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Awning drive SunTop

1 Operating and assembly instructions

Please keep this operating manual for future reference to ensure that it can be accessed throughout the entire service life of the product!

The German operating manual is 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 in-

formation 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

This product is intended to serve as an electric drive unit for awnings and fabric-based sun protection systems.

The **elero** drive calculation program <http://elero.com/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

These operating and assembly 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.
	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.

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

3.3 Safety principles

This product has been designed in accordance with the latest technological developments and general safety regulations, and is safe to operate. During construction of the product, 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 EC Declaration of Conformity.

All specifications pertaining to safety relate to the currently valid regulations of the European Union. Plant operators in other countries must ensure that the applicable laws and national regulations are adhered to.

In addition to the safety notices and directions in these operating instructions, the generally applicable regulations with regard to accident prevention and environmental protection must be observed and adhered to.

The product must only be used when in perfect working order, for its intended use, and in compliance with the safety instructions outlined in these operating instructions. This product has been designed for use as described in the section "Intended use". Improper use may pose a danger to the life and limb of the user or of third parties, or may cause damage to the product or other property. Accidents or near-accidents occurring during the use of the product that have led to or could have led to personal injuries and/or damage to the work environment must be reported to the manufacturer directly and without delay.

All safety instructions specified in the operating instructions and on the product must be observed. In addition to these safety instructions, the plant operator must ensure that all national and international regulations are complied with, together with any other binding regulations for operational safety, accident prevention and environmental protection in force in the country of use. All work conducted on the product must be carried out by trained and authorised personnel who have received appropriate safety-related instruction.

The qualified person must comply with all valid and applicable standards and legal requirements in the country of installation as well as inform his/her customers regarding the operating and maintenance conditions for this product.

3.4 General duties of the plant operator

- The plant operator is obliged to only operate the product in perfect and safe operational condition. In addition to the safety notices and directions in the operating instructions, the operator must ensure that the general safety and accident prevention regulations, the requirements defined by DIN VDE 0100 and the regulations regarding environmental protection in the country of use are observed and adhered to.
- The plant operator is responsible for ensuring that all work conducted with the product is carried out exclusively by trained and authorised personnel who have received appropriate safety-related instruction.
- The plant operator responsible for the product or the personnel authorised by said operator hold the ultimate responsibility for ensuring accident-free operation.
- The plant operator is responsible for ensuring that the technical specifications are maintained, in particular those concerning static and dynamic loads.
Non-observance of static loads can result in the loss of the support or holding function.
- In line with the intended use, the plant operator must take steps to safeguard a dry environment that is not excessively warm under the influence of radiant heat in relation to the surrounding environment (building). Deviations are to be coordinated with the manufacturer

3.5 Requirements of the personnel

- Each person who is tasked to work with the product is required to have read and understood the operating instructions fully before conducting work. The same applies to those who have already worked with such a product or have received corresponding training.
- Before starting any work activities, the personnel must be familiarised with the dangers associated with the product.
- All personnel tasked to work with the product must be free of physical limitations that temporarily or permanently restrict their attention or judgement (e.g. due to fatigue).
- Minors and persons under the influence of medication, drugs or alcohol are not permitted to handle the product or be involved in its installation, disassembly or cleaning in any way.
- Personnel must wear personal protective equipment that is suitable for the work performed and the prevailing working environment.
- Do not allow children to play with stationary control units; keep children away from remote controls.
- Do not operate the awning(s) if work such as window cleaning is being performed in the vicinity.

3.6 Safety notices and directions relating to the technical condition

- Check the product for any signs of damage and that it is in proper operating condition prior to installation.
- The plant operator is obliged to only operate the product in a perfect and safe operational condition. The technical condition must comply with the legal requirements that were valid and applicable on the date of production as indicated on the type plate.

- ❑ If any risk to persons or operational changes are detected, the product must be taken out of operation immediately and the plant operator informed accordingly.
- ❑ No changes, conversions or attachments may be made to the product without the permission of the manufacturer.
- ❑ The system must be frequently checked for improper balance, signs of wear, and damaged cables and springs (if applicable).

3.7 Safety notices and directions relating to transport, assembly and installation

The respective shipping company is responsible for shipping the product. The following safety requirements must be observed when transporting, assembling and installing the product:

- ❑ The product must be secured in line with the requirements defined for the transport aid during shipment.
- ❑ Only lifting gear and lifting tackle that can comfortably resist the forces encountered during loading, unloading and assembling the product may be used during transport.
- ❑ Only the designated areas indicated on the pallet and the product may be used as attachment and lifting points.
- ❑ During assembly work above head height, use suitable, inspected and structurally stable climbing aids.
- ❑ If work must be performed on raised parts or working equipment, these parts or equipment must be secured against falling down using suitable devices. Tools used to lift loads must prevent the loads from unintentionally shifting, freely falling or inadvertently becoming unhooked.
- ❑ Standing under suspended loads is prohibited.
- ❑ A safety helmet must be worn during loading work with lifting gear.
- ❑ Assembly and installation work may only be performed by trained and instructed specialist personnel.
- ❑ The rated torque and rating operating time must be suitable for the properties of the driven part (the blind).
- ❑ On the SunTop type M, the smallest internal tube diameter of the winding shaft is 47 mm; on the SunTop type L, it is 58 mm.

3.8 Safety instructions relating to operation

- ❑ The plant operator responsible for the product is obligated to ensure that it is in safe and proper condition prior to initial commissioning.
- ❑ Such checks must also be conducted during operation of the product at regular intervals determined by the plant operator.
- ❑ The SunTop produces mechanical noise when it is operated. The A-rated emission sound pressure level does not exceed 70 dB(A).

3.9 Safety notices and directions relating to the electrical installation

- ❑ All work on the electrical equipment of the system may only be carried out by authorised electricians according to the applicable rules and regulations of the trade association, in particular the requirements laid out in DIN VDE 0100. Furthermore, the national legal regulations applicable in the respective country of use must be observed.
- ❑ In the event of any defects such as loose connections or defective or damaged cables to the system, the product must not be put into operation.

- ❑ Prior to inspection, assembly and disassembly work, the system (awning, roller blind) must be switched to a de-energised state.
- ❑ All electrical connections, safety devices, fuses, etc. must be properly installed, connected and earthed.
- ❑ The power supply provided must be in accordance with the electric circuit diagram (voltage type, voltage level).
- ❑ A miniature circuit breaker (MCB) is sufficient to isolate the system from the power supply (if only one phase and neutral is used).
- ❑ If a stationary (permanently installed) drive is not equipped with a power cable with a plug or another means of disconnecting it from the mains that has a contact opening width at each pole according to the conditions of overvoltage category III (pursuant to IEC 60664-1) for full disconnection, such a disconnection device, must be built into the fixed electrical installation in accordance with facility requirements.
- ❑ The mains connection cable for drives with a rubber-sheathed cable (abbreviation 60245 IEC 53) can only be replaced with the same cable type.
- ❑ The following applies to drives that allow physical access to unprotected moving parts after installation: Moving parts of the drive must be fitted more than 2.5 m over the ground (or another level that offers access to the drive).

4 Product description

The SunTop is an electronic tubular motor drive for window awnings and fabric-based sun protection. During operation it executes radial movements.

- ❑ Commissioning the SunTop with **elero** assembly cable for adjusting the end positions and relief
- ❑ Blocking recognition (torque limiting)
- ❑ Parallel switching
- The values for your SunTop that are dependent on the version can be found on the type plate.
- The different versions of the SunTop are fitted with different types of braking systems, depending on the rated torque and size. This, in turn, can lead to different operating behaviour, e.g. with respect to approaching an end position.

4.1 Product contents

Drive with safety instructions and operating instructions and any additional components and accessories according to the order confirmation or delivery note.

4.2 Accessories

Connection and assembly cables, adapter sets, motor bearings, ProLine control units, sensors, radio receivers, bearing plates, shaft bearings.

5 Assembly



WARNING

Risk of injury due to incorrect assembly

Important safety instructions

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



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).
- ▶ The duty cycles and rest periods for the drives must be observed.

Triggered by a possible material fault, knocks or impact injuries may arise due to a gear fracture, burring fracture or a coupling defect.

- ▶ Suitable materials have been used for the engineering design and random sample testing by means of a double load test has been performed in accordance with DIN EN 60335-2-97.

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.

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 must be set/taught in.
- ▶ Manufacturer training is available for specialist companies.

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 SunTop due to ingress of moisture.

- ▶ On devices with protection class IP44, the ends of all cables or plugs will need to be protected from ingress of moisture. This measure needs to be implemented immediately after removing the SunTop from the original packaging.
- ▶ The drive must be installed so that it cannot get wet.

Damage to the blind due to incorrect assembly.

- ▶ Observe the notes in the manufacturer's documentation for blinds and fitted accessories.

Important



In its delivery condition (factory setting), the SunTop will be in commissioning mode.

- ▶ The end positions will need to be set (see section 5.6).

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.



CAUTION

Risk of injury through crushing.

- ▶ A minimum horizontal gap of 0.40 m between the fully unrolled part (bottom rail) and any fixed object must be maintained.

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 fasten the SunTop to the designated fastening elements.

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

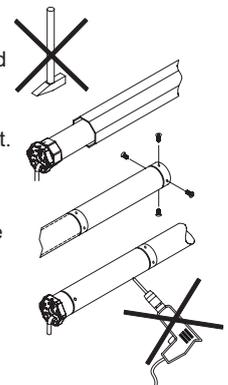
- The blind (awning fabric) must be attached to the winding shaft.
- The profile tube must have sufficient clearance from the motor tube.
- Make sure there is sufficient axial play (1 - 2 mm)

Installation in profile tubes

Ⓐ Push drive with relevant adapter and crown into the profile tube. Install the motor cable so it is protected to prevent damage from the driven part.

Ⓑ Secure the counterpart support to prevent axial movement, e.g. screw or rivet on the idler. Secure the drive axially in the support!

Ⓒ Attach the blind to the shaft.



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 SunTop due to incorrect electrical connection.

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



Ingress of moisture will damage or even destroy the SunTop.

- For devices with protection class IP44, the customer-side connection of the cable ends or plugs (cable feed-through) can also be implemented according to protection class IP44.



Damage or destruction of the SunTop 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 SunTop but away from spontaneously moving parts and at a height of more than 1.5 m.

Damage to the blind due to incorrect travel direction.

- The assignment of the UP/DOWN travel direction must be checked after the electrical connection has been established.



Misalignment of the end positions on the drive.

- Misalignment of the end positions is indicative of a faulty electrical connection. Readjusting the end positions is not sufficient in this scenario as the end positions will simply become misaligned again. The drive must then be replaced and the cause of the problem rectified.

Important

All applicable standards and regulations must be observed during the electrical installation.

If the drive is connected to a control unit, the operating instructions for the control unit must be observed.

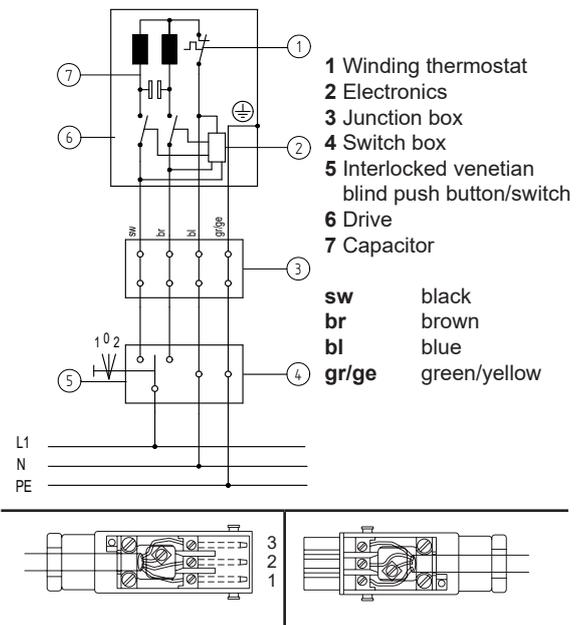
There is generally no need to plug the connecting cable and plug in and out again for the electrical connection.

Depending on the mounting or adapter plate used, the plate will need to be removed prior to cable replacement. This applies in particular to the SunTop type S.

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 screwdriver.
- 2 Pull out the plug.
- 3 Insert the motor cable plug until the lock engages.

5.3 Connection example SunTop 230 V/50 Hz



Illustration, left: Plug connection (drive side)
Illustration, right: Coupling connection (mains supply)
1 blue (neutral conductor)
2 black
3 brown
Green-yellow

Fig. 4 Connection diagram SunTop 230 V/50 Hz and cable assignment when using Hirschmann plug connection STAS-3



Important

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

5.4 Parallel circuit



Important

You can connect several SunTop drives in parallel. Please note the maximum switching capacity of the control unit.

5.5 Commissioning



Important

The drive is in commissioning mode when delivered.

- The end positions must be adjusted using the **elero** assembly cable
- The assembly cable may only be connected to commission the drive and for adjustment operations

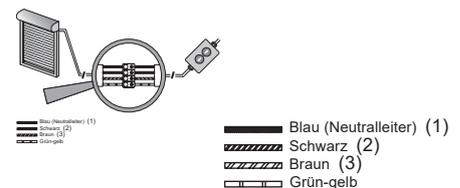


Fig. 5 Connection for assembly cable

- Switch on mains.
- You can now set the end positions with the **elero** assembly cable.

5.6 Setting of end positions and strain relief

Important preliminary consideration:

The relief for an end position produces a low material load on the drive and blind. It counteracts the tensile forces acting on the blind at the upper end position and the compressive forces acting on the lower end position by momentarily changing the travel direction.

Decide on a specific relief function before setting the end position (different combination options as per the following designs):

This will save you unnecessary configuration outlay!

With the assembly cable connected, press one of the travel keys until the drive signals the transition to programming mode by a short, automatic stop. You can now program the end positions. The setting mode is finished after both end positions have been set.

5.6.1 Relief function for end position(s)

If an end position was taught in at a limit stop, a relief can also be enabled for the blind.

Important



The relief function (for variants B to D) is activated in one step when programming the end positions (see chapters 5.6.7 to 5.6.9)!

5.6.2 Relief function at upper end position

For variant B (see chapter 5.6.7) and variant C (see chapter 5.6.8): Activate relief function at upper end position	
1	Use the assembly cable while holding down the UP button ▲ from instruction ① (chapters 5.6.7 and 5.6.8) to also press the DOWN button ▼ (simultaneously), and hold down both buttons until the blind stops.
The relief function at the upper end position is activated.	

5.6.3 Relief function at lower end position

For variant C (see chapter 5.6.8) and variant D (see chapter 5.6.9): Activate relief function at lower end position	
1	Use the assembly cable while holding down the DOWN button ▼ from instruction ③ (chapters 5.6.8 and 5.6.9) to also press the UP button ▲ (simultaneously), and hold down both buttons until the blind stops.
The relief function at the lower end position is activated.	

5.6.4 Changing/deleting the end positions and deleting the relief function

It is not possible to change or delete individual end positions. This is always done in pairs (upper and lower end position simultaneously).

When the end positions are deleted, the setting for the optional relief function will also be discarded.

Important



The blind protection system is only adapted to the blind after a complete, uninterrupted upwards and downwards travel.

Changing/deleting the end positions	
1	Starting from a central position of the blind, use the assembly cable to simultaneously press both direction buttons (▲ and ▼), and hold them down until the drive briefly moves up and down.
The end position settings have been deleted. The end positions may be readjusted.	

5.6.5 Four variants of end position settings

Four combinations of end position settings can be chosen.

End position settings (4 variants)	
A	Upper and lower end position freely adjustable
B	Fixed upper end position, lower end position freely adjustable
C	Fixed upper and lower end position
D	Upper end position freely adjustable, fixed lower end position

Fig. 6 End position setting variants for the SunTop

5.6.6 Variant A: Upper and lower end position freely adjustable

Variant A: Upper and lower end position freely adjustable	
①	Starting from a central position of the blind, press the UP button ▲ with the assembly cable until the blind has reached the desired upper end position. The drive begins to travel, briefly stops and travels further (for as long as the UP button ▲ remains pressed). Corrections are possible using the ▲ and ▼ buttons.
②	Press the DOWN button ▼ until the drive stops automatically. The upper end position has been set.
③	Press the DOWN button ▼ again until the blind has reached the desired lower end position. The drive begins to travel, briefly stops and travels further (for as long as the DOWN button ▼ remains pressed). Corrections are possible using the ▲ and ▼ buttons.
④	Press the UP button ▲ until the drive stops automatically. The lower end position has been set.
Adjustment of the variant A end position is complete.	

Fig. 7 End position setting, variant A:

5.6.7 Variant B: Fixed upper end position, lower end position freely adjustable

Variant B: Fixed upper end position, lower end position freely adjustable

- ① Starting from a central position of the blind, press the **UP** button ▲ with the assembly cable until the blind has reached the upper end position (travel to upper end position).
The drive begins to travel, briefly stops and travels further (for as long as the UP button ▲ is pressed). The drive switches off automatically when the upper limit stop is reached.
- ② Press the **DOWN** button ▼ until the drive stops automatically.
The upper end position has been set.
Optional: Activate the relief function for the upper end position: See chapter 5.6.2
- ③ Press the **DOWN** button ▼ again until the blind has reached the desired lower end position.
The drive begins to travel, briefly stops and travels further (for as long as the button remains pressed).
Corrections are possible using the ▲ and ▼ buttons.
- ④ Press the **UP** button ▲ until the drive stops automatically.

Adjustment of the variant B end position is complete.

Fig. 8 End position setting, variant B:

5.6.8 Variant C: Fixed upper and lower end position

Variant C: Fixed upper and lower end position

- ① Starting from a central position of the blind, press the **UP** button ▲ with the assembly cable until the blind has reached the upper end position (travel to upper end position).
The drive begins to travel, briefly stops and travels further (for as long as the UP button ▲ remains pressed).
The drive switches off automatically when the upper limit stop is reached.
- ② Press the **DOWN** button ▼ until the drive stops automatically.
The upper end position has been set.
Optional: Activate the relief function for the upper end position: See chapter 5.6.2
- ③ Press the **DOWN** button ▼ again until the blind has reached the lower end position (travels to the lower stop).
The drive begins to travel, briefly stops and travels further (for as long as the DOWN button ▲ remains pressed).
The drive switches off automatically when the lower limit stop is reached.

Variant C: Fixed upper and lower end position

- ④ Press the **UP** button ▲ until the drive stops automatically.
The lower end position has been set.
Optional: Activate the relief function for the lower end position: See chapter 5.6.3

Adjustment of the variant C end position is complete.

Fig. 9 End position setting, variant C:

5.6.9 Variant D: Upper end position freely adjustable, fixed lower end position

Variant D: Upper end position freely adjustable, fixed lower end position

- ① Starting from a central position of the blind, press the **UP** button ▲ with the assembly cable until the blind has reached the desired upper end position.
The drive begins to travel, briefly stops and travels further (for as long as the button remains pressed).
Corrections are possible using the ▲ and ▼ buttons.
- ② Press the **DOWN** button ▼ until the drive stops automatically.
The upper end position has been set.
- ③ Press the **DOWN** button ▼ again until the blind has reached the lower end position (travels to the lower stop).
The drive begins to travel, briefly stops and travels further (for as long as the DOWN button ▲ remains pressed).
The drive switches off automatically when the lower limit stop is reached.
- ④ Press the **UP** button ▲ until the drive stops automatically.
The lower end position has been set.
Optional: Activate the relief function for the lower end position: See chapter 5.6.3

Adjustment of the variant D end position is complete.

Fig. 10 End position setting, variant D:

6 Troubleshooting

Problem / Error	Possible cause	Remedial action
• Drive stops during travel	• End positions are not set • Drive is in setting mode	• Setting end positions
• Drive stops after short time	• End position programmed • Blind difficult to move	• Set second end position • Check the smooth running of the blind
• Drive runs only in one direction	• Faulty connection	• Check connection
• Drive does not react	• No power supply • Temperature limiter has triggered	• Check mains voltage • Allow drive to cool down

Problem / Error	Possible cause	Remedial action
<ul style="list-style-type: none"> • Drive does not accept programmed end positions 	<ul style="list-style-type: none"> • Random travel • Travel to end position or limit stop too short 	<ul style="list-style-type: none"> • Delete end positions, re-program end positions • Drive must move, stop briefly and continue its travel (as long as a button on the assembly cable is pressed).

Fig. 11 Troubleshooting for the SunTop

7 Servicing

The SunTop is maintenance-free.

8 Cleaning



WARNING



Risk of injury due to electric current.

Risk of electric shock.

- ▶ Potential hazard due to live parts.
- ▶ Clean only in de-energised state. To do this, switch the drive cable so it is de-energised.
- ▶ Only clean the surface of the product with a clean, soft, dry cloth.

9 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

10 Manufacturer's address

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

11 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. Disposal is partially subject to applicable legal regulations. Bring the product to be disposed of to authorised collection points only.

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.

12 Notes on EC Declaration of Conformity

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

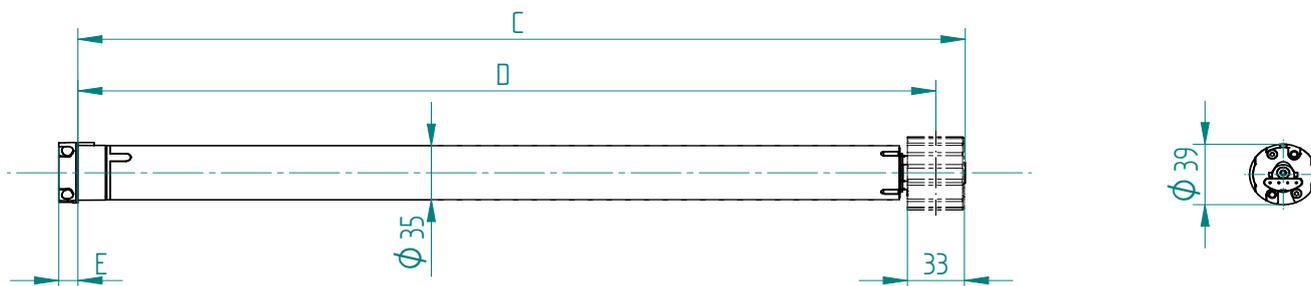
www.elero.com/downloads-service/.

13 Technical data and dimensions

The technical data specified is subject to tolerance factors (according to applicable standards).

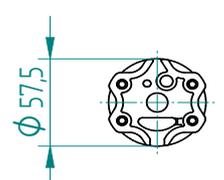
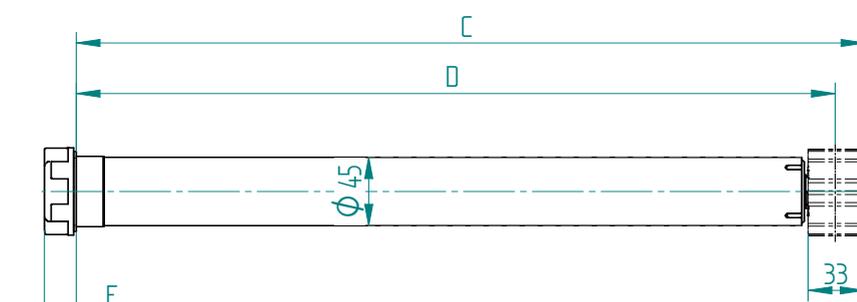
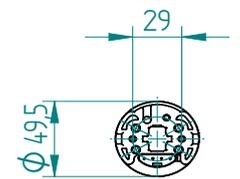
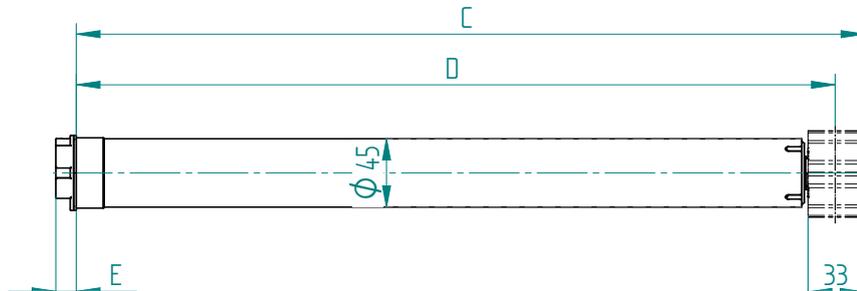
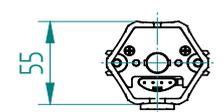
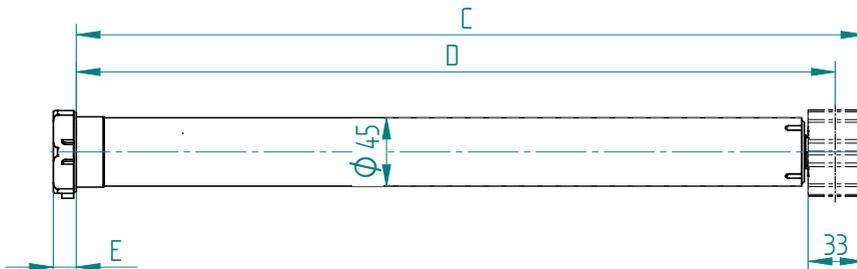
13.1 SunTop S

Size/type	SunTop S5/30	SunTop S7/30
Rated voltage (V)	1 ~ 230	1 ~ 230
Rated frequency (Hz)	50	50
Noiseless soft brake	•	-
High-speed version	•	•
Rated torque (Nm)	5	7
Rated speed (rpm)	30	30
Rated current (A)	0.73	0.73
Rated power consumption (W)	168	168
Shaft diameter (mm)	38	38
Protection class (IP)	44	44
Limit switch range (revolutions)	80	40
Operating time (min. S2)	4	4
Length C (mm)	534	534
Length D (mm)	517	517
Length E (mm)	11	11
Weight (kg)	1.2	1.3
Thermal operating condition (°C)	-20 ... 60	-20 ... 60
Conformity 	• •	• •
Noise emissions level (dBA)	< 70	< 70
Protection class I 	•	•
Plug-in connecting cable (m)	2.0	2.0
Item number	30 731.0001	30 751.0001
Colour of motor head	white	black



13.2 SunTop M

Size/type	SunTop M7/23	SunTop M10	SunTop M12/23	SunTop M20	SunTop M30	SunTop M40	SunTop M50
Rated voltage (V)	230 ... 240 ~	230 ... 240 ~	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230	1 ~ 230
Rated frequency (Hz)	50	50	50	50	50	50	50
Noiseless soft brake	•	•	•	•	•	•	•
High-speed version	•	•	•	•	-	-	-
Rated torque (Nm)	7	10	12	20	30	40	50
Rated speed (rpm)	23	14	23	14	14	14	14
Rated current (A)	0.6	0.6	0.9	0.9	0.9	1.2	1.3
Rated power consumption (W)	140	140	200	200	200	270	300
Shaft diameter (mm)	50	50	50	50	50	50	50
Protection class (IP)	44	44	44	44	44	44	44
Limit switch range (revolutions)	40	40	40	40	40	40	40
Operating time (min. S2)	5	5	5	4	4	5	4
Length C (mm)	466	466	526	526	516	546	546
Length D (mm)	449	449	509	509	499	529	529
Length E (mm) (elero RH SH)	14 12 -	14 12 19	14 12 -	14 12 19	14 12 19	14 12 19	14 12 19
Weight (kg)	1.7	1.7	2.2	2.1	2.2	2.5	2.7
Thermal operating condition (°C)	-20 ... 60	-20 ... 60	-20 ... 60	-20 ... 60	-20 ... 60	-20 ... 60	-20 ... 60
Conformity  	• •	• •	• •	• •	• •	• •	• •
Noise emissions level (dBA)	< 70	< 70	< 70	< 70	< 70	< 70	< 70
Protection class I 	•	•	•	•	•	•	•
Plug-in connecting cable (m)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Item number of elero head	34 725.0001	34 721.0001	34 735.0001	34 731.0001	34 741.0001	34 751.0001	34 761.0001
Item number of RH head	38 725.0001	38 721.0001	38 735.0001 -	38 731.0001	38 741.0001	38 751.0001	38 761.0001
Item number of SH head	-	39 721.0001	-	39 731.0001	39 741.0001	39 751.0001	39 761.0001



13.3 SunTop L

Size/type	SunTop L40	SunTop L60	SunTop L80
Rated voltage (V)	1 ~ 230	1 ~ 230	1 ~ 230
Rated frequency (Hz)	50	50	50
Noiseless soft brake	•	-	-
Rated torque (Nm)	40	60	80
Rated speed (rpm)	14	14	14
Rated current (A)	1.20	1.65	2.20
Rated power consumption (W)	280	380	490
Shaft diameter (mm)	63	63	63
Protection class (IP)	44	44	44
Limit switch range (revolutions)	80	40	40
Operating time (min. S2)	4	4	4
Length C (mm)	515	575	575
Length D (mm)	498	558	558
Length E (mm) elero	14	14	14
Weight (kg)	3.0	3.3	3.6
Thermal operating condition (°C)	-20 ... 60	-20 ... 60	-20 ... 60
Conformity 	• •	• •	• •
Noise emissions level (dBA)	< 70	< 70	< 70
Protection class I 	•	•	•
Plug-in connecting cable (m)	2.0	2.0	2.0
Item number	36 221.0001	36 231.0001	36 241.0001

