Ridder Drive Systems

RSU limit switch system

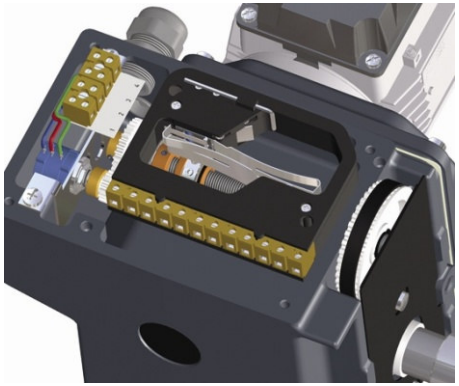
Ridder Drive Systems P.O. Box 360 3840AJ Harderwijk The Netherlands T +31 341 416 854 F +31 341 416 611 www.ridder.com Email ras@ridder.com

RSU limit switch system

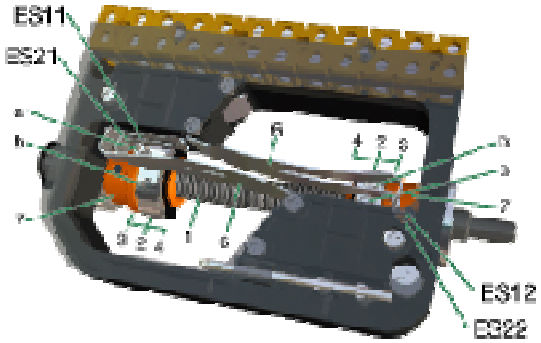
Function description

Ridder RSU limit switch system

The Ridder RSU limit switch system is a linear switch system, specially designed to use in the RW motor gearboxes. The limit switch system is driven by the output shaft of the motor gearbox, by a secundary transmission. Depending on the type of motor gearbox, a number of revolutions of the output shaft can be set, between the start and end position. Depending on the type of motor gearbox, there will be 55, 86, 97 or 860 revolutions at the output shaft. (RSU50-RW45, RSU90-RW400 RSU50*-RW200, etc.)

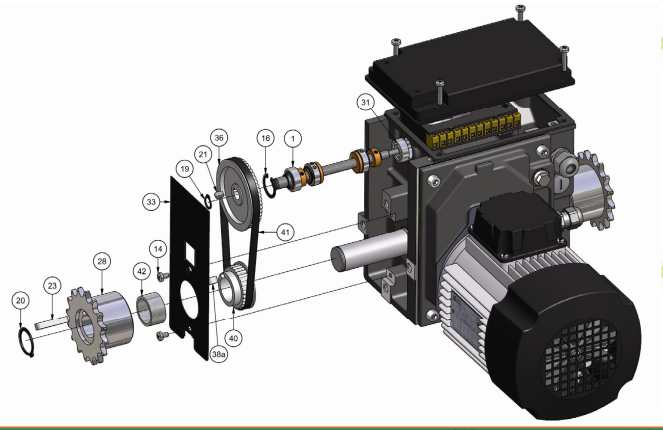


Function description of the limit switch system after new delivery



The transmission which exists of two plastic drive wheels and a toothed belt or a worm and gear combination is driving the threaded limit switch shaft. When the system is running, the brass travelling wheels will move along the threaded shaft as is rotates. The limit switch actuator spring is partly divide into two parts:lower and upper spring.

The long setting bolt restst against the limit switch actuator spring. When one of the two end positions are reached , the brass travelling wheel will be blocked and will rotate with the threaded shaft. The lower part of the limit switch actuator spring will be touched and bended till the limit switch is actuated. The limit switch will stop the motor gearbox if correctly connected. In case a contactor or limit switch is failing, the upper part of the limit switch actuator spring will actuate the second limit switch (emergency switch ES21 or ES22) This emergency switch will activate a safety contactor which will stop the motor gearbox, to prevent any damage to the ventilation or screening system.



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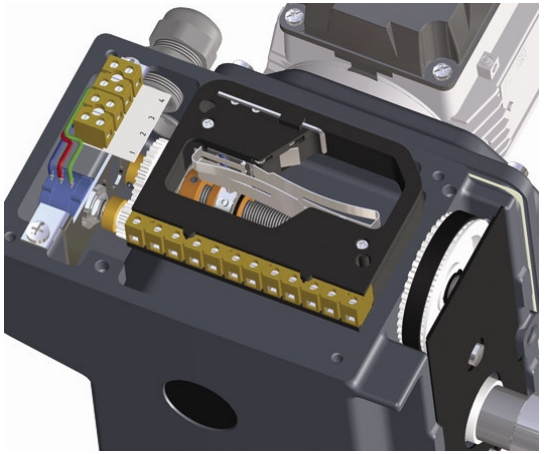
RSU limit switch

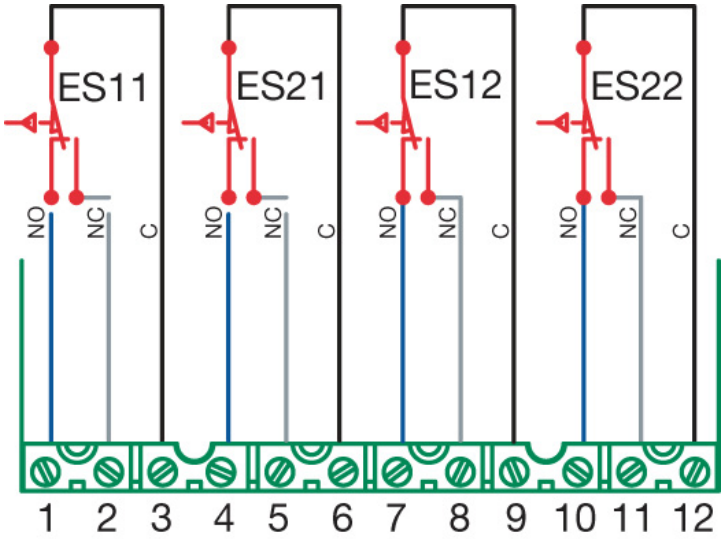
limit switches

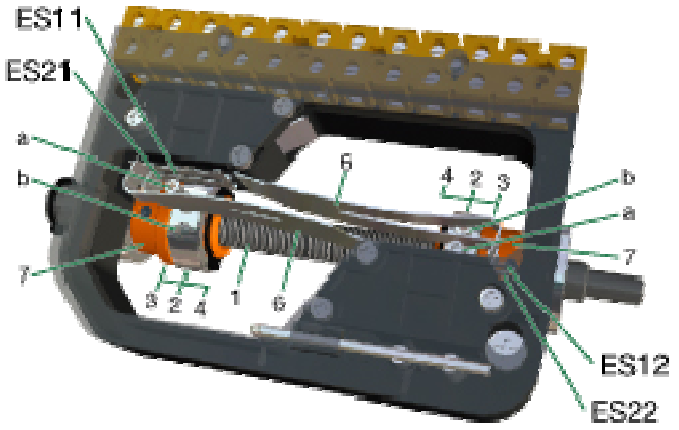


RSU limit switch system has two sets of limit switches

•2 limit switches for open and close position ES11 & ES12.
The motor gearbox will stop at the moment one of the end positions (open or close) are reached and one of the two limit switches (S11, S12) are operated.

•2 limit switches for emergency stop ES12 & ES22
In case one of the two limit switches for the endpositions (open close) do not function correctly, there is a second switch (emergency stop switch ES21, ES22) which will stop the motor gearbox to avoid damage at the ventilation or screening system.





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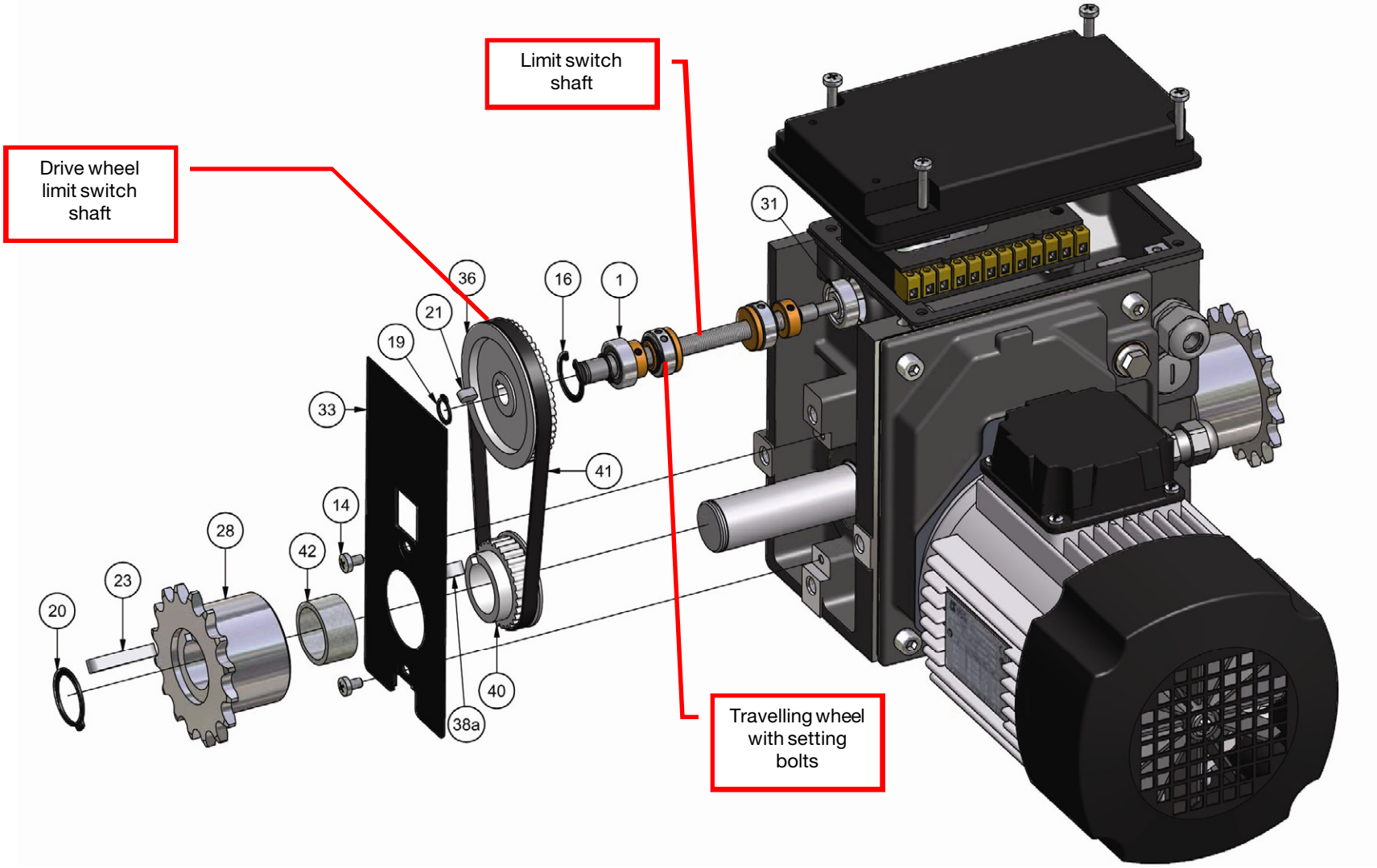
RSU limit switch

Assembly of the limit switch transmission



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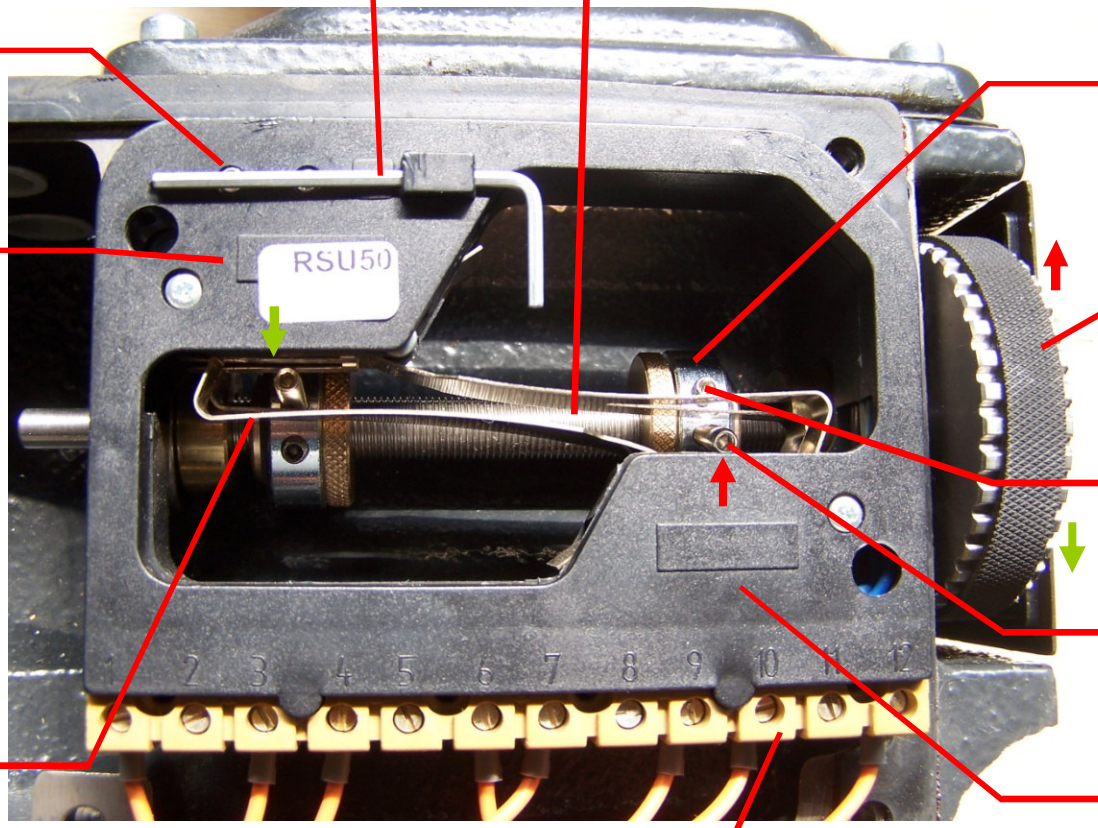
RSU limit switch

Parts description



Allen key to fasten the setting screw

Limit switch shaft

Spare setting bolts

Travelling wheel with setting bolts

Internal switches ES12 and ES22

Drive wheel limit switch shaft

Short setting bolt

Long setting bolt

Limit switch actuator spring

Internal switches ES11 and ES21

Connection terminal limit switch system

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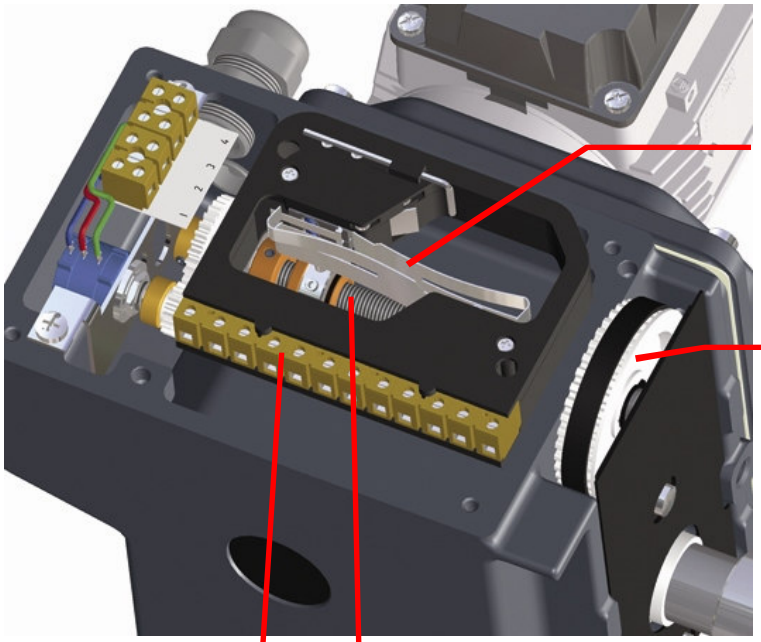
RSU limit switch

Parts description

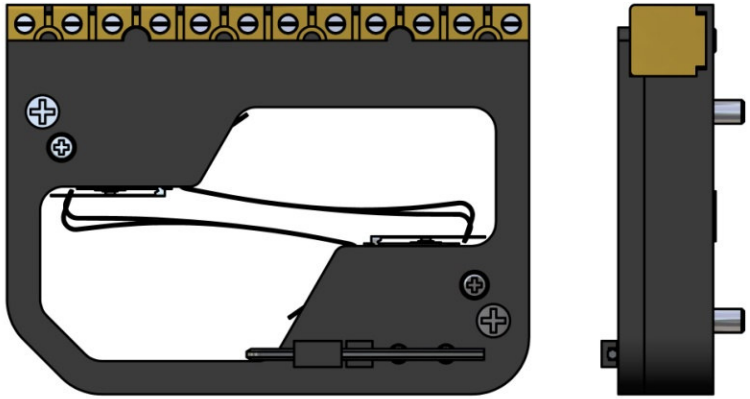


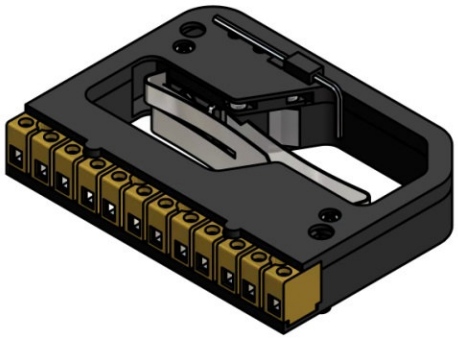
Limit switch splitted actuator spring

Drive wheel limit switch shaft

Connection terminal limit switch system

Limit switch shaft





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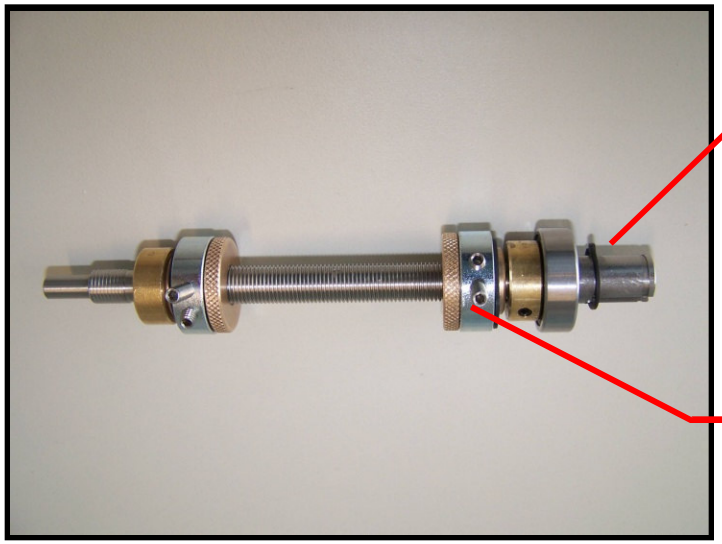
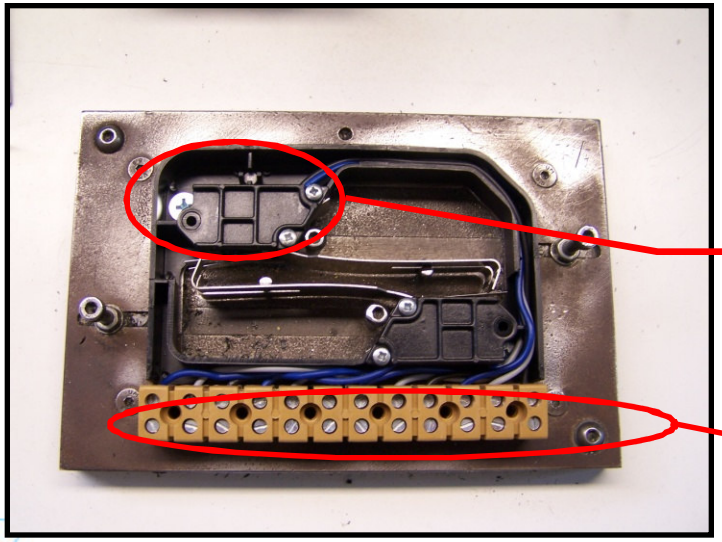
RSU limit switch

Parts description



Limit switch shaft

Travelling wheel with setting bolts



2 Limit switches stacked on eachother

Connection terminal limit switch system

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RSU limit switch

Wiring diagram limit switches

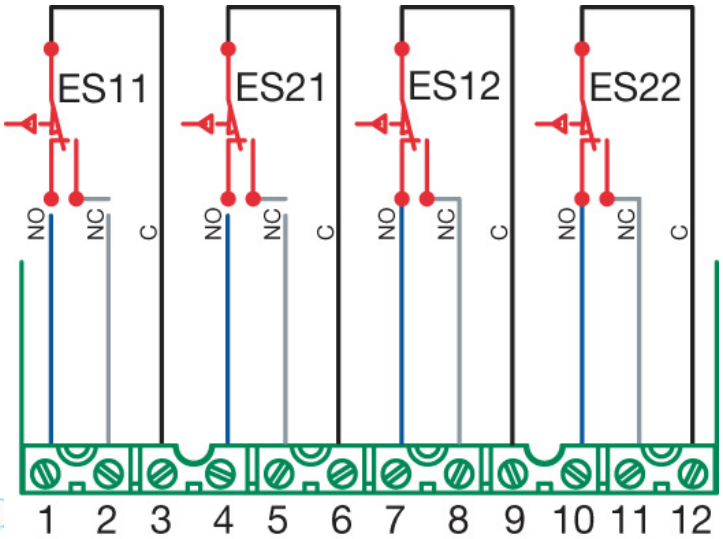
Ridder RSU limit switch system wiring diagram

When connecting the Ridder RSU limit switch system, please use the by Ridder provided wiring diagrams.

RSU limit switch system Current and Voltage range

The contacts in the switches of the RSU limit switch system are suitable of switching the following currents:

24 V-AC, currents from 45 mA till 130 mA
230 V-AC, currents up to 1 A



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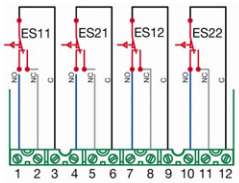
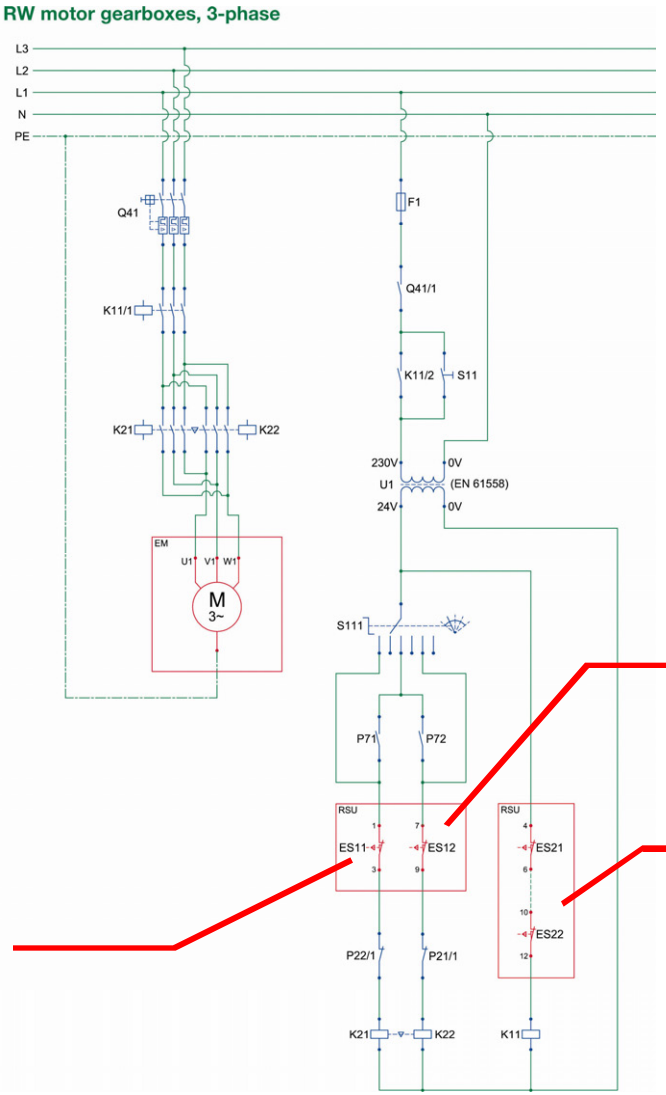
RSU limit switch

Wiring diagram 3-phase motor gearbox





Limit switch open or close ES11

Limit switch open or close ES12

Emergency stop switches ES21 and ES22

Notes:

To reverse direction of rotation of the RW motor

Swap two phases on the electrical motor connection strip.

To reverse the limit switches of the RSU limit switch system

Swap the wiring of terminal 1 and 7 at the RSU limit switch unit.

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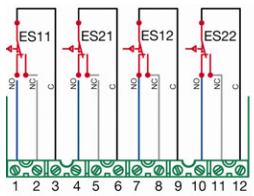
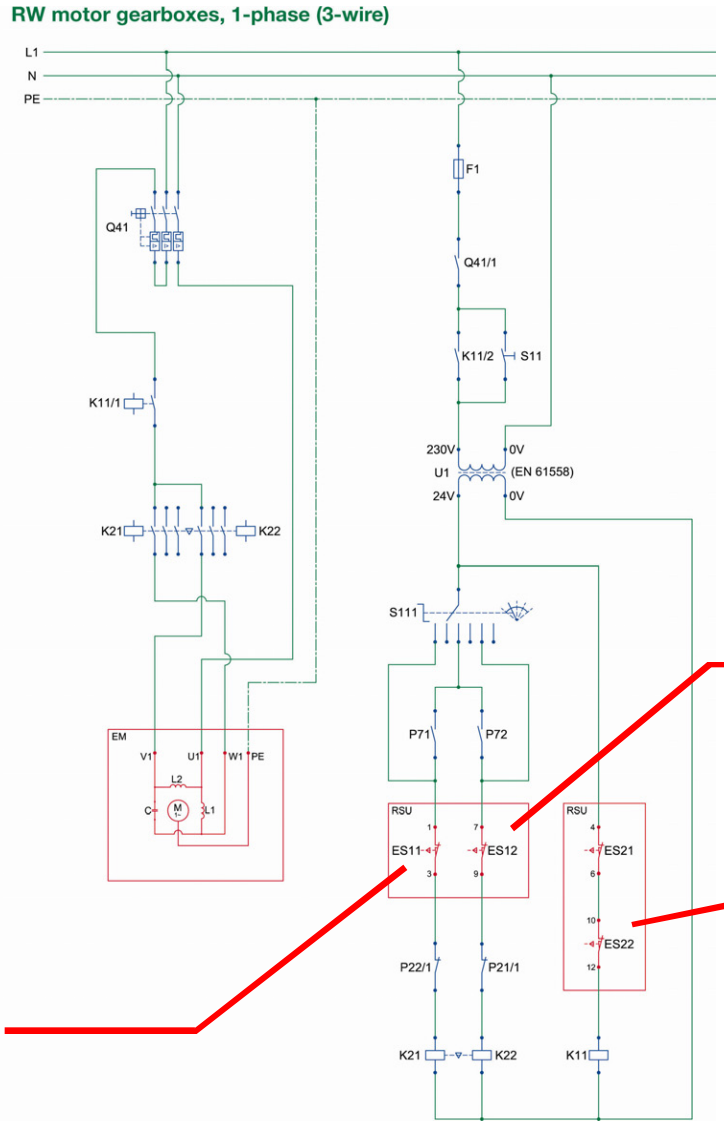
RSU limit switch

Wiring diagram 1-phase (3-wire) motor gearbox





Notes:

To reverse direction of rotation of the RW motor

Swap connections V1 and W1 on the electrical motor connection strip.

To reverse the limit switches of the RSU limit switch system

Swap the wiring of terminal 1 and 7 at the RSU limit switch unit.

Limit switch open or close ES12

Emergency stop switches ES21 and ES22

Limit switch open or close ES11

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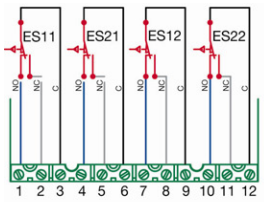
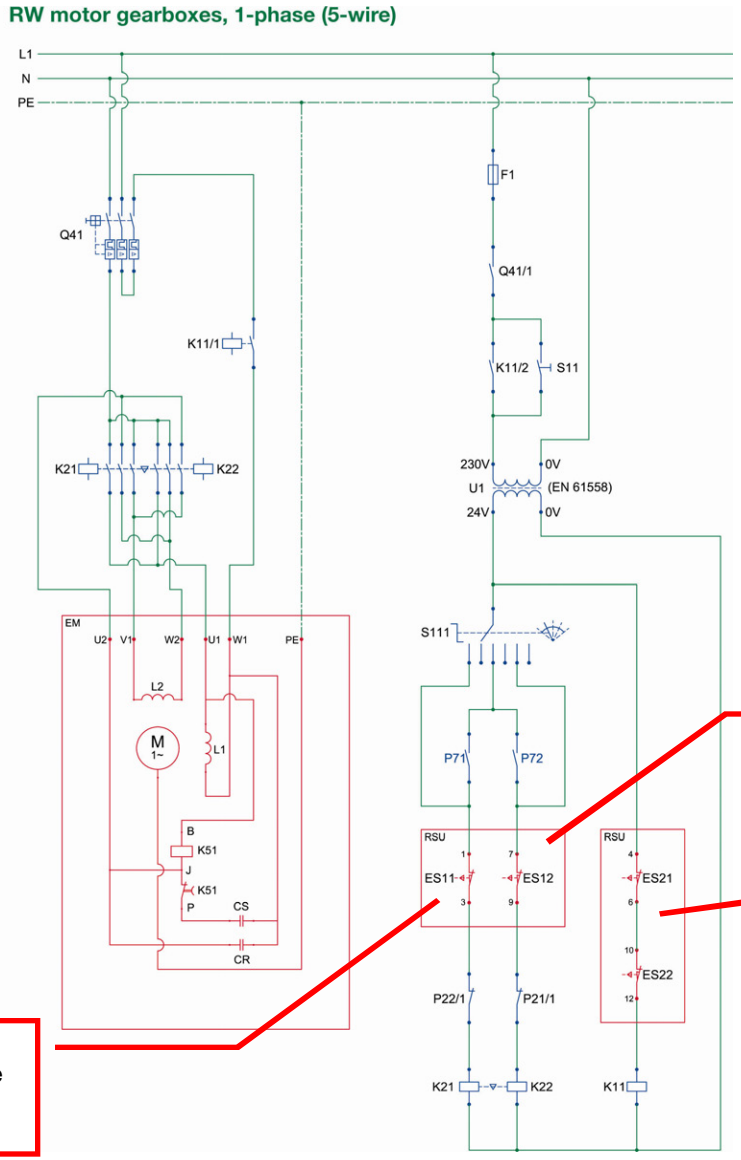
RSU limit switch

Wiring diagram 1-phase (5-wire) motor gearbox





Notes:

To reverse direction of rotation of the RW motor

Swap connections V1 and W1 on the electrical motor connection strip.

To reverse the limit switches of the RSU limit switch system

Swap the wiring of terminal 1 and 7 at the RSU limit switch unit.

Limit switch open or close ES12

Emergency stop switches ES21 and ES22

Limit switch open or close ES11

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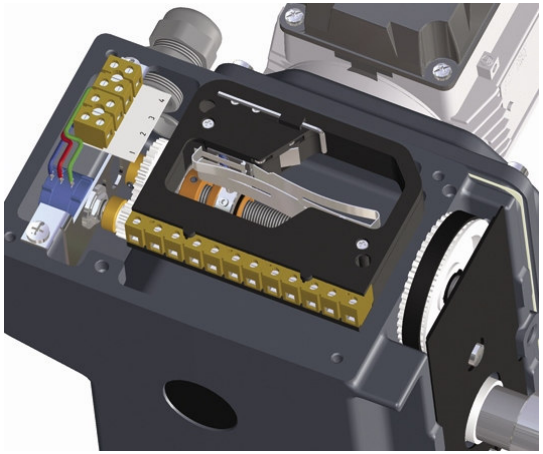
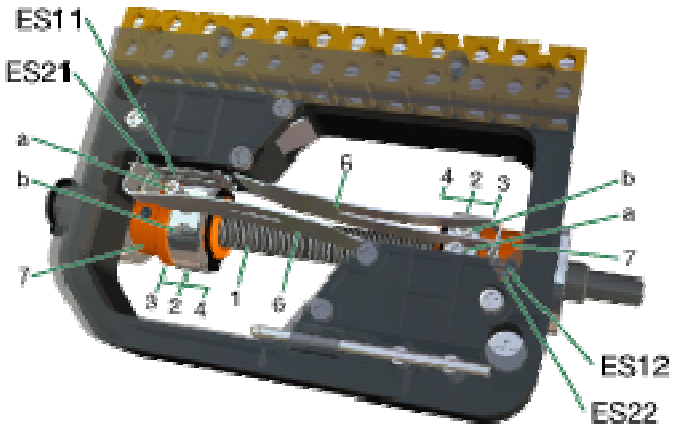
RSU limit switch

Adjusting the limits witch system

Limit switch system after new delivery

The RW motor gearbox with RSU limit switch system is delivered with 2 travelling wheels with adjustment rings which are not fastened yet by the setting bolts.
The motor gearbox can run free in both directions. This prevents the possibillity of causing damage to the limit switch system.





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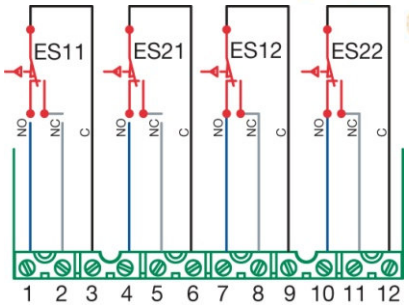
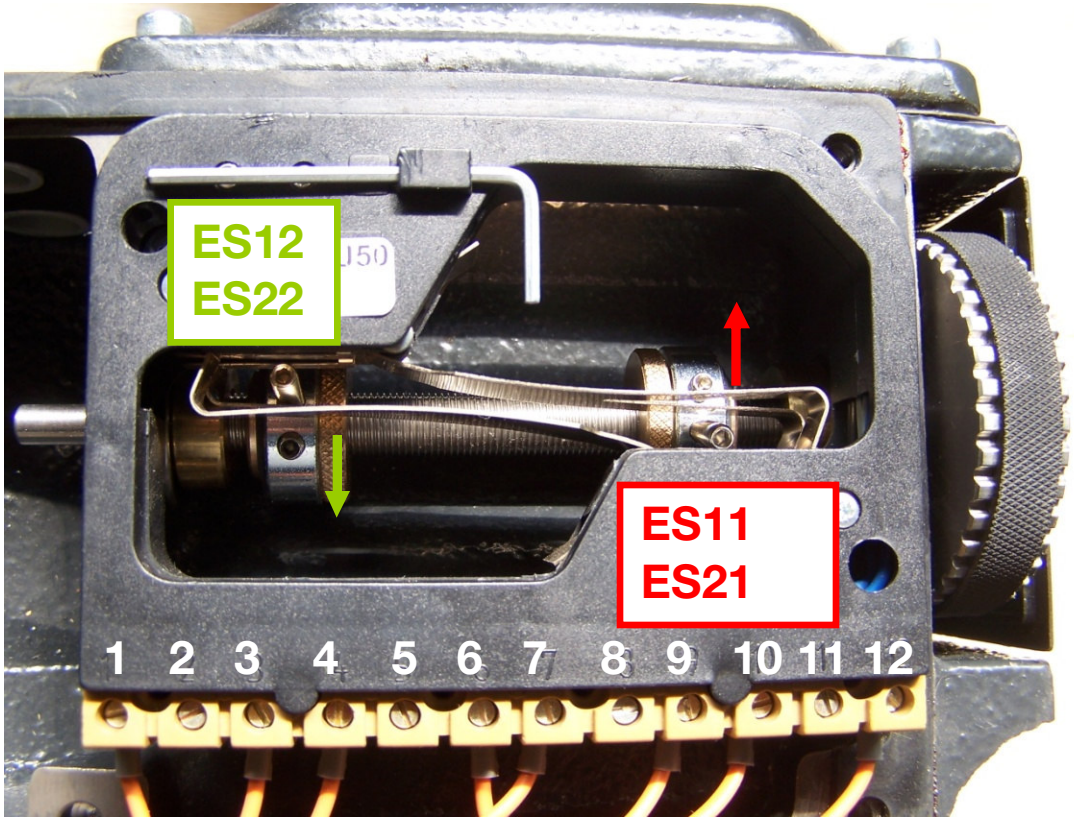
RSU limit switch

Ajdusting procedure





Running direction (open / close)

Running direction (open / close)

1. Move the output shaft (manually or by the electrical control box) to the “start” (close) position of the ventilation or screening system. Check if the running direction for closing is correct, if not swap the phases U1 and V2 of the motor cable in the control panel.

2. Move the output shaft (manually or by the electrical control box) to the “start” (close) position of the ventilation or screening system. Check if the running direction for closing is correct, if not swap the phases U1 and V2 of the motor cable in the control panel. Check with travelling wheel belongs to the closing direction.
NOTE: For this example we have determined that the red arrow of the running direction belongs to the close direction.

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RSU limit switch

Adjusting procedure

3. Move the output shaft (manually or by the electrical control box) to the “start” (close) position of the ventilation or screening system

4. Define which limit switch (ES11 or ES12) should be operated in these positions.

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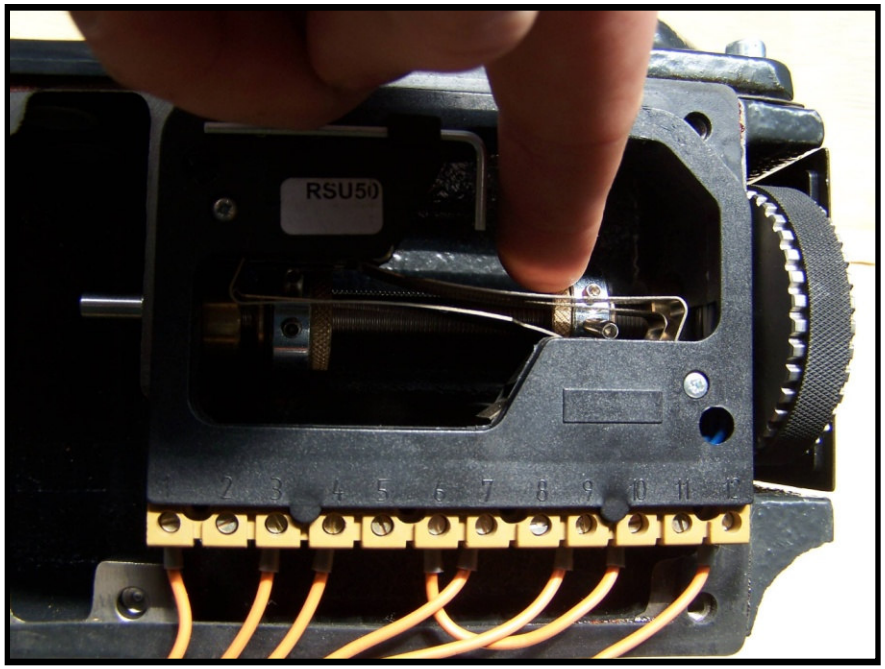
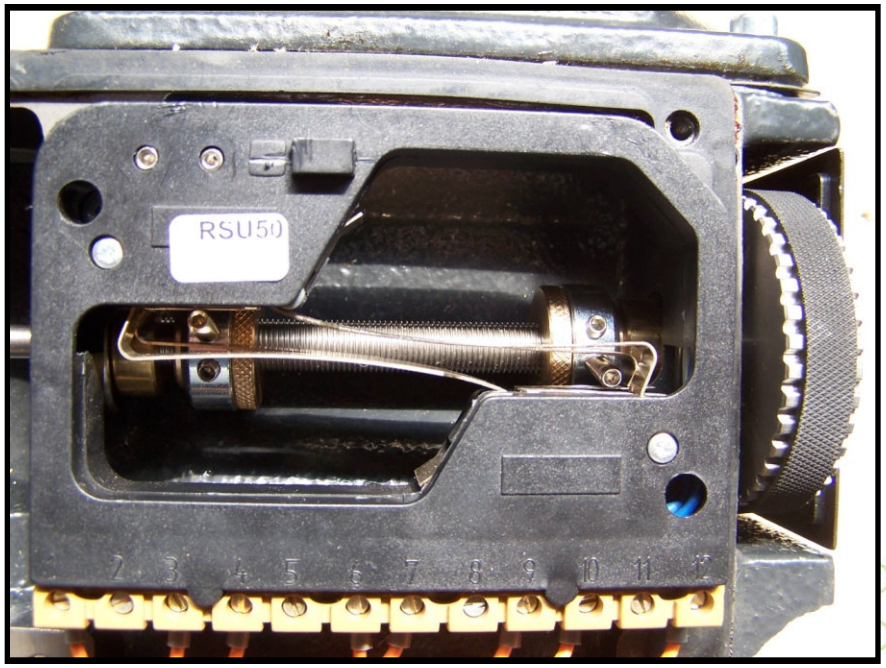
RSU limit switch

Adjusting procedure



5. Turn of the power and move the brass travelling wheel by turning manually the wheel along the threaded shaft to the end position.



6. The brass travelling wheel should be moved completely to the end position.

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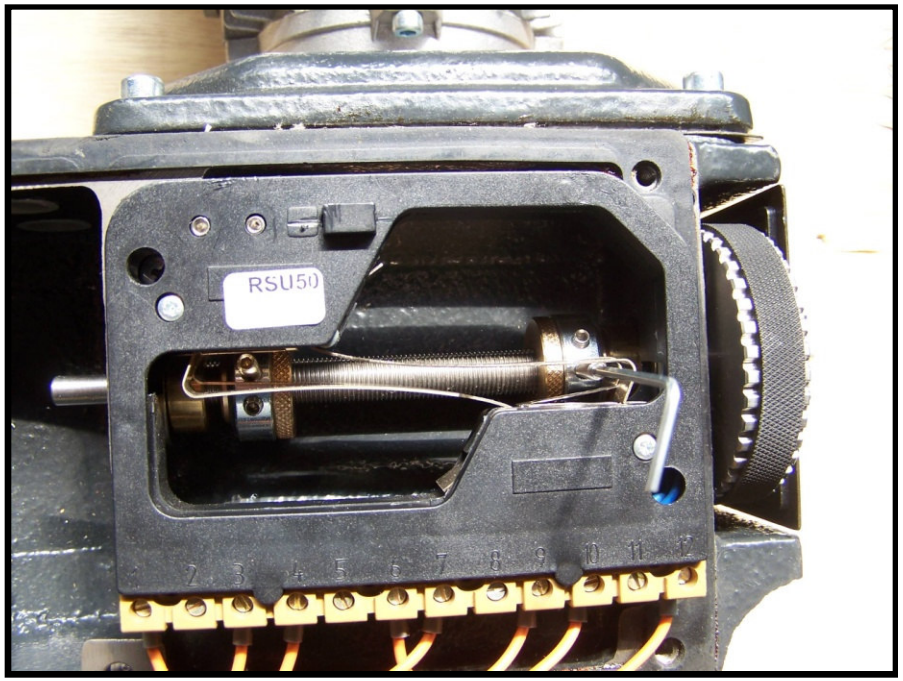
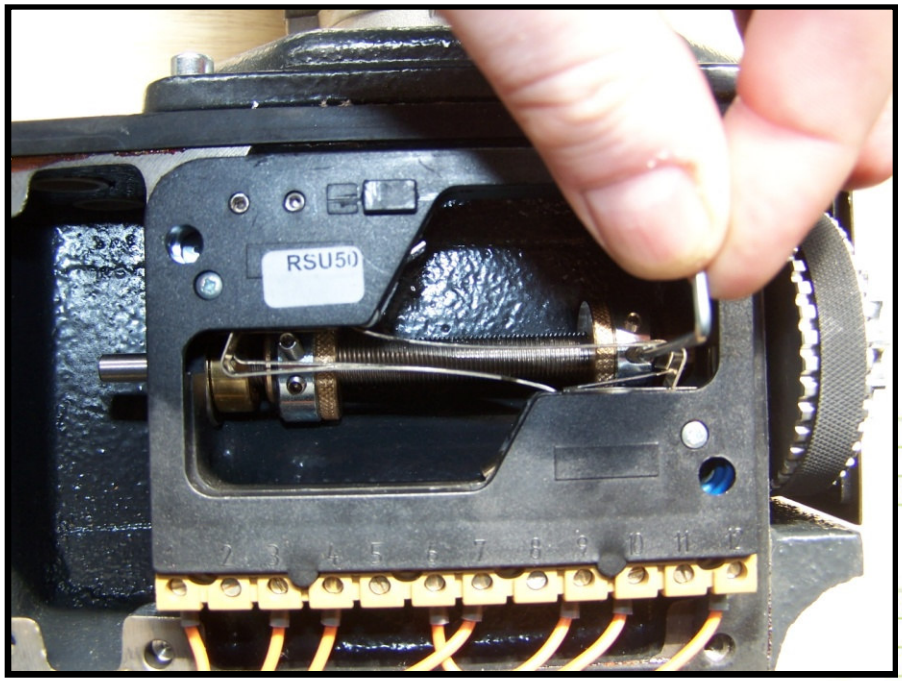
RSU limit switch

Adjusting procedure



7. Put the allen key into the long setting bolt.



8. Move the setting bolt against the upper part of the limit switch actuator spring, the lower limit switch will be actuated. Fasten the long setting bolt with the allen key.

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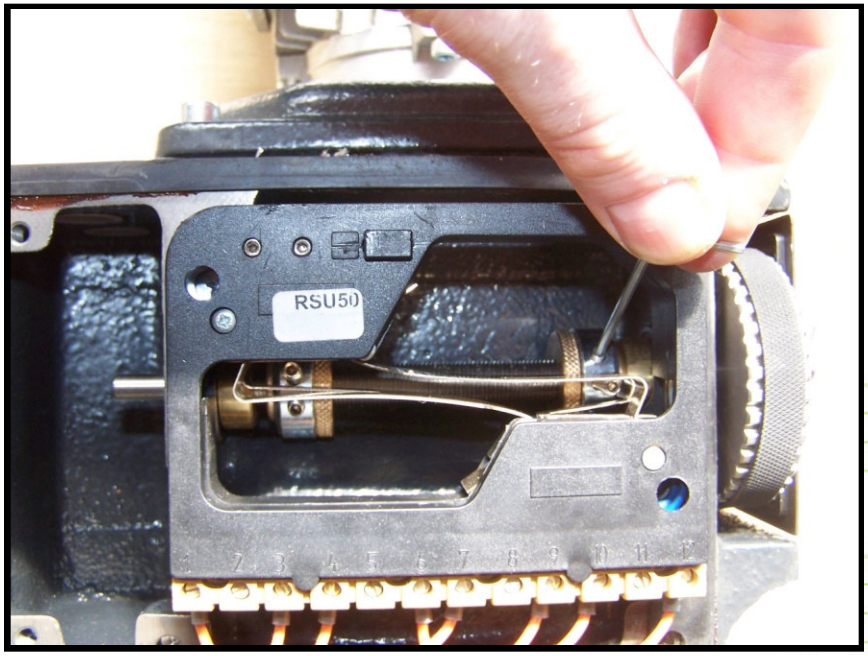
RSU limit switch

Adjusting procedure

9. Turn on the power and move the long setting bolt away from the limit switch actuator spring by switching to the opening direction.
Move the long setting bolt back to the limit switch actuator spring by reversing the running direction.
The motor gearbox should stop now.



10. Turn off the power and fasten the short setting bolt with the allen key.

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RSU limit switch

Adjusting the RSU limit switch

1. Turn on the power and move the output shaft from the “start” (close) to the “end” (open) position of the ventilation or screening system

2. Define which limit switch (ES11 or ES12) should be operated in “open”position.

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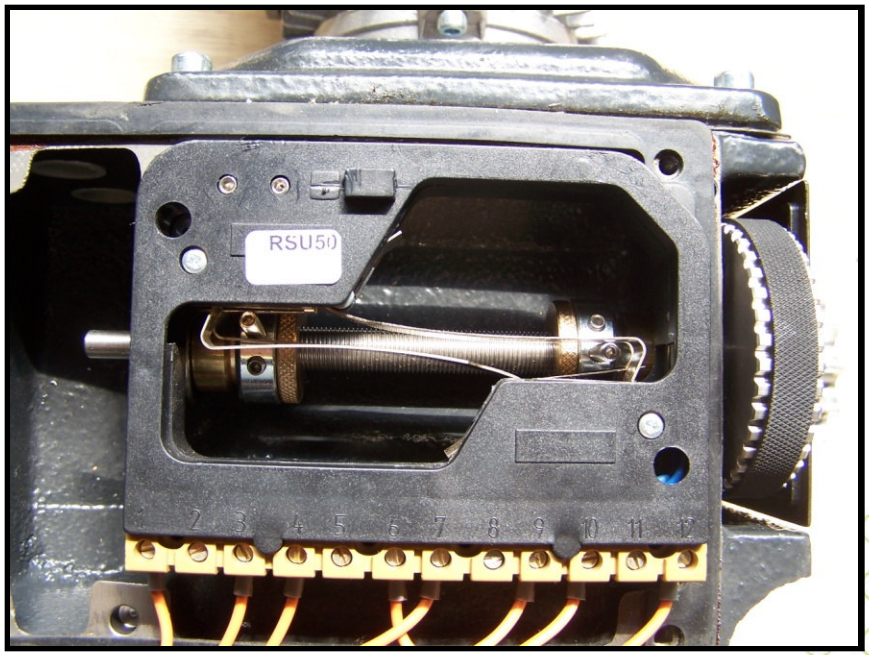
RSU limit switch

Adjusting the RSU limit switch

3. Turn of the power of the system and move the brass travelling wheel by turning manually the wheel along the threaded shaft to the end position.



4. The brass travelling wheel should be moved completely to the end position.

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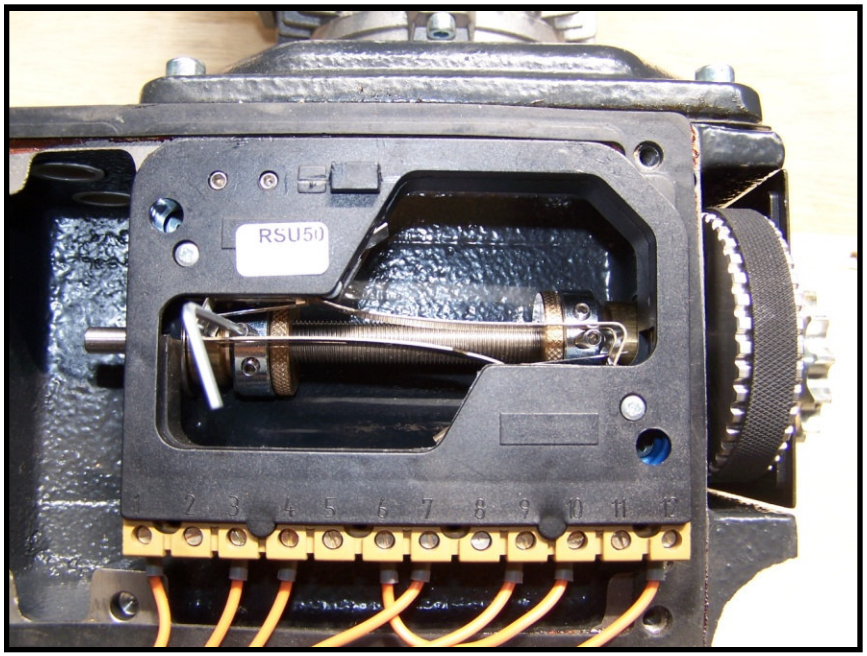
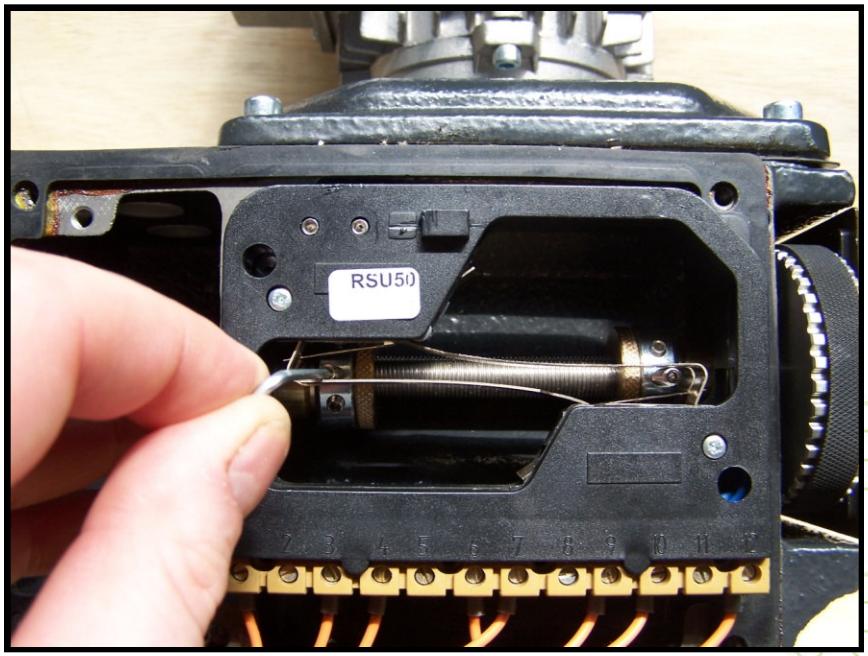
RSU limit switch

Adjusting the RSU limit switch



5. Put the allen key into the long setting bolt.

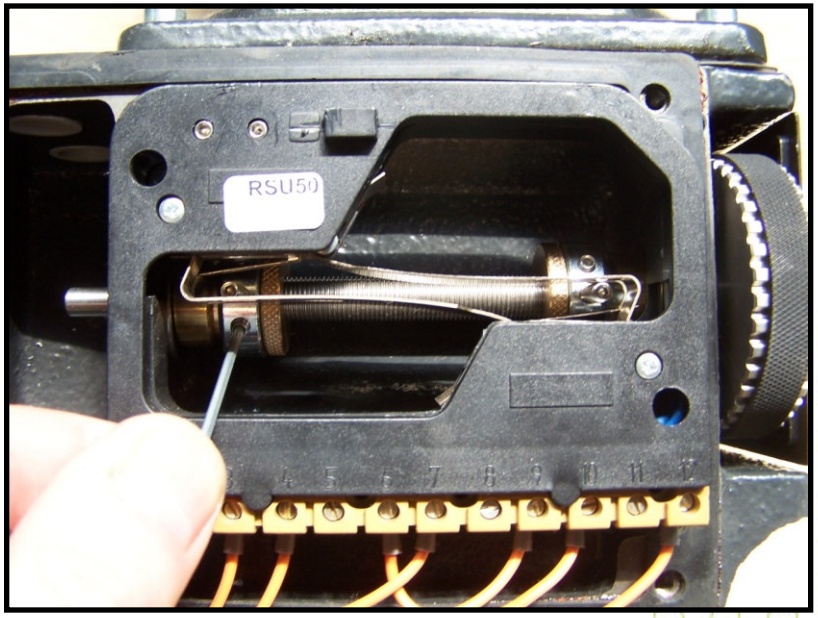


6. Move the long setting bolt against the upper part of the limit switch actuator spring, the lower limit switch will be actuated. Fasten the long setting bolt with the allen key.

RSU limit switch

Adjusting the RSU limit switch

7. Turn on the power and move the long setting bolt away from the limit switch actuator spring by switching the running direction to closing direction. Move the long setting bolt back to the limit switch actuator spring by reversing the running direction. The motor gearbox should stop now.



8. Turn off the power and fasten the short setting bolt with the allen key.

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Product details

Procedure adjusting the RSU limit switch system

Adjusting the RSU limit switch system

• Move the output shaft (manually or under power) to the “start” (close) position of the ventilation or screening system.

•Define which limit switch (ES11 or ES12) should be operated in these positions.

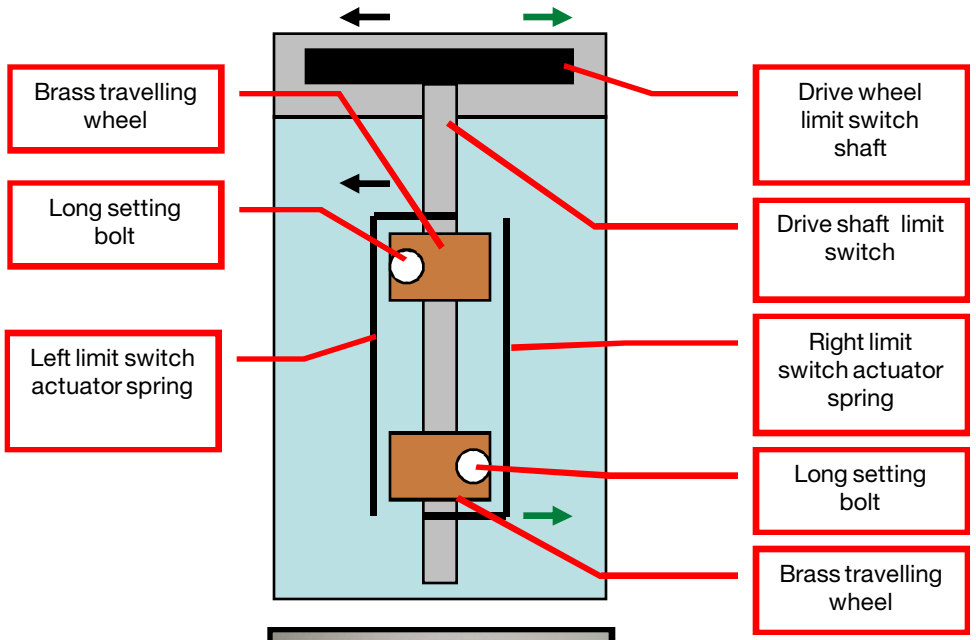
•The upper travelling wheel and allen bolt should operate the left limit switch spring in case the drive wheel of the limit switch shaft is running in the left direction. (black arrow)

•The lower brass travelling wheel and long setting bolt should operate the right upper limit switch spring actuator in case the drive wheel of the limit switch shaft is running in the right direction. (green arrow)

•The switches ES11 and ES12 can be changed by swapping connections 1 & 7 of the limit switch connection terminal.

•Move the brass travelling wheel by turning manually the wheel along the threaded shaft to the end position.

•Put the allen key into the long setting bolt and move the allen bolt against the upper part of the limit switch spring. The limit switch spring is splitted into two parts. The lower part is to control the limit switch and the upper part is to control the emergency switch. Fasten the long setting bolt with the allen key.



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Product details

Procedure adjusting the RSU limit switch system

Adjusting the RSU limit switch system

• If possible and power available, move the long setting bolt away from the limit switch actuator spring.

•Move the long setting bolt back to the upper limit switch actuator spring. The motor gearbox should stop now.

•Fasten with the allen key the short setting bolt.

•Move the output shaft (manually or under power) to the open “end” position of the window or screening system.

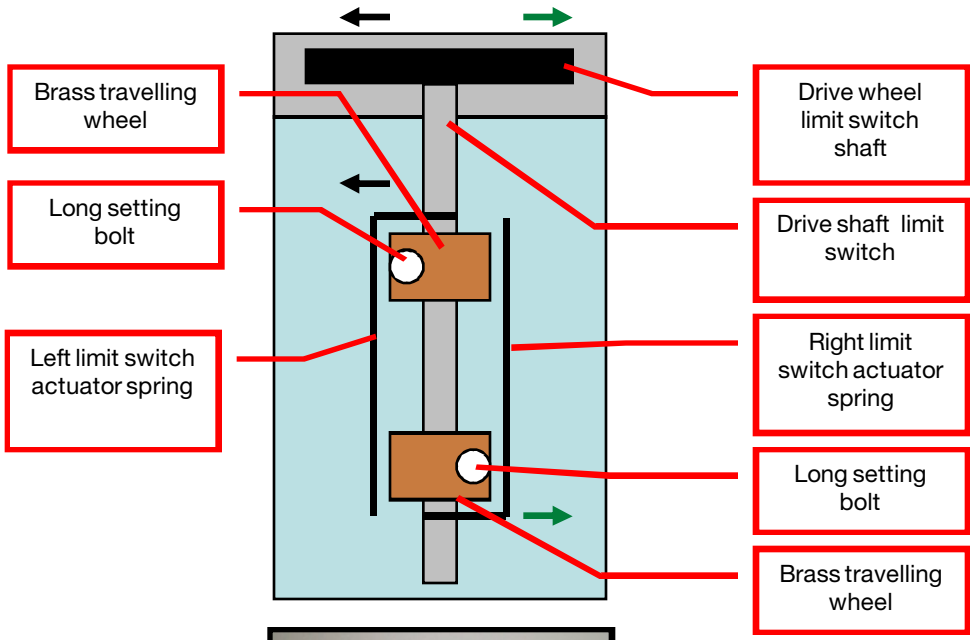
•Move the brass travelling wheel by turning manually the wheel along the threaded shaft to the end position.

•Put the allen key into the long setting bolt and move the long setting bolt against the upper part of the limit switch spring. The limit switch spring is splitted into two parts. The lower part is to control the limit switch and the upper part is to control the emergency switch. Fasten the long setting bolt with the allen key.

•If possible and power available, move the long setting bolt away from the limit switch actuator spring.

• Move the allen bolt back to the upper limit switch actuator spring. The motor gear box should stop now.

•Fasten with the allen key the short allen bolt.



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