage indicators in the disconnecter: 3

Drive with motor possible

With IP protection possible*



Horizontally or vertically installed version

Incoming locks maximum 3

Outgoing locks maximum 4

Maximum voltage indicators in the disconnecter: 4

Drive with motor possible

With IP protection possible*



Version installed upright

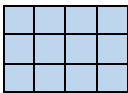
Incoming locks maximum 2

Outgoing locks maximum 4

Maximum voltage indicators in the disconnecter: 6

Drive with motor possible

Possible with IP protection*



Version installed upright

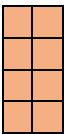
Incoming locks maximum 2

Outgoing locks maximum 4

Maximum voltage indicators in the disconnecter: 7

Drive with motor possible

Possible with IP protection*



Horizontally or vertically installed version

Incoming locks maximum 2

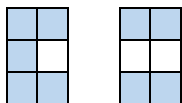
Outgoing locks maximum 2

Maximum voltage indicators in the disconnecter: 8

With IP protection possible*

*The design with IP protection reduces the number of possible locks

For a disconnecter with fewer connections, the corresponding contacts are fitted with fewer contacts, e.g. 5/4 pole disconnecter:

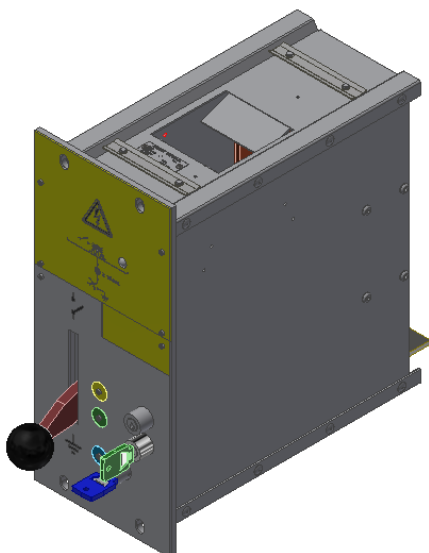


Position monitoring with auxiliary contacts is possible for all versions.
Measuring sockets can also be installed instead of voltage indicators.
Customer-specific configurations can also be developed which are not listed here.

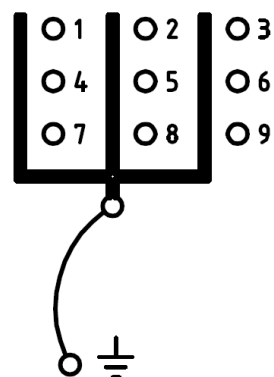
For lower voltages, e.g. 1000V, more contacts are also possible in the same installation space, depending on the requirements for clearance and creepage distances.

5 Standard earthing switch

Standard earthing switches with a main contact number of 1-12. These disconnectors are surface-mounted and fastened at the front with screws.



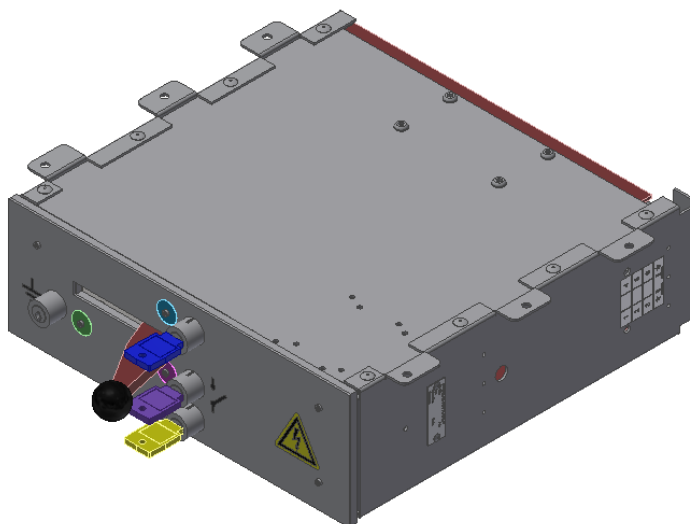
Mechanical structure



Schematic structure

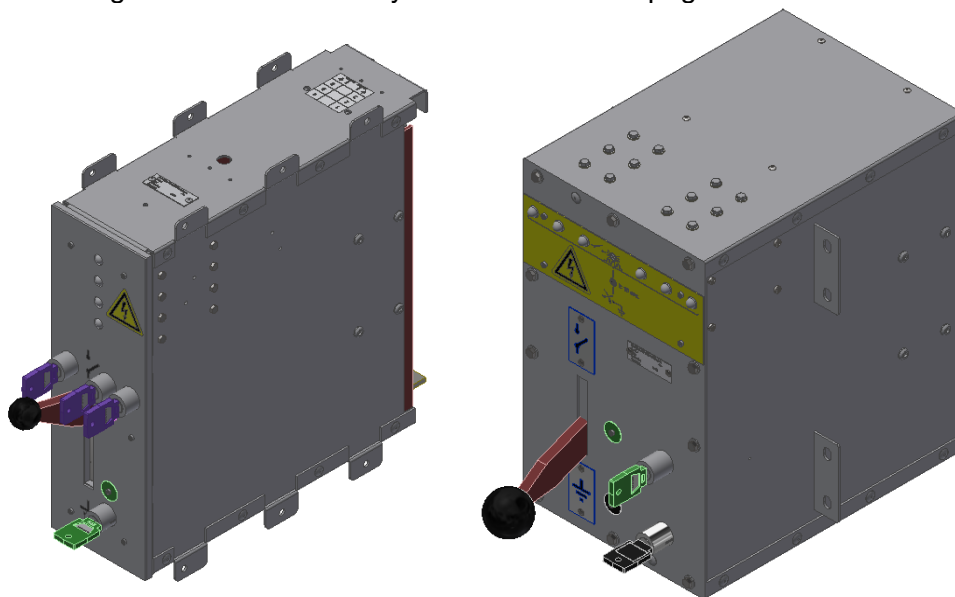
6 Horizontally mountable earthing switches

Earthing switches in horizontal mounting direction with a main contact number of 1-12. These disconnectors are mounted suspended or surface-mounted on a suitable mounting unit.



7 Laterally mountable earthing switch

Earthing switches which can be mounted on the side. These earthing switches are designed with side mounting brackets so that they can be mounted upright on a suitable mounting unit

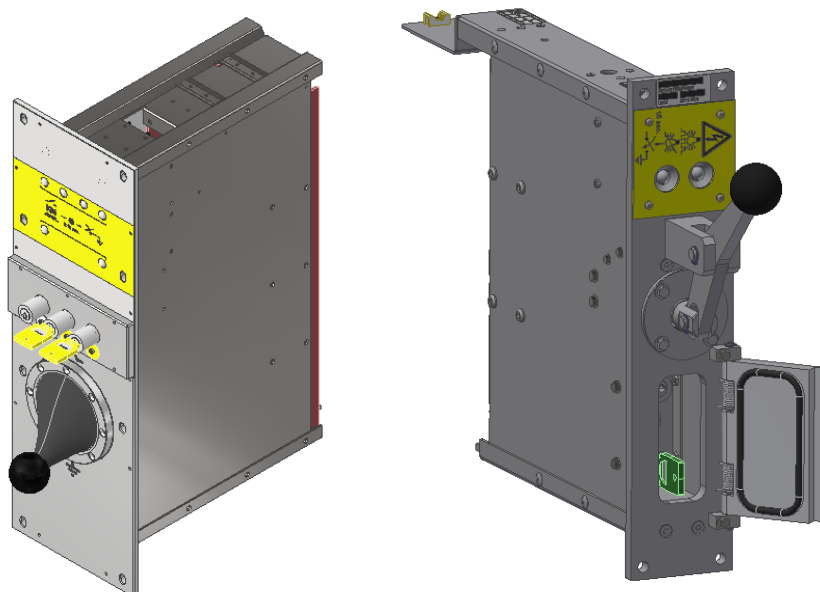


Montagelaschen oben/unten

Montagelaschen seitlich

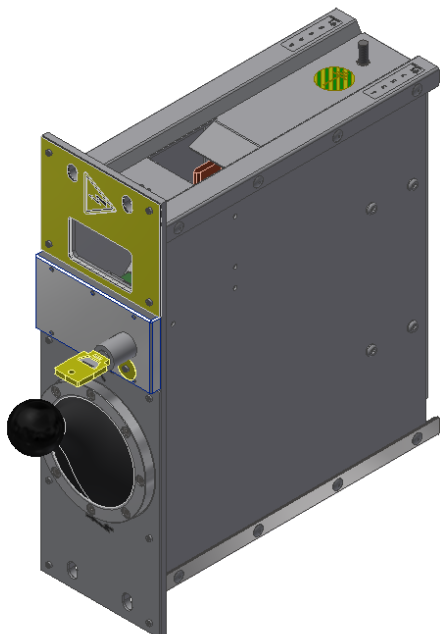
8 IP-protected earthing switches

In principle, all earthing switches can also be designed with an IP54-protected front panel, although a minimum size for the front panel must be observed.

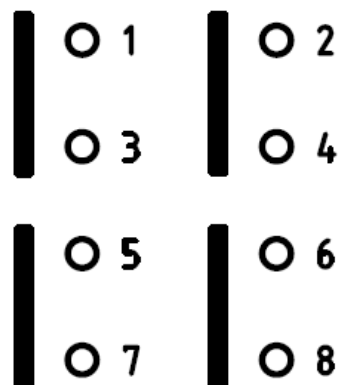


9 Disconnecter for traction batteries

The earthing switches can also be designed so that the contacts are connected to each other during operation and the circuits can be interrupted during maintenance and thus function as disconnectors



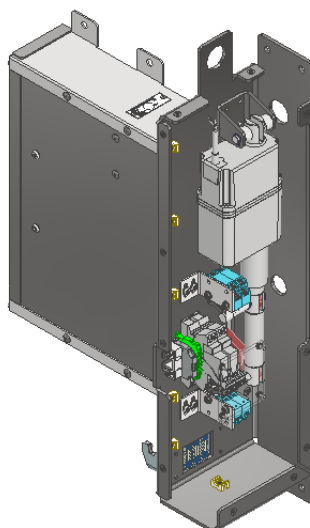
Mechanical structure



Schematic structure

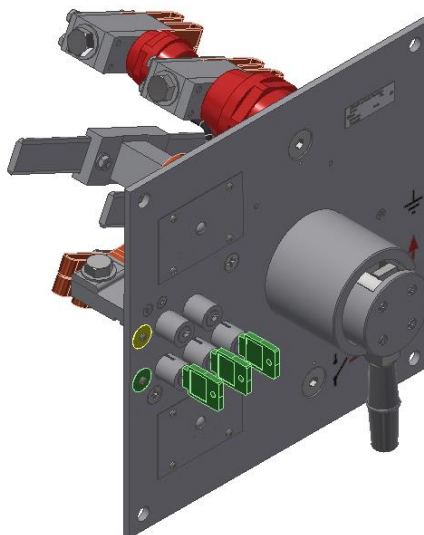
10 Earthing switch with motor drive

Up to a certain number of contacts, the earthing switches can also be equipped with an actuator to move the blades in and out without manual operation.



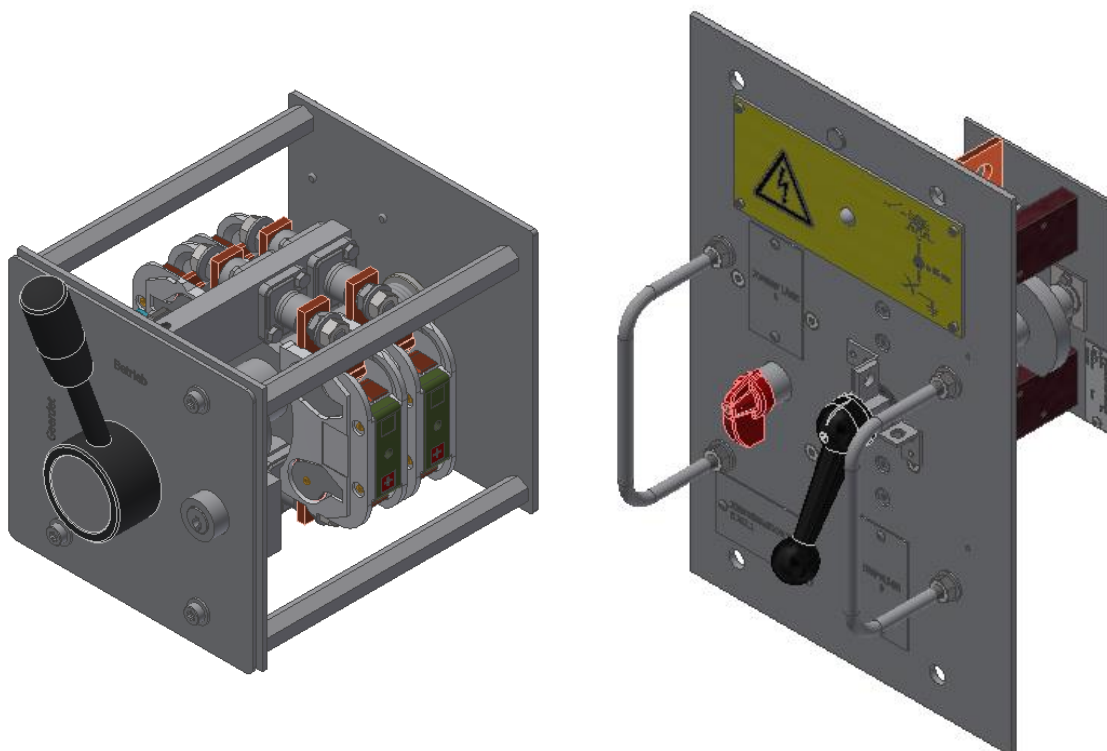
11 Earthing switch with rotary movement

As an additional mounting option, it is also possible to equip the earthing switches with a rotary actuator. Further details in the separate catalog.



12 Special versions

Other special designs are also available in small quantities on request.



13 Accessories

Various optional accessory components are available for all disconnectors and isolators, which can also be combined depending on the version.

13.1 Locks

To prevent unauthorized operation of the earthing switch, the lever can be locked with locks of various designs. It is possible to design the incoming and outgoing locks according to customer requirements; if no key is available, a design with snap locks is also possible to prevent accidental manipulation.

13.2 Voltage indicators

In order to realize the visual indication of a dangerous voltage, earthing switches can be installed. These emit an optical red flash, from a voltage of 40V further details and information in the catalog for voltage indicators.

13.3 Measuring sockets

If the possibility of manual voltage measurement is required, the earthing switches can be equipped with measuring sockets which can be operated from the front with a measuring device.

13.4 Auxiliary contacts

In order to monitor the position of the earthing switch or the possible locking position, the earthing switches can be equipped with auxiliary contacts.

13.5 Special cable connections

Depending on the installation situation, special connections may be required for the cables or the earthing system.



Important notice

Our experience has shown that, if the information and recommendations contained in this „Operating instruction“ are observed, the best possible reliability of our products is assured.

The data contained herein purports solely to describe the product and is not a warranty of performance or characteristics. It is with the best interests of our customers in mind that we constantly strive to improve our products and keep them abreast of advances in technology. This may, however, lead to discrepancies between a product and its „Technical description“ or „Operating instructions“.

This document has been carefully prepared and reviewed, however should in spite of this the reader find an error, he is requested to inform us at his earliest convenience.

It is scarcely possible for the operating instructions for technical equipment to cover every eventuality which can occur in practice. We would therefore request you to notify us or our agent in the case of all unusual behavior, which does not appear to be covered by these operating instructions.

It is pointed out that all local regulations must be observed when connecting and commissioning this equipment in addition to these operating instructions.

Any work that has to be carried out inside the equipment, such as changing soldered links or fitting or removing resistors, may only be performed by correspondingly qualified personnel.

We cannot accept any responsibility for damage incurred as a result of mishandling the equipment regardless of whether particular reference is made in these operating instructions or not.

We lay particular stress on the fact that only genuine spare parts should be used for replacements.

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Spring AG
Bahnhofstrasse 105
CH - 5430 Wettingen

Tel.	056 / 426 66 88
Fax	056 / 426 03 72
e-mail	info@spring-ltd.ch
Homepage	www.spring-ltd.ch