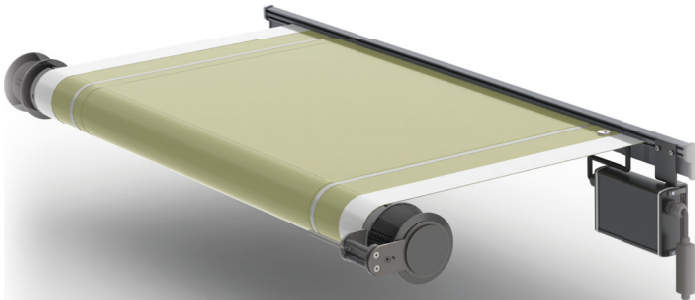


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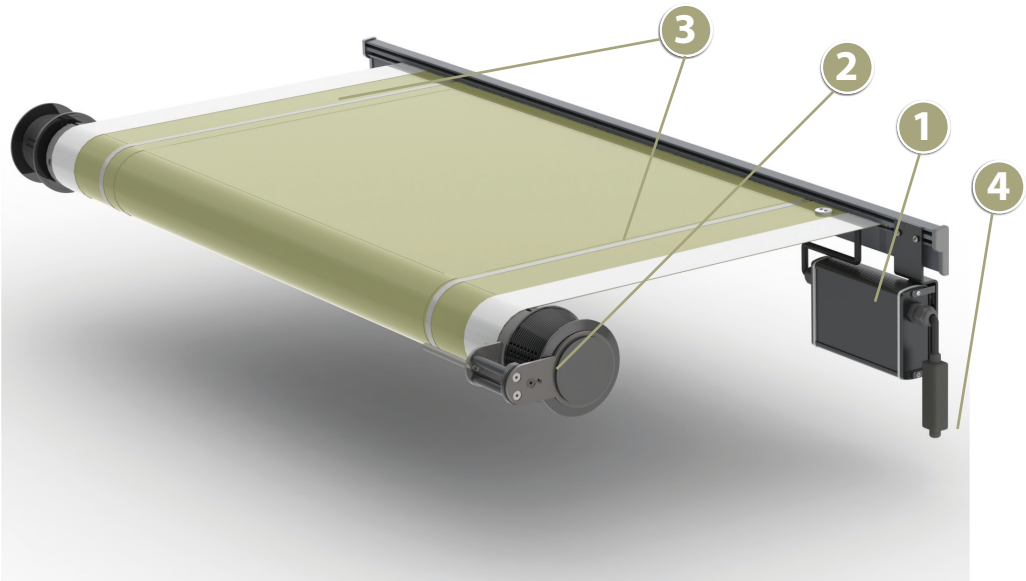
SHADE shadow-systems

The original since 2012

Motor drive & power supply
Assembly & commissioning



Component overview of motor drive



Pos. Nr	Description
1	Transformer housing
2	Torque arm
3	Power lines
4	Hirschmann plug STAS3 / STAK3

Contents

SHADE MOUNTING INSTRUCTIONS Motor drive + power supply

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SYMBOL DECLARATION: SAFETY INSTRUCTIONS AND IMPORTANT INFORMATION



This symbol indicates important information that is important for the safety of persons or for the function of the SHADE.



This symbol indicates important product information for the installer.



This symbol indicates a deviation from the normal installation of the sail.



1. SAFETY INSTRUCTIONS AND WARNINGS, INFORMATION FOR INSTALLATION



All components must be integrated in accordance with local lightning protection regulations. Do not touch any metal parts during thunderstorms - risk of injury!



Failure to observe the relevant instructions for installation and operation can result in danger to the persons involved.



The instructions in the installation and operating instructions must be strictly observed. Failure to do so releases the manufacturer from its liability obligation.



Work with mains voltage must be carried out by qualified personnel.
Failure to do so will release the manufacturer from its liability obligation.



The country-specific statutory provisions on occupational safety and accident prevention must be observed. Work at great heights in particular requires suitable personal safety equipment. The instructions on the product and on the packaging must be observed.

2. ASSEMBLY INSTRUCTIONS FOR THE MOTORISED DRIVE OF THE SHADE SAIL

These installation instructions are a supplement to the standard installation instructions for the SHADE sail, as the motorised drive results in minor changes to the installation of the sail.

Deviations from the normal installation of the SHADE sail are marked with a information note Deviation:

2.1 TOOLS AND AIDS

- Hexagon socket spanner SW 2.5
- Hexagon socket spanner SW 3
- orx screwdriver TX 10
- Ladder

2.2 COMPONENT LIST MOTOR DRIVE AND ASSEMBLY AIDS

- Cloth unit, consisting of:
 - Cloth shaft with SHADE cloth
 - Sail attachment rail
 - Possibly rollable protective roof
- Transformer housing with Hirschmann coupling
- Torque arm consisting of side plate, coupling tube, driving disc, cable axle,

Envelope tube and rollover protection

- Cover cap for motorised cable cone
- Hand-held transmitter
- Rope loop (installation aid: rope loop consisting of approx. 80cm of rope)
- Manufacturer's instructions for drive motor
- Instructions SHADE sail motor drive + power supply

2.3 MOUNTING THE MOTOR DRIVE

2.3.1 PREPARATION FOR INSTALLATION AND REQUIREMENTS

The SHADE is installed according to the installation instructions for the SHADE sail up to and including the point the manual tensioning of the tensioning ropes.



Remove the components of the motorised drive from the packaging and transport them to the installation site.



Secure the installation area, at least to the size of the extended sail. Failure to observe this can lead to a health hazard for persons if parts fall! persons if parts fall!



Deviation: Point „Assembly of operating device“ is omitted

2.3.2 TENSIONING THE SAIL



Deviation: At the point „Tensioning the sail“, the tensioning elements are initially tensioning crank to the following number of revolutions anti-clockwise:

- INOX pillar: 150 turns
- STRUCTURE tensioning element: 150 revolutions
- Column with height adjustment: 100 revolutions



Clamping with a cordless screwdriver is not permitted, otherwise there is a risk of destroying the clamping system. of the clamping system!

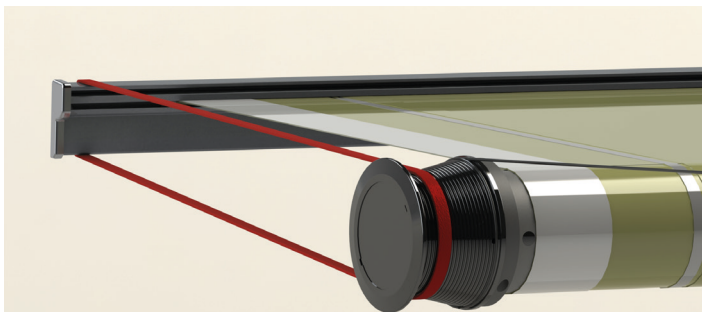


Deviation: Do not remove both shaft fixing clips, but only the shaft fixing clip on the non-drive side for the time being.

On the non-drive side, the rope loop (assembly aid) is placed behind the sail attachment rail and at the front above the rope cone.



The shaft fixing clip is then removed on the intended drive side, while the fabric shaft is held in parallel with one hand and slowly rolled out until the previously fitted rope loop on the non-drive side is tensioned and prevents the fabric shaft from rolling out any further.



Picture above: mounted door unit on non-drive side with cable loop (assembly aid)

2.3.3 MOUNTING TRANSFORMER HOUSING



Picture above: rolled-up fabric shaft on the drive side (approx. 30cm from the wall) with mounted transformer housing

To enable the motor to be adjusted in later steps, the permanent power supply to the motor must first be ensured. To do this, the supplied transformer housing including mounting bracket is pushed into the sail attachment rail. Ensure that the two pre-assembled M4 hexagon nuts are pushed into the key-way. The outer edge of the mounting bracket should be pushed about 2 cm into the rail. Then tighten the M4 pan-head screws with an SW2.5 Allen key so that the housing is firmly clamped.

2.3.4 WIRING OF THE TRANSFORMER HOUSING

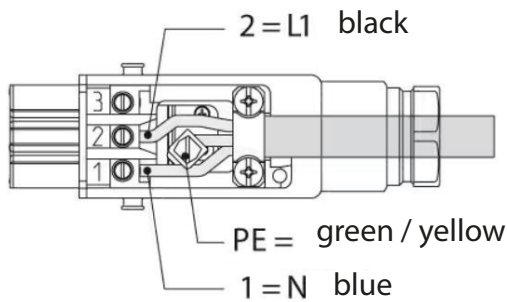
The transformer housing has two cables, one with a Hirschmann plug (outside) and one with a 2-pin plug (inside). Firstly, the supply cable is connected to the transformer housing.



Before starting to wire the motor, it is essential to switch the fuse for the power source to which the system is connected so that no voltage is present during installation!

2.3.4.1 SUPPLY LINE INTO THE TRANSFORMER HOUSING

To connect the power supply to the mains supply, a Hirschmann plug STAS3 is fitted to the transformer housing; the Hirschmann coupling STAK3 is supplied. The polarity in the following figure must be observed.

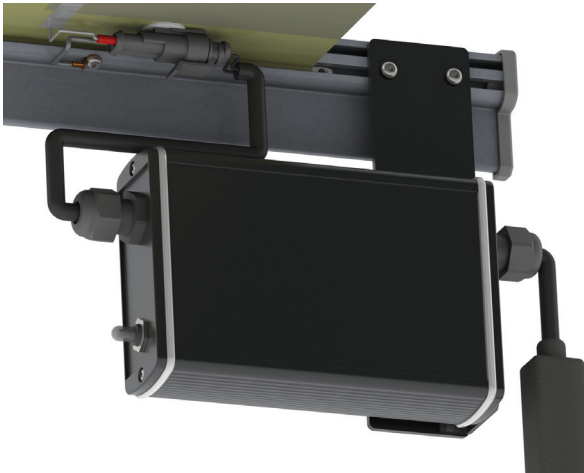


Disregarding the polarity (reversing the poles) can lead to dangerous voltages or short circuits!

Once the Hirschmann coupling has been connected with the correct polarity, the Hirschmann plug can be married together with the Hirschmann coupling.

2.3.4.2 FEED LINE INTO THE SHADE SYSTEM

A cable with a 2-pin plug is fitted on the inside of the transformer housing for the supply line into the fabric. You will find the matching 2-pin socket on the cloth. This is already firmly connected to the cloth. Insert the plug from the housing with the latching clip facing downwards into the socket so that the clip latches into place.



Picture above: 2-pole plug connection as supply line into the cloth

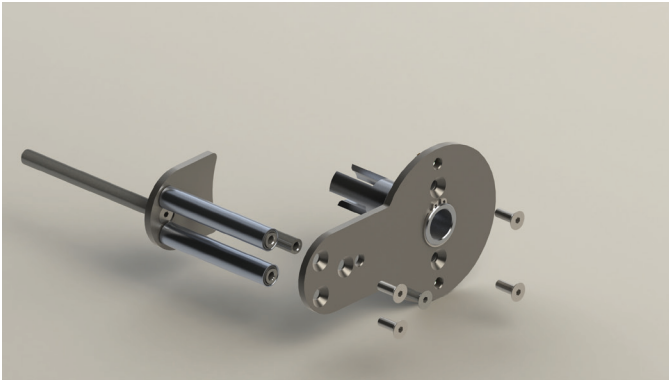
The power supply is now guaranteed by the cloth, and the system is now energised after the fuse is back in operation.

A fuse is also installed on the inside of the housing. This fuse protects the SHADE sail from excessive currents. These can occur, for example, if the sail hits an obstacle several times. As soon as the fuse blows, the system is no longer energised, but the fuse can be reset after a few seconds. To do this, simply press in the pin inside the transparent cover; when it locks, the fuse is energised again and your SHADE sail is ready for use again.

2.3.5 DISMANTLING THE TORQUE ARM

The torque arm, which transmits the torque of the motor to the cloth shaft during operation by means of the tensioning cable, essentially consists of two main assemblies. One is the large side plate on which the coupling tube, including the positioning disc and the driving disc, is mounted. The second is the assembly that comes into contact with the tensioning cable. In order to mount the torque arm on the system, these two assemblies must first be separated. To do this, first unscrew the three coun-

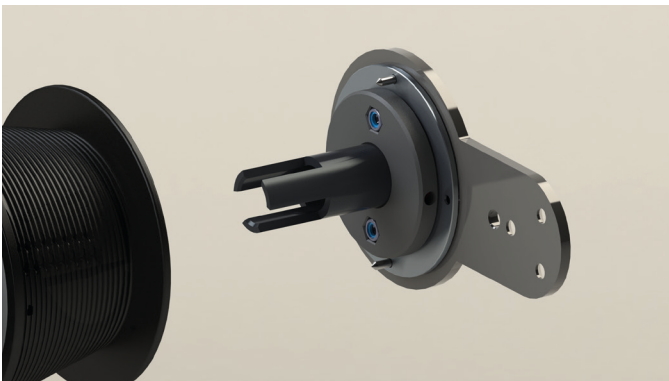
tersunk screws in a triangular arrangement using an SW3 Allen key. This allows the assembly with the pulleys and the roll-over protection to be removed. Next, to make assembly easier, two more counter-sunk screws must be unscrewed in a horizontal arrangement. The large stainless steel side plate is now rotatably mounted on the remaining components of the assembly.



Picture above: Disassembly of the torque arm supplied

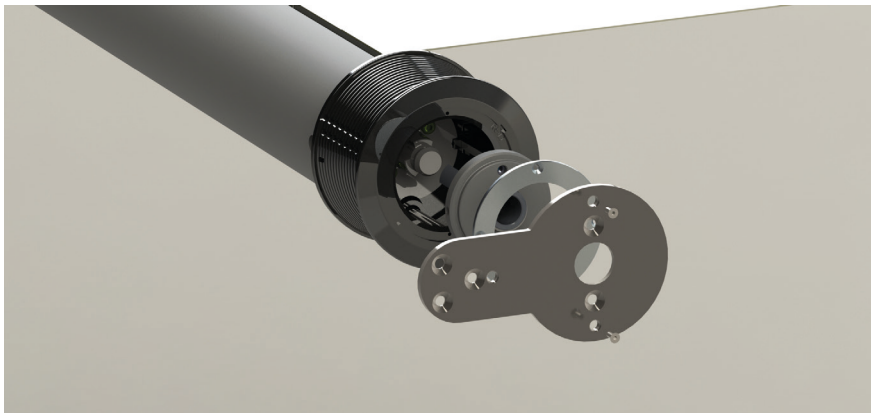
2.3.6 MOUNTING THE SIDE PLATE INCLUDING THE POSITIONING ELEMENTS

The just dismantled assembly with the large side plate, coupling tube, driving disc and positioning ring is now inserted into the cable cone, making sure that the coupling tube, which has three recesses, is inserted onto the motor axle.



Picture above: Torque arm assembly with side plate, coupling tube, driving disc and positioning ring

It is particularly important that the tensioning cable, the stainless steel Bowden tube and the Grippel are laid around the motor axle in the direction in which the tensioning cable enters, so that these components are not in the way of the coupling tube. Furthermore, the two countersunk sheet metal screws 2.9x9.5 supplied must be inserted through the two holes in the side plate into the rotating thin metal ring. These must be aligned with the two holes in the cable cone. Due to the rotatable bearing of the large side plate and the positioning ring, these can be aligned as required. As soon as this is the case, the countersunk screws can be screwed in with a TX10 screwdriver.



Picture above: Exploded view of the torque arm with side plate, coupling tube, driving disc and positioning ring

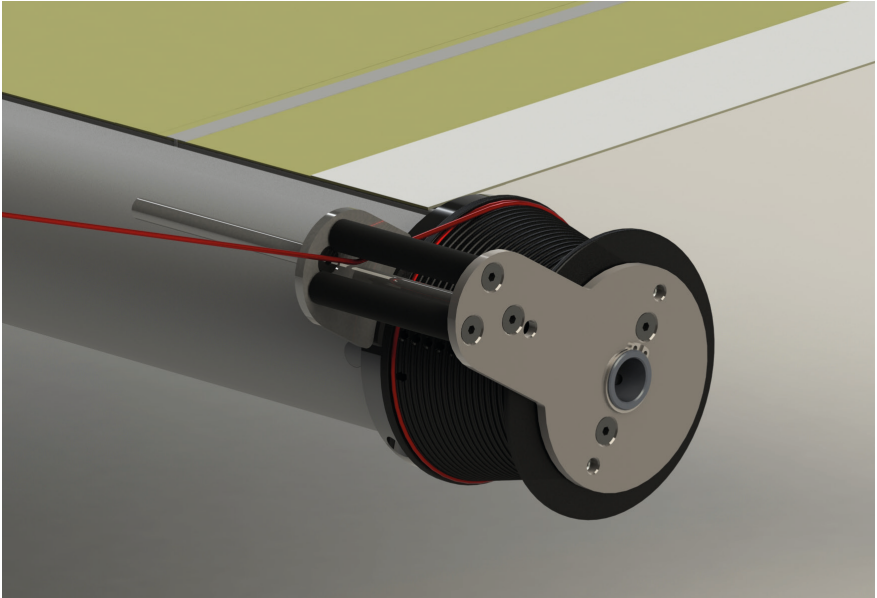
2.3.7 REASSEMBLING THE TORQUE ARM

The previously dismantled torque arm assembly is now reassembled. To do this, the second assembly with the roll pin, the cable axles and the sheaths is pushed onto the tensioning cable from the centre of the system. The following points must be observed:

The second part of the stainless steel bracket is now positioned in relation to the large part of the stainless steel bracket so that

- the tensioning cable lies between the two rollers
- the tensioning cable lies above the 3rd connecting axis (without rollers)
- the holes in the end faces of the three connecting axes coincide with the screw holes in the large stainless steel bracket.

The three countersunk screws are then screwed back into the cable axles in a triangular arrangement. Finally, the fabric shaft is turned into the correct position so that the holes in the black driving disc match the countersinks in the side plate and the two remaining countersunk screws can be screwed into the side plate.



Picture above: Complete torque arm mounted on tensioned sail

The last step to be carried out before programming the motor is to push the supplied cover cap into the axle from the outside.

2.4 COMMISSIONING THE MOTOR DRIVE

Firstly, it must be ensured that the previously switched off house fuse is back in operation and that the thermal fuse on the transformer housing has not been triggered.

In addition, the cable loop on the non-motor side can be removed from this step.

After checking these two points, you can now start commissioning the motor.

2.4.1 PROGRAMMING RADIO TRANSMITTER TO MOTOR

Firstly, remove the cover cap on the back of the hand-held transmitter and insert the supplied batteries (2x AAA) if necessary. This is also where you will find the **[P]-Button**.

To switch the motor to teach-in mode, the power supply must be interrupted for at least 10 seconds. The **[P]-Button** must now be pressed for at least one second.

- The motor now switches to **learning mode**; as soon as this happens, the motor starts to run up and down periodically for two seconds.

2.4.2 SET THE DIRECTION OF ROTATION OF THE MOTOR

In the following step, the directions of rotation of the motor are set. To do this, the motor **must** be in learning mode, which means it moves up and down for approx. 2 minutes periodically.

To set the first hit, press the **[UP▲]** or **[DOWN ▼]** button immediately after starting a travelling movement. The following definitions can be set:

- Press the **[UP▲]** button when driving up = SHADE rolled in
- Press the **[DOWN ▼]** button on departure = SHADE rolls out

If the hit is successfully set, the radio receiver briefly interrupts the current movement, then continues and turns in the opposite direction.

If the current movement is not interrupted after pressing the **[UP▲]** or **[DOWN ▼]** button, the hit must be set again as soon as the movement of the fabric shaft starts again.

To set the **second hit**, the first hit must have been successfully set. Press the **[UP▲]** or **[DOWN ▼]** button **immediately** after starting the **opposite** movement.

- Press the **[UP▲]** button when driving up = SHADE rolled in
- Press the **[DOWN ▼]** button on departure = SHADE rolls out

If the second hit is successfully set, the motor stops and the periodic movement stops. If the current movement is not interrupted after pressing the **[UP▲]** or **[DOWN ▼]** button, the hit must be set again as soon as the movement of the fabric shaft starts again.

The motor has now been assigned the desired directions of rotation and is now in so-called dead man's mode. This means that it reacts to button commands, but only executes them as long as the operator actively presses the button. As soon as the button is released, the motor stops in its current position.

2.4.3 SETTING THE END POSITIONS

End position adjustment means that the working path of the motor is adapted to the system failure so

that the motor stops automatically in both directions later on.

Start with the upper end position; to set this, the system is moved upwards in the dead man's mode described above ([UP▲] button). The upper end position is reached when the distance between the rope cone and the transformer housing is approximately 3-5 cm. Corrections can be made using the [UP▲] and [DOWN ▼] buttons. To confirm the upper end position, the [DOWN ▼] button must be pressed from this upper position until the downward movement of the fabric shaft is automatically stopped. If this is the case, the upper end position is set.

The motor is now moved from the position in which it stopped to confirm the upper end position to the lower end position. The lower end position is reached when the fabric is completely unwound from the fabric shaft and the keder groove (groove in the fabric shaft in which the SHADE fabric engages) is facing upwards (12 o'clock position). To confirm this position, press and hold the [UP▲] button until the upward movement of the fabric shaft stops automatically. If this is the case, both end positions are now set and programming is complete. The SHADE can now be moved automatically to the end point by briefly pressing a button.

2.4.4 DELETE PRESET END POSITIONS

If end positions have been set incorrectly or have changed, it is possible to delete the set end positions. To do this, the fabric shaft must be moved to a centre curtain position and the motor must be switched to end position editing mode. To do this, as already described in 2.4.3, press the buttons [UP▲] + [DOWN ▼] + [P] for six seconds.

The motor is now in standby mode and waits for the next signal. To delete the end positions, press and hold the [UP▲] + [DOWN ▼] buttons simultaneously until the drive moves up and down briefly. This confirms that both end positions have been deleted. It is not possible to delete individual end positions. After this confirmation, the end positions can be reset as described in 2.4.3.



If several motors are installed in the immediate vicinity, one motor drive MUST be programmed after the other, otherwise there is a high probability of malfunctions/maloperation



2.4.5 TEACHING IN AN ADDITIONAL OR NEW RADIO TRANSMITTER

Simultaneously press the **[UP▲] + [DOWN▼] + [P]** buttons for at least 3 seconds on a radio transmitter that has already been programmed.

Press the programming button **[P]** for approx. 1 second on the radio transmitter to be programmed (for multi-channel hand-held transmitters, select the desired channel). The direction of rotation of the drive must then be assigned to the new radio transmitter - continue with point 2.4.2.

If no radio transmitter has been programmed (e.g. due to loss or defect), the new hand-held transmitter can be programmed using the following button combination. Press **[UP▲] + [DOWN▼] + [P]** for 3 seconds, then press **[P]** for approx. 1 second. The direction of rotation of the drive must then be assigned to the new radio transmitter - continue with point 2.4.2.

2.4.6 DELETE RADIO TRANSMITTER

To delete the radio connection between the radio transmitter and operator, press **[STOP] + [P]** simultaneously for at least 6 seconds; the status display lights up red and goes out. The channel selected in the radio transmitter and the radio transmitter from the drive are then deleted. The step must be repeated individually for other channels or radio transmitters.

2.4.7 TEACHING IN THE WIND/SUN MONITOR

Contrary to the original manufacturer's instructions for the Aero-868 wind/sun monitor, in combination with the radio transmitters of the Tel series (LumeroTel 2 or VarioTel 2), these components must be programmed unidirectionally. There are 2 DIP switches under the cover for the **[P] button** on the back of the Tel hand-held transmitters. Both DIP switches must be set to the upper position, e.g. using a phase tester.



Briefly press the P button to check that the radio transmitter is now transmitting in unidirectional mode. To do this, the status display of the stop button must light up GREEN. The radio hand-held transmitter can now be programmed. Proceed analogue to step 2.4.1 and then 2.4.2.

The wind/sun monitor can now be programmed. To do this, press the **[UP▲] + [DOWN▼] + [P]** buttons on the hand-held transmitter that has just been programmed for at least 3 seconds. The **[P] button** must then be pressed for one second. The motor now switches to learning mode, as soon as this is the case, the motor starts to run up and down periodically for two seconds.

The direction of rotation on the wind/sun monitor is now set analogue to the hand-held transmitter. Press the **[UP▲]** = wind button when travelling up, press the **[DOWN▼]** = sun button when travelling down. The wind/sun monitor is fully programmed once the two hits have been successfully set. This can be checked by pressing the two travel buttons directly on the wind/sun monitor.

In addition to the original manufacturer's instructions, the following wind strength threshold values apply. We recommend not exceeding level 6 when setting the wind function.

Wind resistance class ad. to DIN EN13561	Wind threshold on the sensor adjustable	Wind speed in km/h	Wind force (Beaufort)	Description
0	1	6	2	Light breeze
0	2	13	3	Light breeze
0	3	21	4	Moderate breeze
1	4	29	5	Fresh breeze
2	5	38	5	Fresh breeze
3	6	44	6	Strong wind
not guaranteed	7	51	7	Stiff wind
not guaranteed	8	59	7	Stiff wind
not guaranteed	9	66	8	Stormy wind
not guaranteed	10	74	8	Stormy wind
not guaranteed	11	79	9	Storm

To set the threshold values, please also refer to the original installation instructions supplied with the wind/sun monitor.

2.4.8 Retrofitting a wind/sun monitor

Initial situation: SHADE system was already operated with an Elero drive and a MonoCom or VarioCom hand-held transmitter and is now to be retrofitted with a wind/sun monitor.

As the previous hand-held transmitter communicated bidirectionally with the motor, it must be deprogrammed and programmed unidirectionally with a hand-held transmitter from the Tel series (LumeroTel 2 or VarioTel 2).

Step 1: Programming the xCom hand-held transmitter

Press the **[UP▲]** + **[STOP]** + **[DOWN ▼]** + **[P]** buttons simultaneously for at least 6 seconds on the radio transmitter that has already been programmed. All hand-held transmitters are now cancelled and the end position setting is retained.

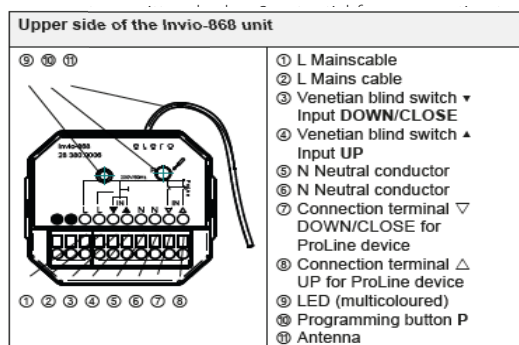
Step 2: Now continue with point 2.4.7 „Programming the wind/sun monitor“ in the instructions.



2.4.9 INTEGRATING THE SHADE DRIVE INTO BUS CONTROL

With the Elero radio installation transmitter „INVIO-868“, it is also possible to integrate the SHADE drive into existing bus systems using unidirectional programming.

The „INVIO-868“ radio installation transmitter is connected between the on-site supply line and the SHADE transformer housing (ideally in a flush-mounted box - alternatively also in a surface-mounted box <- both not included in the scope of delivery). Only the two phases (L) (1)+(2) and the two neutral conductors (N) (5)+(6) need to be connected. The protective conductors are connected externally. The



signals (3)+(4), to which a bus control button must

Programming is carried out in the same way as a second hand-held transmitter:

Press the [UP▲] + [DOWN▼] + [P] buttons simultaneously for at least 3 seconds on a radio transmitter that has already been programmed. Press the programming button [P] on the radio transmitter to be programmed (Invio-868) for at least 1 second. The drive now switches to teach-in mode and starts to move up and down periodically for two seconds. If this does not happen, we recommend interrupting the power supply for at least 10 seconds. The direction of rotation of the drive must then be assigned to the new radio transmitter - continue with point 2.4.2. In the case of the INVIO-868 radio transmitter for controlling a bus system, a button must be installed on the potential-free connection terminals with which the direction of rotation is assigned to the drive. It may be necessary to press the respective direction earlier and for longer. If the drive does not change to the

This requires the use of an Elero LumeroTel 2 (1-channel) or VarioTel 2 (5-channel) hand-held transmitter that can be switched from bi-directional to unidirectional.

Can be controlled with commercially available blind push-buttons/key push-buttons

Forwarding of higher-level, wired control commands, e.g. bus systems

Only unidirectionally compatible in conjunction with eSHADE

There is no feedback on the position of the sail to the bus system.

2.5 FINE ADJUSTMENT OF THE INOX COLUMNS OR STRUCTURE CLAMPING ELEMENTS

Now continue in the assembly instructions for the SHADE sail at „Fine adjustment of the INOX posts or STRUCTURE tensioning elements“.



Deviation: The SHADE sail can be retracted and extended using the hand-held transmitter without any noticeable noise and the fabric rolls up on the fabric shaft without any lateral sloping.

In addition, the cable tension on the two tensioning elements should be increased using the tensioning crank so that the fabric shaft is as horizontal as possible when extended and the entire system is taut.



Deviation: Finally, close the tensioning crank opening holes on the tensioning elements with the respective cover caps.

Continue installing the SHADE sail as described in the SHADE sail installation instructions under „FASTENING THE ROPE TO THE TENSION ROPES“.



Passion for shade

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