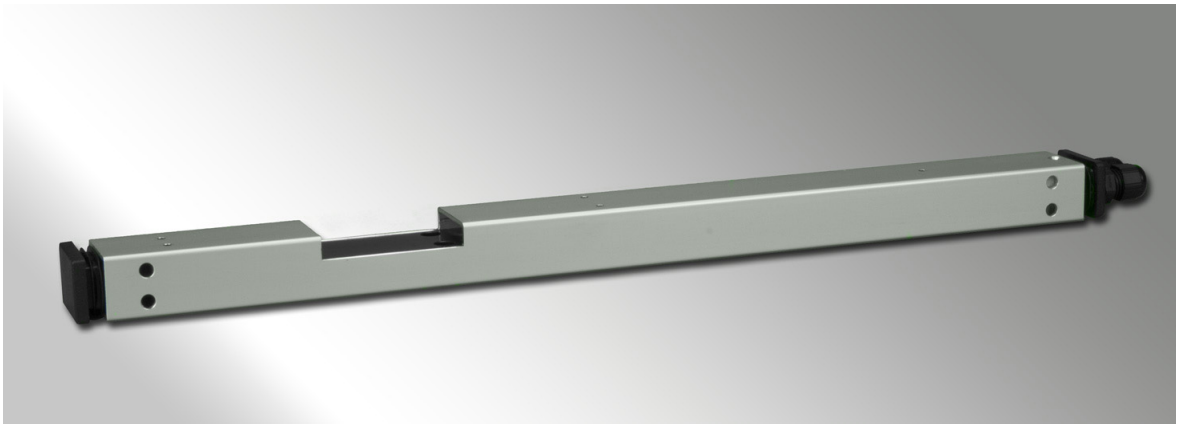
Operating Manual

Supplementary Electric Locking
ZVE-UNI – B5 6101

SIMON RWA®
Begeisterung trifft Technik

BA_ZVE-UNI_EN_10



sample picture!

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info@simon-rwa.de

Table of Contents

General

2. General

2.1 Foreword to this manual

This manual has been created for the purposes of proper operation, installation and maintenance by trained, experienced specialist personnel (e. g. mechatronics engineer or electrician) and / or specialist personnel with knowledge involving the installation of electrical devices.

Read the operating manual carefully and follow the prescribed sequence. Retain the operating manual for later use / maintenance. Please precisely observe the pin assignment, the minimum and maximum performance data (see “Technical data”) and the installation instructions. Incorrect usage or improper operation / assembly can cause the loss of system functions and result in damage to property and / or persons.

You will find the following symbols in this manual:

INFO
This information provides you with additional tips!

ATTENTION
This warning draws your attention to potential dangers for the product!

DANGER
This warning draws your attention to possible risks to your life or health!

ENVIRONMENTAL NOTE
This warning draws your attention to potential dangers for the environment!

- ➢ This is how operating procedures are identified.
- ➘ Consequences are represented this way.
- *Buttons* or *switches* to be activated are indicated in italics.
- “Displays” are placed in quotation marks.

2.2 Use for the intended purpose

Openers (actuators) serve for the opening of building coverings, which can be installed in walls or in roofs and used for the ventilation of rooms or for the exhaust of fire smoke.

The opening actuator may have to be extended by protective measures in accordance with the risk assessment which is to be carried out.

2.3 Product description

The locking mechanism actuator is designed for mounting on building coverings (e. g. windows). They are usable with SHEV and / or ventilation controllers from SIMON RWA® Systeme GmbH. The opening actuator is suitable for installation and use in smoke exhaust systems.

2.4 Functional description

The electric supplementary locking mechanism enables increased opening / closing pressure for tall and wide windows and mechanically locks windows.
The locking mechanism is universally applicable for both inward and outward opening windows as well as on DIN right-hand or left-hand opening windows.
Actuation is in conjunction with an electromechanical actuator from the SIMON RWA® Systeme GmbH range.
The locking system can be used in both SHEV and ventilation areas. The ZVE-UNI utility model is protected.

2.5 Technical data

Table 1: Electrical characteristics

Actuator type / version	ZVE-UNI
Rated voltage:	24 V DC
Permissible rated voltage range:	24 V DC -10%, +20%
Ripple of rated voltage:	500 mV
Undervoltage detection:	No
Rated current[1] :	85 mA
Cut-off current in case of obstacle:	120 mA
Current consumption after sequence control:	< 20 mA
Overload protection:	Electronic
Maximum switch current for slave actuators:	5 A, ripple < 10%
Switch-over time, sequence control[2] :	approx. 2 s
Cut-off via:	built-in electronic overload cut-off

General

Actuator type / version	ZVE-UNI
Protection class:	III

1. Maximum current consumption with nominal load.
2. Attention: during this time no actuator will be operated.

Table 2: Connection and operation

Actuator type / version	ZVE-UNI
Pause when changing direction:	min. 500 ms
Switch-on duration:	ED 30
Stability of opening and closing cycles:	> 11,000
Noise level[1] :	< 70 dB (A)
Multiple triggering as per prEN 12101-9:	allowed
Multiple triggering after stop:	allowed
Maintenance:	See chapter 7. “Care and maintenance” on page 18.

1. Measured at a distance of one metre under normal conditions.

ATTENTION

Check the load of the connected actuator and the length of the leads when dimensioning the power lead (see chapter 5.4 “Electrical connection” on page 12).

Table 3: Installation and environmental conditions

Actuator type / version	ZVE-UNI
Rated operating temperature:	20 °C
Permissible ambient temperature range:	-5 to 75 °C
Temperature stability (SHEV):	300 °C
Ingress protection:	IP 40
Usage range:	Central European environmental conditions ≤ 2.000 above sea level

Table 4: Approvals and certificates

Actuator type / version	ZVE-UNI
CE-compliant:	in accordance with EMC directive 2004/108/EC and the low-voltage directive 2006/95/EC
Further approvals:	---

Table 5: Mechanical characteristics

Actuator type / version	ZVE-UNI
Contact pressure:	200 N
Holding force:	750 N
Opening-/locking time[1] :	≤ 30 s
Surface finish of housing:	Anodised aluminium E6/EV1
Dimensions (L x W x H):	465 x 25 x 45 mm
Weight (including fixing plate):	approx. 900 g

1. Details depend on the position of the latching pin and the rated voltage.

Table 6: Accessories

Actuator type / version	ZVE-UNI
Finishing[1] in any standard RAL and DB colour available on request.	

1. Attention: nuts, bolts, washers, sliders and similar individual parts are not coated.

Safety regulations

3. Safety regulations

FOR THE SAFETY OF PERSONS IT IS IMPORTANT TO FOLLOW THESE INSTRUCTIONS. THESE INSTRUCTIONS ARE TO BE KEPT AND HANDED TO THE CUSTOMER FOLLOWING INSTALLATION AND COMMISSIONING.

DANGER

Do not allow unauthorised persons (e. g. children) to operate permanently installed control panels. Keep remote controls out of reach of unauthorised persons.

DANGER

Please consider VDE 0833 for hazard alert systems, VDE 0100 for electrical systems, DIN 18232 for SHEV systems, the local fire department regulations, the energy supply company regulations for the mains connection as well as BGV A3 and the BG regulation BGR 232. All relevant national safety regulations and rules apply to the bringing onto the market, installation and commissioning of the equipment outside the country of manufacture (Germany).

DANGER

Free access must be ensured to the energy supplies and electrical control panels of SHEV systems.

DANGER

The sign for the manual release must be attached permanently in the vicinity of its actuating element.

DANGER

Force operated windows which are lower than 2.5 m above the top edge of the finished floor (even if this only applies to parts of the window) require a risk assessment with regard to the danger of persons being crushed or trapped. Several national and international regulations regulate the protective measures necessary depending upon the type of use of the window. A risk analysis must be carried out.
The building planner / architect or the entity issuing the invitation to bid must clearly specify the requirements for force operated windows. This includes agreement with the responsible authorities (e. g. building authority) and, if necessary in the case of commercial and public use, with the involvement of the responsible insurance company. The client who installs the force operated window is responsible for adherence to the tendering specifications, taking into account technical rules and the state of the art. The client / customer / user must ensure that force operated windows are operated and maintained in accordance with the user information/ operating instructions.
The regulations (BGR 232) of the association of commercial and industrial workers' compensation insurance carriers have to be considered! Other persons must be kept away if a switch with an 'off' presetting is operated or if a window closes that had been opened by a fire alarm system.

DANGER

The actuating element of switches with an 'off' presetting must be installed in a place with a direct line of sight to the driven part, but away from moving parts. If it is not a key switch, it must be installed at a height of at least 1.5 m and must be inaccessible to the public.

Figures

4. Figures

Figure 1: ZVE-UNI locking mechanism

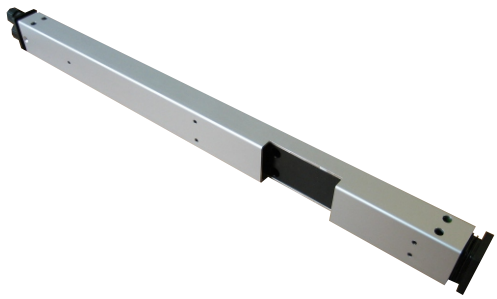


Figure 2: fixing plate

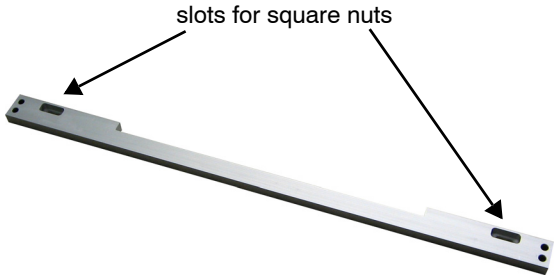


Figure 3: Set of small parts

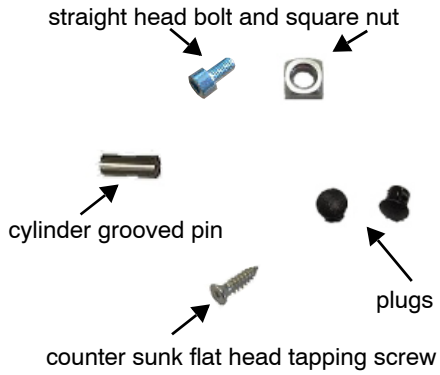


Figure 4: Set of locking mechanism brackets

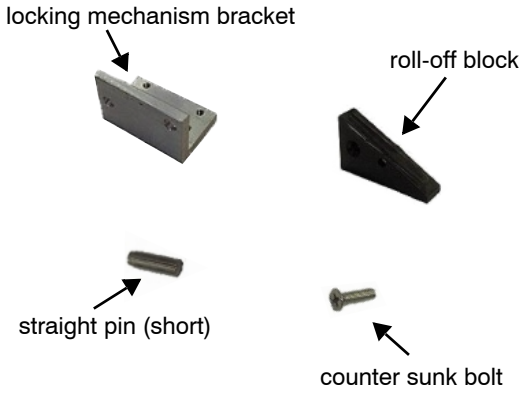
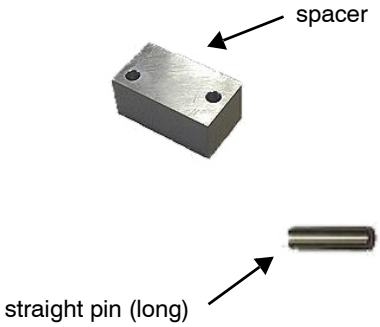


Figure 5: Set of accessories



Mounting

5. Mounting

INFO

You can find instructions in ZVEI leaflet “powered windows” (www.simon-rwa.de).

DANGER

Mounting may be carried out only by professional personnel (qualified electrician)! All relevant national safety regulations and rules apply to mounting, installation and commissioning.
If the installation is not carried out correctly there is a danger of electrocution. It is essential that you adhere to the applicable safety regulations! Pay attention to the valid installation regulations. Incorrect installation can lead to serious injuries.

DANGER

A restrictor stay with sufficient stroke must be installed at bottom hung wings.
It must be ensured that the actuator fastening to the window or wing frame is permanent and suitable for the actuator force mentioned on the type plate.

DANGER

The opening actuators must be installed such that the doors can open in the direction of escape.

DANGER

If openers are used in the RWA area, make sure that blockable controls are only active when there is no one in the room.

➢ Finally, carry out a visual check.

Figure 6: Typical Installation with slit actuator

ATTENTION

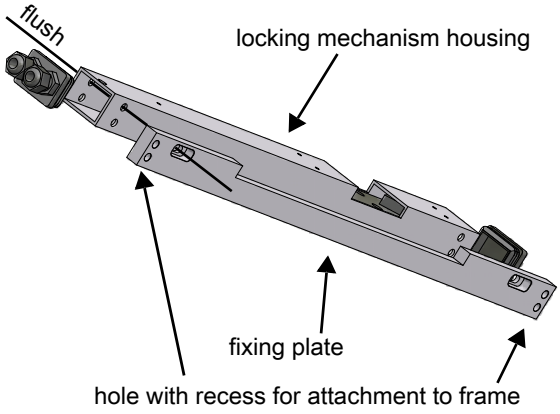
Use appropriate fastenings depending on the material of the window onto which the ZVE-UNI is mounted. Fastenings are not included.

Mounting

5.1 Mounting on inward-opening casement window

- Remove plastic caps from the locking mechanism housing.
- Screw the locking mechanism housing flush with the fixing plate in the desired direction of the cable feed.

Figure 7

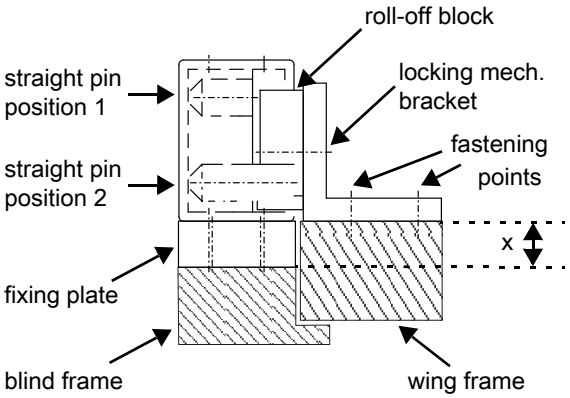


- Use the straight head bolts and the square nuts.

Figure 8

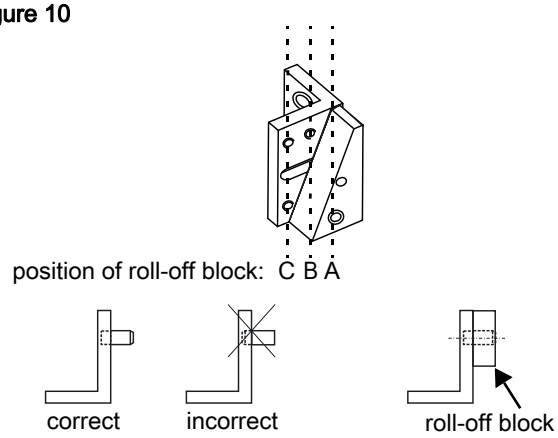
- Decide on the position of the locking mechanism fitting on the surround frame and place the short straight pin in the slot of the fitting (see Figure 9). The straight pin aligns itself according to the projection of the casement (see Table 7 on page 9).

Figure 9



- Position the roll off block on the roll off bracket (see Figure 10). Depending on the casement projection, there are several threads available for different positioning options. Table 7 on page 9 shows the values. Insert the cylindrical grooved pin with the non-grooved side into the retaining hole of the locking mechanism bracket up to the stop. Use a rubber or wooden hammer for best results. Tap in the roll off block and screw in place with the recessed head bolt.

Figure 10



Mounting

- Fit the locking mechanism fitting to the surround frame and the locking mechanism bracket to the window frame. Use spacer if necessary. Position both parts so that they fit inside one another and there is sufficient mechanical clearance between the parts when opening and closing. The roll off block is correctly mounted on the bracket when the straight pin travels over the angled surface of the roll off plate when locking the window.

Figure 11

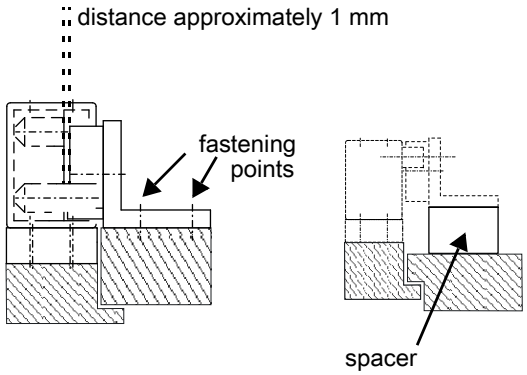


Table 7

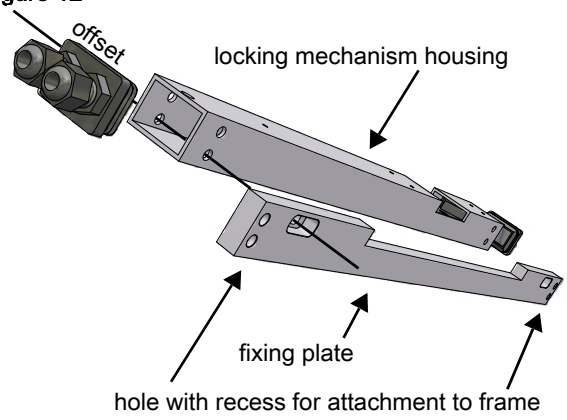
Casement projection x [mm] (see Figure 9 on page 8)		Pin position (see Figure 9 on page 8)	Spacer (see Figure 11)	Position of roll-off block (see Figure 10 on page 8)
-30	-13	1	yes	B
-19	-3	1	yes	A
-11	6	2	yes	B
-10	7	1	no	B
-1	16	2	yes	A
9	26	2	no	B

Mounting

5.2 Mounting on outward-opening casement window

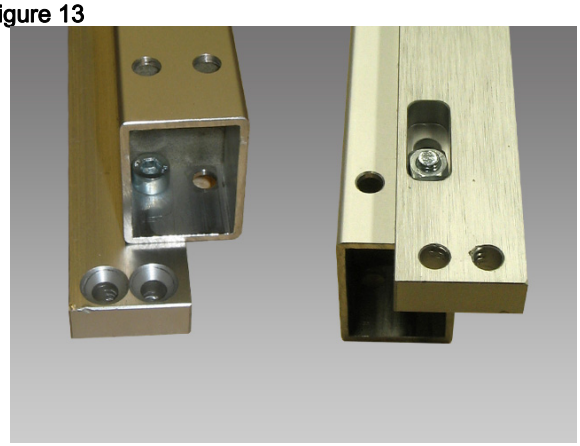
- Remove plastic caps from the locking mechanism housing.
- Screw the locking mechanism casing offset to the mounting plate in the desired direction of the cable feed.

Figure 12



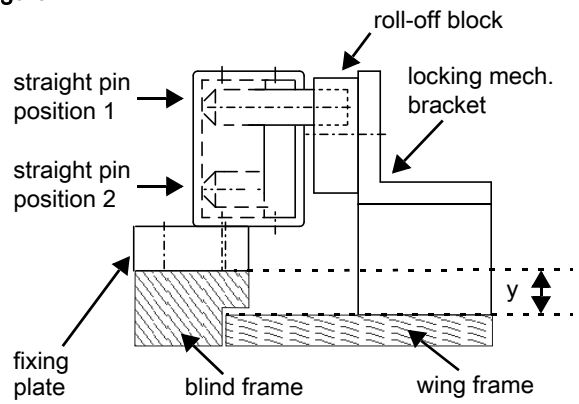
- Use the straight head bolts and the square nuts.

Figure 13



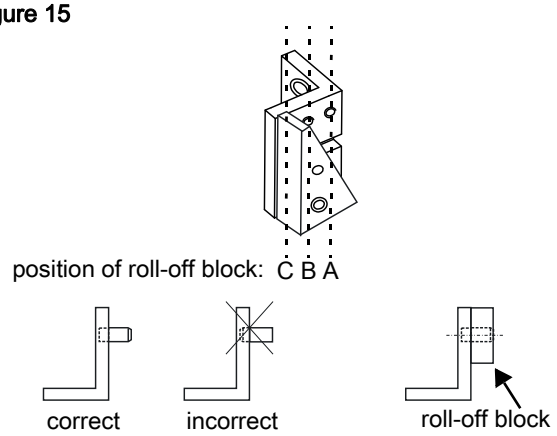
- Decide on the position of the locking mechanism fitting on the surrounding frame and place the long straight pin in the slot of the fitting (see Figure 14). The straight pin aligns itself according to the projection of the casement (see Table 8 on page 11).

Figure 14



- Position the roll off block on the roll off bracket (see Figure 15). Depending on the casement projection, there are several threads available for different positioning options. Table 8 on page 11 shows the values. Insert the cylindrical grooved pin with the non-grooved side into the retaining hole of the locking mechanism bracket up to the stop. Use a rubber or wooden hammer for best results. Tap in the roll off block and screw in place with the recessed head bolt.

Figure 15



Mounting

➢ Fit the locking mechanism fitting to the surround frame and the locking mechanism bracket to the window frame. Use spacer if necessary. Position both parts so that they lay side-by-side and there is sufficient mechanical clearance between the parts when opening and closing. The roll off block is correctly mounted on the bracket when the straight pin travels over the angled surface of the roll off plate when locking the window.

Figure 16

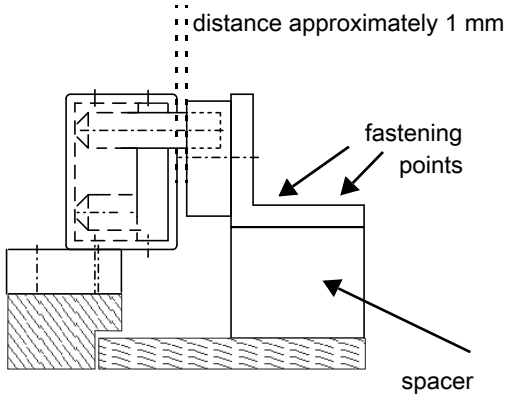


Table 8

Casement projection y [mm] (see Figure 14 on page 10)		Pin position (see Figure 14 on page 10)	Spacer (see Figure 16)	Position of roll-off block (see Figure 15 on page 10)
-31	-14	1	yes	C
-21	-4	1	yes	B
-13	4	2	yes	C
-11	6	1	no	C
-2	15	2	yes	B
-1	16	1	no	B
7	24	2	no	C
18	35	2	no	B

5.3 Fine adjustment and readjustment

Slacken the straight head screws (see Figure 8 on page 8 and Figure 13 on page 10) to slide the locking mechanism fitting along the fixing plate by 4 mm.

Mounting

5.4 Electrical connection

ATTENTION

In combination with the ZVE-UNI use only actuators with “F” contacts or corresponding through-switched voltage free contacts from our system range.

ATTENTION

Shut-off information: Due to the integrated microcontroller, the position of the locking mechanism is saved on installation (default status unlocked). As a result, the slave actuator is actuated first, before the locking mechanism is locked again in the opposite direction. This actuator unit must therefore always be held firmly.

ATTENTION

Make sure that the loops in the supply cable near moving parts are sufficiently large to prevent the connecting cable from becoming trapped or being torn away.

INFO

We recommend that a test run be carried out using a mobile power supply. This allows simple and fast reaction to malfunctions.

DANGER

Please check the complete system before connecting to the 24 V DC supply.

ATTENTION

Do not earth the electrical connection.
The actuator may only be run with 24 V DC protective low voltage!
Do not earth “F” nor loop it.
Insulate any unused wires.
Do not connect red and yellow wires of actuators.

ATTENTION

In SHEV systems (controllers) never connect the “F” contact to the “G” terminal on the controller.

The dimension of power supply has to be suitable for this actuator. Both voltage and current must agree with the specifications on the type label. Check the power cables before starting for the first time, particularly noting the wire cross-section. Comply with the relevant directives with respect to minimum values for lead dimensioning. Typical calculation (these are only approximate values and this is not an accurate calculation):

Wire cross-section [mm²] := 0.019 x number of motors x current consumption per motor [A] x length of lead [m]

5.4.1 Feedback signal

Required e. g. for control purposes, running displays etc

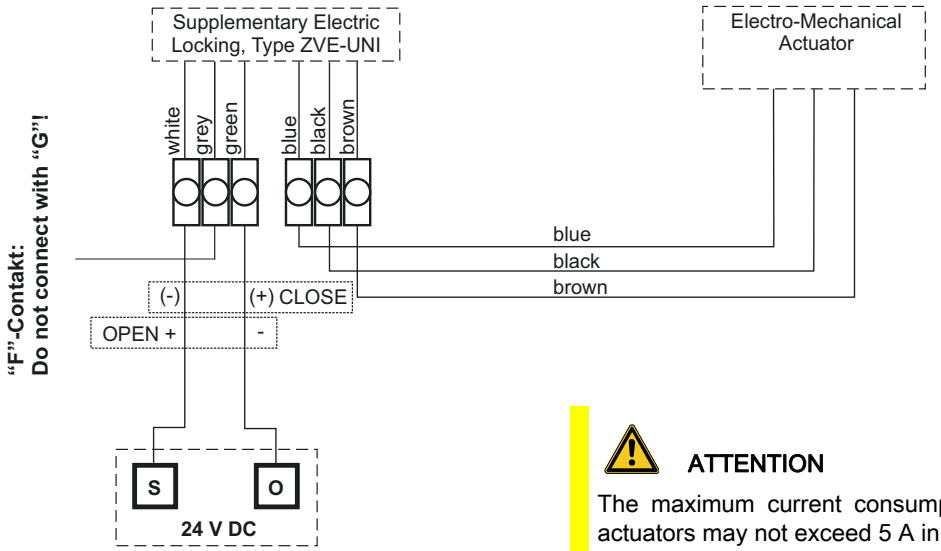
After switching off the locking mechanism the integrated control electronics switch the respectively positive or negative operating voltage from “S” to the feedback contact “F” (grey wire). Sequence signal (e. g. feedback) via “F” contact.

The “F” contact information (feedback contact) is sent by the slave actuator to the master controller only at “OPEN” or “CLOSED” limit positions. This is required, e.g. with parallel sequence control (see 5.4.3 “Two locking mechanisms and one actuator” on page 13).

Mounting

5.4.2 One locking mechanism and one actuator

➢ Connect leads according to wiring diagram (the wire colours are only valid for SIMON actuators with factory-fitted connection cables).

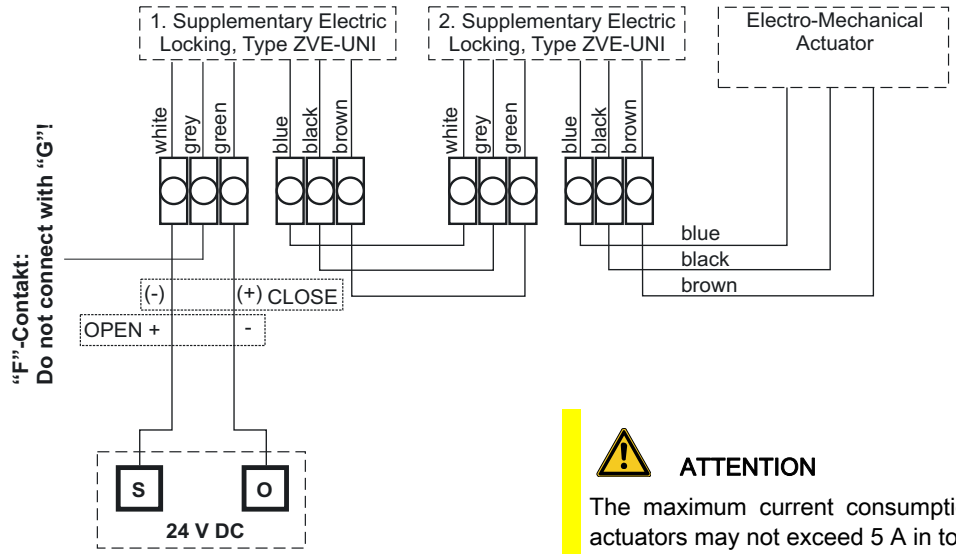


ATTENTION

The maximum current consumption of all connected actuators may not exceed 5 A in total.

5.4.3 Two locking mechanisms and one actuator

➢ Connect leads according to wiring diagram (the wire colours are only valid for SIMON actuators with factory-fitted connection cables).



ATTENTION

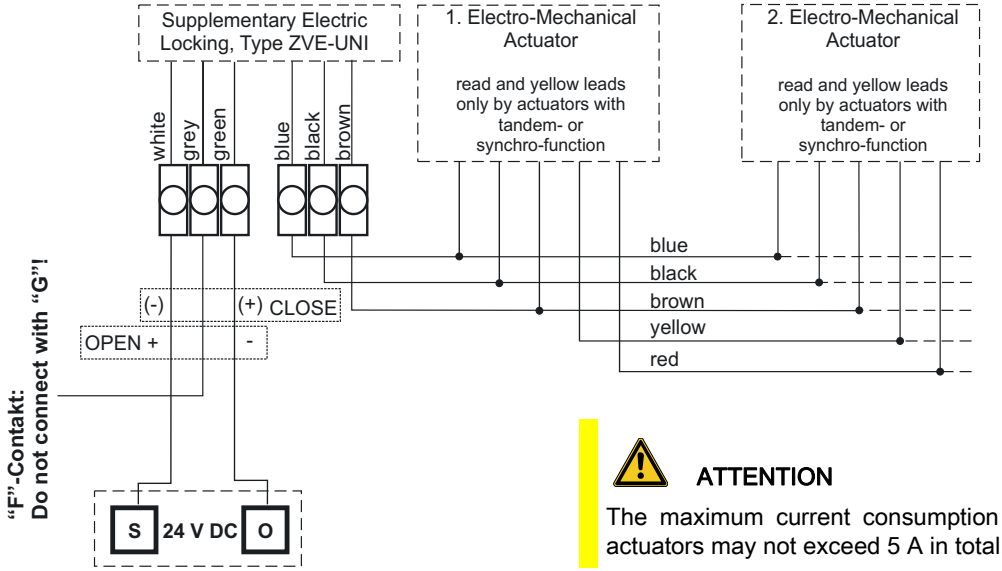
The maximum current consumption of all connected actuators may not exceed 5 A in total.

Mounting

5.4.4 One locking mechanism and up to 4 actuators (parallel)

When the actuator is switched off the internal control electronics transmit the potential of “S” to the feedback contact “F”. Sequence signal (e. g. feedback signal) via “F”-contact (black). The red and yellow wires are connected correspondingly red to red and yellow to yellow in the case of parallel connected actuators (maximum four, up to a current consumption of 5 A). Do not connect together red and yellow wires of actuators.

- Connect leads according to wiring diagram (the wire colours are only valid for SIMON actuators with factory-fitted connection cables).



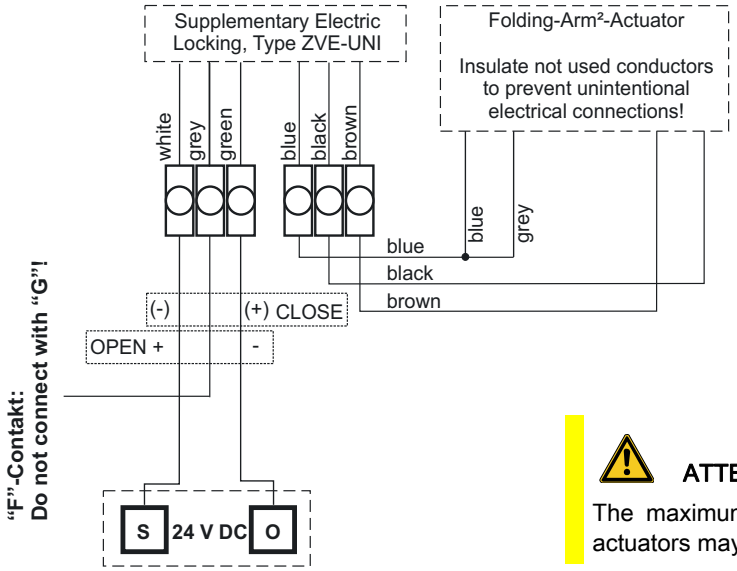
ATTENTION

The maximum current consumption of all connected actuators may not exceed 5 A in total.

Mounting

5.4.5 One locking mechanism and one folding arm² actuator

➢ Connect leads according to wiring diagram (the wire colours are only valid for SIMON actuators with factory-fitted connection cables).



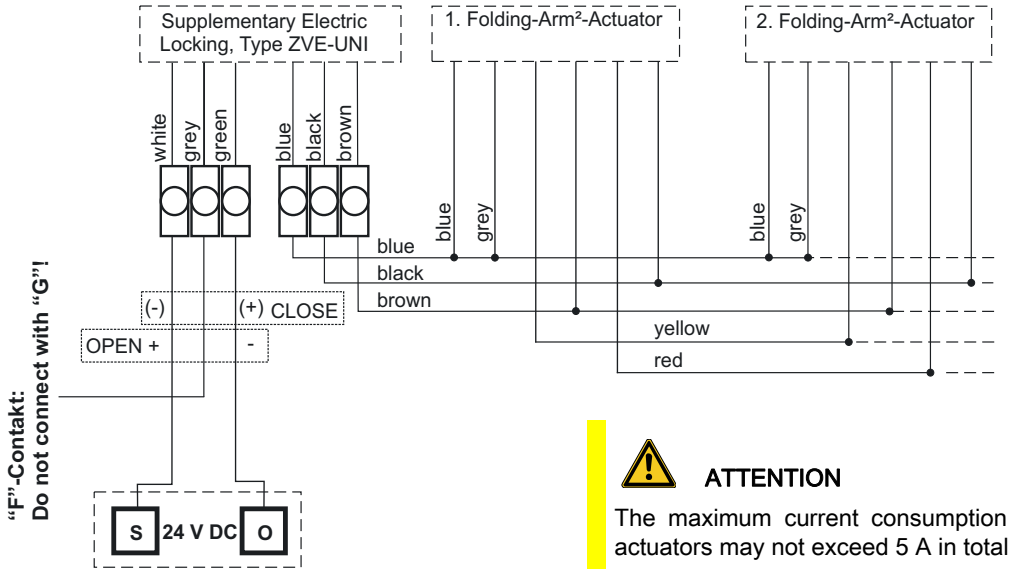
ATTENTION

The maximum current consumption of all connected actuators may not exceed 5 A in total.

5.4.6 One locking mechanism and several folding arm² actuators (parallel)

The red and yellow wires are connected correspondingly red to red and yellow to yellow in the case of parallel connected actuators (maximum four, up to a current consumption of 5 A). Do not connect together red and yellow wires of actuators.

➢ Connect leads according to wiring diagram (the wire colours are only valid for SIMON actuators with factory-fitted connection cables).



ATTENTION

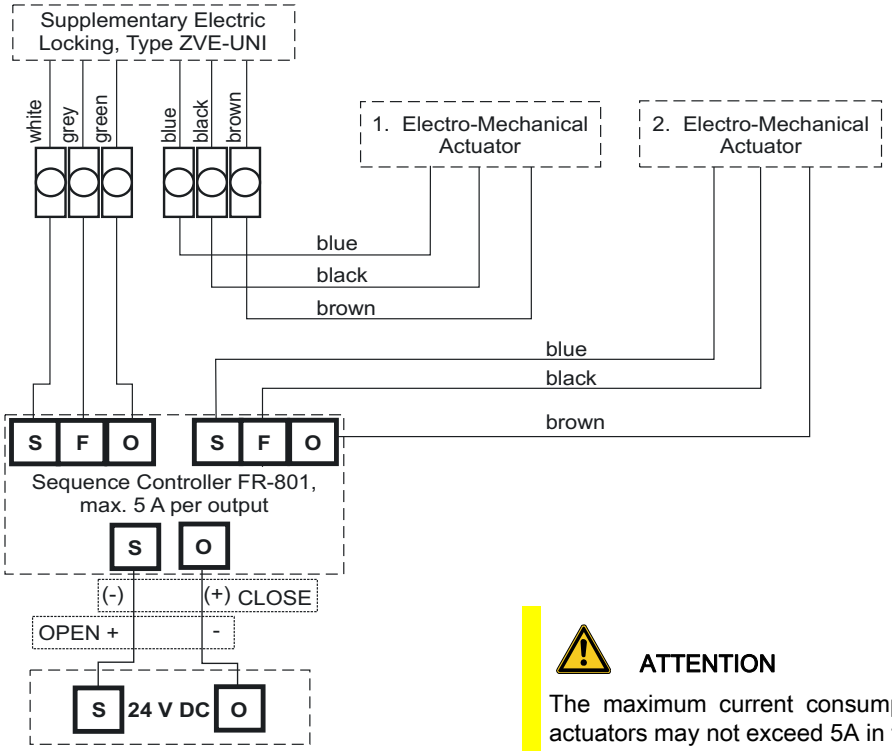
The maximum current consumption of all connected actuators may not exceed 5 A in total.

Mounting

5.4.7 One locking mechanism with a work-sequence controller and two actuators (e. g. for secondary sashes, max. 5 A)

For more details about which actuators are suitable for combination with the work-sequence controller, please contact our sales department. For description of the FR-801 work-sequence controller please see instructions for item ST4 3520.

- Connect leads according to wiring diagram (the wire colours are only valid for SIMON actuators with factory-fitted connection cables).



ATTENTION

The maximum current consumption of all connected actuators may not exceed 5A in total.

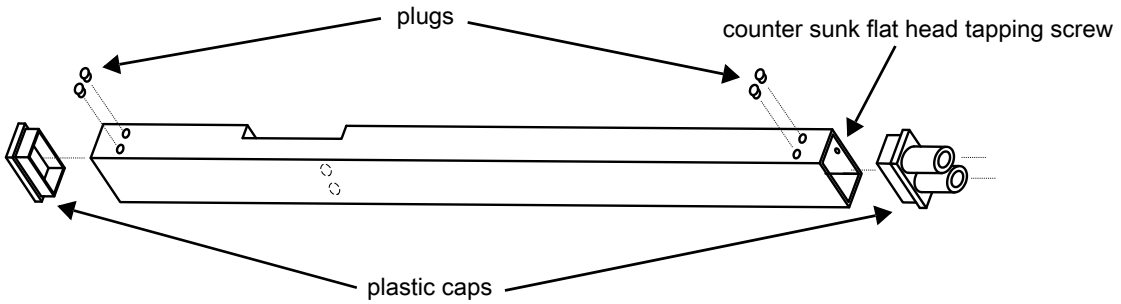
5.5 Lead connection

- Pass leads through the cable opening in the plastic cap.
- Strip 20 mm of lead outer sheath.
- Strip individual wires and attach end sleeves.
- Wiring is carried out using the integrated terminal clamps in the locking mechanism housing.
- Wire the locking mechanism as shown in the circuit diagram. Ensure correct configuration of all terminals. The cable feed-troughs also serve to relieve strain on wires.
- After connecting power leads, interlock terminals and insert into the locking mechanism housing.

Commissioning

- Insert plastic caps into the locking mechanism housing and secure the side of the cable feed-through with a recessed head self tapping screw.
- Insert stoppers into the unused holes for the fixing plate of the locking mechanism fitting.

Figure 17:



6. Commissioning

DANGER

Following the installation it must be checked that the mechanism is correctly adjusted and that the safety system and the manual release, if installed, work correctly.

INFO

The power source must be appropriate for the actuator Both voltage and current must agree with the specifications on the type label. The specified voltage and current must also actually be made available on the connection cable. Voltage drops must be prevented by appropriate dimensioning of the supply cable.
Moreover, the regulations contained in the DIN VDE 0100 and DIN VDE 0298 standards apply.

ATTENTION

Before initial commissioning, the supply cabling must be checked. In particular, the cable cross section must be checked.

- Carry out the commissioning. Carry out a visual and functional check before switching the opening actuator on.
- If everything is in full working order, the actuator can be connected to the final power supply.

DANGER

The testing of plants is to be carried out in accordance with the applicable national regulations (in Germany these include DIN VDE 0100 part 600). To this end, make all necessary preparations: e. g. establish a PE connection to the housing cover.

Note for fitters:

In accordance with Appendix III of the machine directive, the CE marking must be permanently affixed to the product and must be visible and legible.

(See 9.2 “EC manufacturer’s declaration (distributor)” on page 19.)

Care and maintenance

7. Care and maintenance

ATTENTION

The customer is obliged to check the function of the actuator periodically. In case of any defects please inform the installer at once. Please change defect parts immediately with original spare parts. The opening actuator may be opened exclusively by the manufacturer.

DANGER

Smoke and heat exhaust vent systems serve the protection of human lives and must therefore be maintained regularly – at least once a year – by a specialised company authorised by the manufacturer. The maintenance work carried out is to be documented.

The maintenance must be performed according to a checklist to be procured from the manufacturer.

7.1 Enviromental note

ENVIRONMENTAL NOTE

The opening actuators are recyclable and must not be disposed of in the residual waste. According to the disposal law “ElektroG”, this device must be disposed properly at the end of its life time. Please contact your waste disposal company if you have any questions.

7.2 Repair and replacement

DANGER

The opening actuator must not be used if repair or adjustment work needs to be carried out. The system must be disconnected on all poles from the mains and emergency current supplies before performing cleaning or other maintenance work.

The opening actuator may be repaired only by the manufacturer. The opening actuator must be replaced in the case of a fault of defect.

7.3 Guarantee conditions

The product must be used as normally intended. The product is subject to natural wear and tear. In case of material defect claims, these shall be asserted in writing, stating the source of supply of the device. The following applies with respect to the guarantee: “General conditions for the supply of products and services of the electrical and electronics industry (“Green delivery terms” – GL)”. These can be found at our homepage **www.simon-rwa.de**. We would be happy to send you a copy upon request.

Troubleshooting

8. Troubleshooting

Table 9: Overview of faults

Malfunction	Possible causes	Failure correction
The locking mechanism is not working.	- Missing power supply actuation, or SHEV mainboard - Connection cable defective - Wind/rain detector has tripped.	- Check the fuse and the supply cable - Check the connection cable - No fault, if necessary detach WTS to locate error.
Incorrect travel direction of locking mechanism	- Connecting terminals “+ / -” changed S = white; O = green	- Reverse polarity of connection terminals “S” and “O”

9. Appendix

9.1 Manufacturer's declaration

CE

We hereby declare the conformity of the product with the applicable guidelines. The declaration of conformity can be viewed in the company and will be delivered upon request. This declaration certifies conformity with the directives mentioned, but gives no guarantee of characteristics. This declaration becomes invalid following a change that has been made without our consent.

9.2 EC manufacturer's declaration (distributor)

The installer is responsible for the proper mounting or commissioning and the preparation of the declaration of conformity in accordance with the EU directives.

INFO

The installer is responsible for affixing the CE marking. The CE-marking is to be affixed in a visible place!

9.3 Company adresses

9.3.1 Germany

Simon RWA® Systeme GmbH
Medienstr. 8
D – 94036 Passau
Tel: +49 (0)851 98870 - 0
Fax: +49 (0)851 98870-70
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9.3.2 Switzerland

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Fax: +41 (0)44 956 50 40
E-mail: info@simon-rwa.ch
Internet: www.simon-rwa.ch

9.3.3 Hungary

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Fax: +36 (0)44 822 12 03
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Operating Manual

Supplementary Electric Locking
ZVE-UNI – B5 6101

SIMON RWA®
Begeisterung trifft Technik

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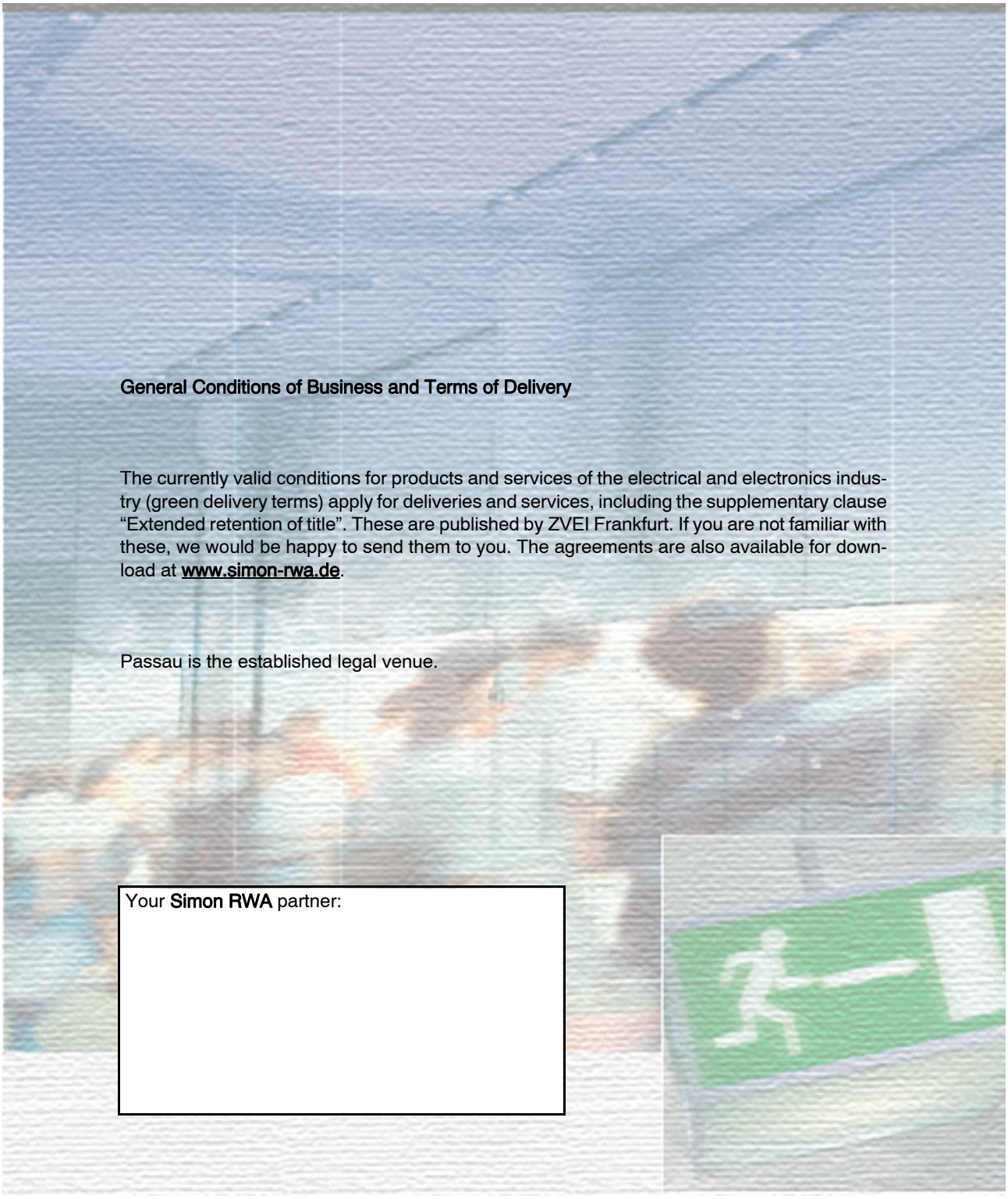

General Conditions of Business and Terms of Delivery

The currently valid conditions for products and services of the electrical and electronics industry (green delivery terms) apply for deliveries and services, including the supplementary clause “Extended retention of title”. These are published by ZVEI Frankfurt. If you are not familiar with these, we would be happy to send them to you. The agreements are also available for download at **www.simon-rwa.de**.

Passau is the established legal venue.

Your **Simon RWA** partner:

www.simon-rwa.de
info@simon-rwa.de