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Roller shutter drive VariEco L RH

1 Operating and assembly instructions

Follow these instructions for safe and proper use. Observe all assembly instructions since incorrect assembly can lead to serious injuries. Keep the instructions for future reference.

The German operating instructions are the original version.

All documents in other languages are translations of the original version.

All rights reserved in the case of patent, utility model or design registrations.

2 General information on these instructions

The content structure is based on the life cycles of the electric motor drive (hereinafter referred to as "the product").

The manufacturer reserves the right to make changes to the technical data in these operating instructions. In some cases, this technical data may differ from those of the respective product version; however, the functional information will not undergo significant changes or become invalid. The current version of the technical specifications may be requested from the manufacturer at any time. No claims may be asserted against the manufacturer as a result of this provision. Deviations from textual or visual statements may occur depending on the product's technical development, features and accessories. Deviating information for special versions will be provided by the manufacturer in the sales documentation. Other information shall remain unaffected by these provisions.

2.1 Standards and guidelines

During construction, the fundamental health and safety requirements were applied and provision was made for the appropriate legislation, standards, directives and guidelines. The safety of the product is confirmed by the declaration of conformity (see EC Declaration of Conformity). All information relating to safety in these operating instructions refers to the laws and regulations that are currently valid in Germany. All information in these operating instructions must be complied with at all times and without limitation. In addition to the safety notes in these operating instructions, the regulations on accident prevention, environmental protection and occupational health and safety applicable at the location of use must be observed and adhered to. The regulations and standards for safety assessment can be found in the EC Declaration of Conformity.

2.2 Intended use

The product is intended for use in facade constructions as a drive for electrically powered sun protection fittings.

The **elero** drive calculation program
<http://elero.de/drive-calculation/>
is vital for defining the drive.

Other applications must be agreed upon in advance with the manufacturer, **elero** GmbH Antriebstechnik (see "Address").

The plant operator shall be solely responsible for any damages arising from the improper use of this product. The manufacturer cannot be held liable for personal or material damages caused by misuse or procedural errors, nor by improper operation or commissioning.

The product may only be operated by instructed and authorised specialist personnel while observing all safety notes.

The safe and error-free use and operational reliability of the product are only guaranteed when it is used properly according to the specifications contained in these operating and assembly instructions.

Use according to its intended purpose includes the observation and compliance of all safety instructions contained in these operating instructions as well as all valid trade Accident Insurance regulations and valid laws on environmental protection. Use according to its intended purpose also includes the compliance with all prescribed operating regulations in these operating and assembly instructions.

2.3 Foreseeable misuse

Any use that deviates from the intended use as stated by the manufacturer, **elero** GmbH Antriebstechnik (see "Address") is deemed as foreseeable misuse.

2.4 Warranty and liability

The General Terms and Conditions of the manufacturer, **elero** GmbH Antriebstechnik, apply at all times (see "Address"). The conditions of sale and delivery are included in the sales documents and shall be presented to the plant operator upon delivery. Any liability claims for personal or material damages are excluded when they can be attributed to one or more of the following causes:

- Opening the product by the customer
- Improper use of the product
- Improper installation, commissioning or operation of the product
- Structural modifications to the product without the written consent of the manufacturer
- Operation of the product with improperly installed connections, defective safety devices or improperly installed safeguards
- Failure to observe the safety regulations and information presented in these operating instructions
- Failure to observe the specified technical data

2.5 Customer service provided by the manufacturer

In the event of a fault, the product may only be repaired by the manufacturer. The address for sending the product to Customer Service can be found in the Section "Address". If you did not purchase the product directly from **elero**, please contact the supplier of the product.

3 Safety

3.1 General safety instructions

General safety instructions for use of tubular drives can be found in the "Safety instructions" leaflet supplied with each drive (article number 138200001). These operating instructions contain all the safety information that must be observed in order to avoid and prevent danger when working with the product in the individual life cycles. When all specified safety instructions are complied with, safe operation of the device is guaranteed.

3.2 Layout of safety instructions

The safety instructions in this document are marked using hazard and safety symbols and are designed according to the SAFE principle. They contain information on the type and source of the danger, possible consequences and on avoiding danger.

The following table defines the representation and description of hazard levels with possible physical damage as used in these operating instructions.




Symbol	Signal word	Meaning
	DANGER	Warns about an accident that will occur if the instructions are not followed, which can lead to fatal, irreversible injuries or death.
	WARNING	Warns about an accident that may occur if the instructions are not followed, which can lead to serious, possibly fatal, irreversible injuries or death.
	CAUTION	Warns about an accident that can occur if the instructions are not followed, which can lead to slight, reversible injuries.

Fig. 1 Notation for personal injuries

The table below describes the pictograms used in these operating instructions to illustrate the hazard situation in relation with the symbol for the hazard level.



Symbol	Meaning
	Danger caused by electrical voltage, electric shock: This symbol indicates dangers due to electric current.

Fig. 2 Notation for specific danger

The table below defines the representation and description of situations used in these operating instructions for situations in which damage can occur to the product or indicates important facts, conditions, tips and information.

Symbol	Signal word	Meaning
	ATTENTION	This symbol warns against possible damage to property or equipment.



Symbol	Signal word	Meaning
	IMPORTANT	This symbol indicates important facts and states as well as referring to further information in these operating and assembly instructions. It also refers to certain additional instructions, which provide additional information or help you to carry out a procedure more simply.
		Protection class I symbol

Fig. 3 Notation for damage to property and additional information

The following example illustrates the basic structure of a safety note:

SIGNAL WORD

Type and source of danger

Explanation of type and source of danger

- Measures to avoid the danger

4 Product description

The VariEco L RH mm is an electromechanical tubular motor drive. During operation it executes radial movements.

- ☐ Limit stop: Mechanical

Limit stop travel VariEco L RH	
Upper end position	Lower end position
Freely adjustable	Freely adjustable

- ☐ Power supply: 230 V ~
- ☐ Shaft size from Ø 63 mm
- ☐ Plug-in connection cable

4.1 Product contents

Drive with safety instructions and operating instructions and connecting cable

4.2 Accessories

Adapter sets, motor bearings, square bolt (233751501), elero ProLine control units; see also elero product catalogue

5 Assembly

WARNING

Important safety instructions

Observe all assembly instructions. Incorrect assembly can lead to serious injuries.

- Only connect the drive with the power turned off.
- Only insert the drive's plug with the power turned off.
- The drive is only capable of operation while installed.
- Never adjust the end position to a mechanical stop.
- Do not drill holes in the area of the tubular drive.

- Before installation, all electrical cables and components that are not required and all facilities that are not needed for operation with a power drive are to be disabled.
- The required components are: drive, plug-in connection cables, motor bearings, adapter set, if necessary rigid shaft connectors, control device.
- If components are not delivered with the drive, these can be identified via our catalogue "Drives and control units for intelligent building technology" in the relevant valid version. Further details can be found on our website under "Contact - dealer search" and "Contact - contact persons for specialist companies".
- The rated torque and rated operating time must be suitable for the properties of the driven part (the blind).
- The coupling of the drive with the powered part is described in the section "Mechanical fastening".

CAUTION

Risk of injuries due to hot surfaces.

The drive will heat up during operation, the drive casing can become hot. Skin burns are possible.

- Wear personal protection equipment (protective gloves).

WARNING

Risk of injury due to electric current.



Risk of electric shock.

- Always have electrical work carried out by an authorised electrician.

Risk of injury due to electric current.



Possible danger due to parts that are faulty becoming energised.

- Electrical connection is described in the operating and assembly instructions, including cable routing.

CAUTION

Risk of injury due to malfunctions as a result of incorrect assembly.

Drive is overwound and may destroy parts of the application.

- For safe operation, the end positions need to be set correctly.

Risk of injury due to knocks or impact triggered by motor bearings that are incorrectly mounted or engaged. Hazard due to insufficient stability or steadiness and accumulated energy (gravity).

- Selection of motor bearing by torque specifications.
- The drive must be protected with all the enclosed safety devices.
- Check for correct engagement on motor bearing and the correct screw tightening torques.

ATTENTION



Power failures, breaking of machine parts and other malfunctions.

- For safe operation, assembly must be correct and the end position adjustments will have to be carried out upon commissioning.



Damage to the VariEco L drive due to ingress of moisture.

- On devices with protection class IP 44, the ends of all cables or plugs will need to be protected from ingress of moisture. These measures need to be implemented immediately after removing the VariEasy SH drive from the original packaging.

- The drive must be installed so that it cannot get wet.

Damage to the blind due to incorrect assembly.

- Pay attention to the notes in the manufacturer's instructions for blinds and systems.

Important

For optimum coordination of drive and blind after assembly of the VariEco L RH, adjust the end positions on the drive.

5.1 Mechanical fastening

Important preliminary consideration:

The working area around the installed drive is usually very small. For this reason, obtain an overview of how the electrical connection has been implemented prior to the mechanical installation (see section 5.2) and make the necessary changes beforehand.

ATTENTION



Crushing or tension will damage the electrical cables.

- Install all electrical cabling so that it is not subject to any crushing or tensile load
- Observe the bending radii of cables (at minimum 50 mm).
- Route connecting cables in a downward loop to prevent water running into the drive.



Damage to the drive due to the effect of impact forces.

- Slide the drive into the shaft. Never knock the drive in or use force!
- Take care not to drop the drive!



Damage or destruction to the drive by drilling.

- Never drill the drive!

Important



Only secure the VariEco L RH drive using the fastening elements provided for this purpose.

Fixed installed control devices need to be attached so they are visible.

- The blind must be attached to the winding shaft.
- The profile tube must have sufficient clearance from the motor tube.
- Make sure there is sufficient axial play (1 - 2 mm)

Installation in profile tubes

- Push drive with the suitable drive adapter and limit switch crown into the profile tube. Install the shaft with drive and counterpart support so that the limit switch setting mechanism is accessible.
- Secure the counterpart support to prevent axial movement (screw on the idler or rivet it on).
- Establish the electrical connection (see 5.2)
- Allow the drive to run in DOWN/CLOSED direction until the limit switch cuts out.
- Attach the blind to the shaft.

Installation in round tubes

- On the round tube, cut a slot in the end of the tube on the drive side.
- Push the drive in so that the lug of the drive engages in the slot.
- Screw in the drive adapter or rivet it.
- Establish the electrical connection (see 5.2)
- Allow the drive to run in DOWN/CLOSED direction until the limit switch cuts out.
- Attach the blind to the shaft.

The drive is fastened on the wall anchor and the blind mounted on the shaft using the suitable motor bearings and adapter components according to building requirements and, depending on the type of blind, with suitable connection elements, also provided by the system supplier.

Only operate the drive horizontally as intended.

5.2 Electrical connection



WARNING

Faulty electrical connections constitute a fatal hazard.



Risk of electric shock.

- Prior to initial commissioning, check the PE wire is correctly connected.

ATTENTION



Damage to the VariEco L RH due to incorrect electrical connection.

- Prior to initial commissioning, check the PE wire is correctly connected.



Damage to or destruction of the VariEco L RH due to ingress of moisture.

- For devices with protection class IP 44, the customer-side connection of the cable ends or plugs (cable feed-through) can also be implemented according to protection class IP 44.



Damage or destruction of the VariEco L RH for variants with 230 V 1 AC due to incorrect activation.

Switches with an OFF presetting (dead-man's switches) for drives are to be attached within visible range of the VariEco L RH but away from spontaneously moving parts and at a height of more than 1.5 m.

Important

There is generally no need to plug the connecting cable and plug in and out again for the electrical connection.

Connect only in de-energised state. To do this, switch the drive cable so it is de-energised.

- 1 Press locking mechanism on the motor cable plug towards the cable using a suitable screwdriver.
- 2 Pull out the plug.
- 3 Insert the motor cable plug until the lock engages.

5.3 Connection example VariEco L RH 230 V / 50 Hz

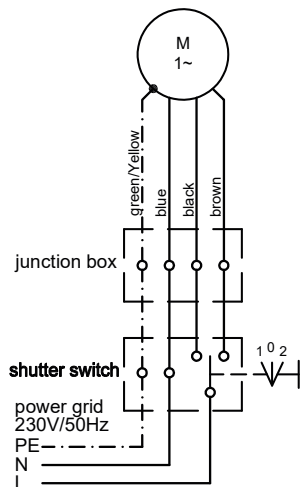


Fig. 4 Diagram VariEco L RH 230 V / 50 Hz

Check for functioning: If necessary, change or swap the assignment of the direction buttons for the operating switch/push button.

Important



The motor controls in up/down direction must be locked against each other.

The motor controls in the OPEN and DOWN/CLOSE travel directions must be locked against each other. A reversing delay of at least 0.5 seconds must be ensured.

Due to reverse voltage from the installed capacitor, never connect several drives in parallel.

5.4 Adjustment of the end positions

8 turns of one of the two limit switch setting screws corresponds to 1 turn of the winding shaft.

Turning the limit switch position setting screw from negative to positive causes the travel path of the blind to increase [positive (+) = greater travel path of blind].

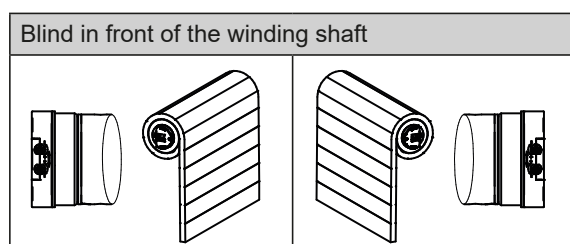
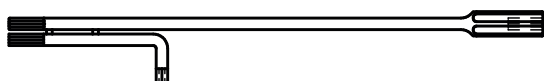
Important



The two interior limit switch setting screws for the upper and lower end positions are assigned based on the parallel position of the rotating crown to the limit switch with the printed running direction arrow.

Before readjusting an end position, move the blind out of the correct position with [OPEN ▲] and [DOWN/CLOSE ▼].

For activation of the limit switch setting screws, use the setting tool (Item No. 131096401) or a hexagon socket tool. Never use an electric screwdriver!



Blind in front of the winding shaft

Top end position: white setting screw	Top end position: orange setting screw
Bottom end position: orange setting screw	Bottom end position: white setting screw

Blind behind the winding shaft

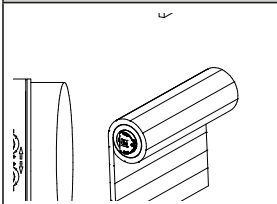
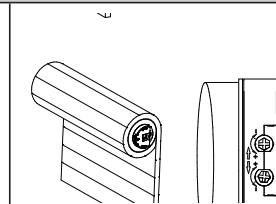
	
Top end position: orange setting screw	Top end position: white setting screw
Bottom end position: white setting screw	Bottom end position: orange setting screw

Fig. 5 Adjustment of the end positions

5.4.1 Upper end position

- ▶ Allow the drive (without blind) to run fully in DOWN/ CLOSED direction.
- ▶ Attach the rolled-down blind to the shaft.
- ▶ Push the [UP ▲] button and keep it held down.
- ▶ If the drive switches off before it reaches the desired end position, turn the corresponding interior limit switch adjustment for the upper end position towards positive [+] until the desired blind position has been reached.
- ▶ If the drive does not switch off automatically when the desired end position has been reached, release the UP button. Run the blind a short distance in the other direction. Turn the interior end switch adjustment screw for the upper end position in the negative [-] direction and move back to the end position. Repeat this process until the desired end position has been reached.

5.4.2 Lower end position

- ▶ Push the [DOWN/CLOSE ▼] button and keep it held down.
- ▶ If the drive switches off before it reaches the desired end position, turn the corresponding interior limit switch adjustment for the lower end position towards positive [+] until the desired blind position has been reached.
- ▶ If the drive does not switch off automatically when the desired end position has been reached, release the DOWN/CLOSE button. Run the blind a short distance in the other direction. Turn the interior end switch adjustment screw for the lower end position in the negative [-] direction and move back to the end position. Repeat this process until the desired end position has been reached.

5.4.3 Checking the end positions

Allow the drive to run into the relevant end position until the limit switch cuts out. The electric cut-out must take place before the blind has reached the end position of its mechanical travel path.

If the blind is constantly operated as far as its end position, there is a risk of damage to the drive and/or blind or even a danger it will be destroyed.

Take into account any possible changes to the length of the blind due to temperature fluctuations or weather influences. Allow for a safety margin.

6 Troubleshooting

Problem / fault	Possible cause	Remedy
<ul style="list-style-type: none"> The drive does not switch off in the end position via the limit switches Drive does not react 	<ul style="list-style-type: none"> The limit switch crown is not being driven 	<ul style="list-style-type: none"> Correct the assembly, and adjust the limit switches via the limit switch setting screws
<ul style="list-style-type: none"> Drive does not react 	<ul style="list-style-type: none"> Incorrect connection 	<ul style="list-style-type: none"> Readjust connection

Fig. 6 Troubleshooting with the VariEco L RH

7 Servicing

The VariEco L RH is maintenance-free.

8 Repairs

Please contact your specialist if you have any questions. Please always provide the following information:

- Item number and designation on the type plate
- Type of fault
- Unusual events preceding fault
- Accompanying conditions
- Your own theories regarding the cause of the problem

9 Manufacturer's address

elero GmbH Antriebstechnik Maybachstr. 30 73278 Schlierbach Germany	Telephone: +49 7021 9539-0 Fax: +49 7025 9539-212 info@elero.de www.elero.com
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Please visit our website if you require a contact partner outside Germany.

10 Disassembly and disposal

After unpacking, dispose of the packaging in accordance with the valid regulations.

Dispose of the product in accordance with the relevant regulations when you no longer need it.

Environmental information

No superfluous packaging materials have been used. The packaging can be easily separated into three material types: cardboard (box), polystyrene (padding) and polyethylene (bag, protective foam).

The device is made of materials that can be reused if dismantled by a specialist company. Please note the local regulations on disposal of packaging materials and old appliances.

On disassembly, additional dangers must be reckoned with, which do not occur during operation.



WARNING

Risk of injury due to electric current.

Risk of electric shock

- ▶ Separate power supply cables physically and discharge any energy accumulators still charged. After switching off the device, wait at least 5 minutes so that the motor can cool down and the voltage can be discharged from the capacitors.
- ▶ During disassembly work above head height, use suitable, inspected and structurally stable climbing aids.
- ▶ Work on the electrics may only be performed by personnel described in the section "Safety notes on electrical installation".

Removal for scrap

The international, national and regional laws and regulations prevailing at the time of scrapping the product must be observed.



Ensure that materials and components are recycled, dismantled and separated properly in addition to observing the environmental and health hazards relating to recycling and disposal.



CAUTION

Environmental damage in case of incorrect disposal

- ▶ Electrical scrap and electronic components must be handled as special waste and may only be disposed of by approved specialist companies.
- ▶ Groups of materials such as various types of plastics and metals must be separated before recycling/disposal.

Disposal of electrical and electronic components

The disposal and recycling of electrical and electronic components must be carried out in accordance with the relevant laws and national regulations.

11 EU Declaration of Conformity

elero hereby declares that this device is in compliance with all applicable regulations of the Machinery Directive 2006/42/EC. The full text of the EU Declaration of Conformity is available at the following Internet address: www.elero.de/downloads-service/





12 Technical data and dimensions

The following variants are available:

- VariEco L RH drive with round head (standard)

The technical data specified is subject to tolerance factors (according to applicable standards) and refer to an ambient temperature of 20° C.

12.1 VariEco L RH

Size / Type	VariEco L40 RH	VariEco L60 RH	VariEco L80 RH	VariEco L100 RH	VariEco L120 RH	VariEco L15/64 RH
Rated voltage [V]	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230
Rated torque [Nm]	40	60	80	100	120	15
Rated speed (1/min)	14	14	14	11	11	644
Rated current [A]	1.45	1.55	1.80	1,70	2,00	1.80
Rated power consumption [W]	333	356	415	390	460	415
Shaft diameter [mm]	63	63	63	63	63	63
Protection class (IP)	44	44	44	44	44	44
Limit switch range (revolutions)	27	27	27	27	27	27
Operating time (min S2)	4	4	4	4	4	4
Length C [mm]	563	563	593	593	593	593
Length D [mm]	546	546	576	576	576	575
Length E [mm]	15	15	15	15	15	15
Length F [mm]	31	31	31	31	31	31
Weight [kg]	4.3	4.3	4.8	4.8	4.8	4.8
Ambient operating temperature [°C]	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Noise emissions level LpA <= 70 dB(A)	•	•	•	•	•	•
Conformity   	- -	- -	- -	- -	- -	- -
Protection class I 	•	•	•	•	•	•
Plug-in connection cable	•	•	•	•	•	•
Item number	36 923.0102	36 933.0102	36 943.0101	36 953.0101	36 963.0101	36 883.0101

