

EN **RolloTube S-line Sun DuoFern Tubular Motors**
 Translation of the Original Operating and Assembly Manual

Applicable for the following series: RolloTube S-line Sun DuoFern Small (SLDSS) / Medium (SLDSM)
 Item numbers: 2350 06 76 / 2350 10 76 / 2378 10 76 / 2378 20 76 / 2378 30 76 / 2378 40 76 / 2378 50 76



Please note:

Site of installation:

.....

Serial number:

.....

Please stick the enclosed label showing the DuoFern radio code here:

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- ...serves to describe the installation, electrical connection and operation of RADEMACHER tubular motors of the RolloTube S-line Sun DuoFern Medium series.
- Before you begin, please read this manual through completely and follow all the safety instructions and assembly instructions.
- This manual forms a component of the product. Please store the manual in an easily accessible place.

- When passing the tubular motor on to any future owners, this manual must be passed on as well.
- Damage resulting from non-compliance with these instructions and safety instructions will void the warranty and the guarantee. We assume no liability for any consequential damage.

2. Hazard symbols

The following hazard symbols are used in this manual:



Danger of fatal electric shock



Danger area / dangerous situation

2.1 Levels of danger and signal words



DANGER!

This hazard will lead to serious injury or death if not avoided.



WARNING!

This hazard may result in serious injury or death if not avoided.



CAUTION!

This hazard may result in minor or moderate injury if not avoided.



ATTENTION!

This hazard may lead to property damage.

2.2 Symbols and depictions used

Depiction / Description

1. Steps to be taken
- 2.

□ Itemisation

(1) List



Installation chapter



Chapter with settings and button operation



Further useful information



Please read the respective manual



Unauthorised handling or configuration



3. Safety instructions



Risk of fatal electric shock when touching electrical components.

- The electrical connection for the tubular motor and all work on the electrical systems may only be undertaken by an authorised qualified electrician and in accordance with the connection diagrams in these instructions, see page 20 bis 22.
- Carry out all installation and connection work only in an isolated, de-energised state.



The use of defective equipment can lead to personal injury and damage to property (electric shocks, short circuiting).

- Never use defective or damaged devices.
- Check the drive and mains cable beforehand for damage.
- Should you discover damage to the equipment, please consult our customer service department, see page 36.



There is also a risk of fatal injury from crushing resulting from uncontrolled starting of the drive.

- Never attempt to manually stop the motor/awning in the event of uncontrolled movement.
- In such cases, switch off all power to the drive and take appropriate safety precautions to prevent unintentional switching on.
- Arrange to have the system checked by a skilled electrician..



Exceeding the maximum permissible running time (KB = transient operation) may overload the tubular motor.

- The maximum permissible running time for a run may not be exceeded when the equipment is in operation. For this reason, the tubular motor has a running time limit (KB = transient operation) of four minutes.
- If the running time limit is triggered, then the tubular motor must be left for at least 20 minutes to cool down..



Risk of fatal injury from crushing in the event of operation without set end points.

- The end points must be set in order to ensure safe operation. In order to do so, please refer to the corresponding chapters 9. and 10. on page 24.



Incorrect use leads to an increased risk of injury.

- Train all personnel to safely use the tubular motor.
- Do not allow children to play with the fixed controllers and keep remote controls away from children.
- Cleaning and user maintenance may not be carried out by children without supervision.

For awning systems which can be operated out of sight of the operator:

- The awning may not be operated if work is being carried out nearby (e.g. windows being cleaned).

For automatically actuated awnings:

- Disconnect the awning from the power supply if work is being carried out nearby or cleaning work is being performed on the awning.



A lack of maintenance can lead to personal injury through damage to your tubular motor and awning system:

- Please check your awning system for damage.
- Check the awning regularly for poor balance or damaged lines and springs.
- Have damaged awnings or components repaired or replaced by a specialist awning firm.



Contact with the drive housing can cause burns.

- The tubular motor gets hot during operation. Allow the motor to cool down prior to undertaking any further work on the motor.
- Never touch the hot drive housing.

Only use the tubular motors for the electrical operation of awnings (extending and retracting).



The use of the wrong tubular motors or components can lead to property damage.



- The motor cable must therefore be fitted with a suitable empty tube up to the respective junction box under observation of local electrical regulations, if installed outside.
- Only use the manufacturer's original parts and accessories.
- Only use tubular motors which correspond to the local conditions in terms of their power. Incorrectly dimensioned tubular motors can lead to damage:
 - > An under-dimensioned tubular motor can be damaged by overloading or may result in the awning not retracting.
 - > An over-dimensioned tubular motor may not switch off with the necessary sensitivity in the case of a blockage and damage the awning or mechanism.
- Consult a specialist retailer when selecting a tubular motor and observe the corresponding tractive force specifications on our website: **www.rademacher.de**

Operational conditions

- A 230 V / 50 Hz power supply, together with a site-provided isolating device (fuse) must be permanently available for the electrical connection at the installation location..
- The awning mechanism must retract and extend easily and must not jam.
- Installation and operation of the RolloTube S-line Sun DuoFern is only permitted for those systems and devices where a malfunction in the transmitter or receiver would not cause a danger to personnel or property or where this risk is already covered by other safety equipment.



Radio systems which transmit on the same frequency can cause interference.

Operating conditions for the self-learning operation

- The awning requires a fixed end stop when closed in order to be able to learn the end point.
- The joint arms should not apply additional force to the fabric if they fold when extended.
- The extended end point must first be learned or set, see page 24 et seq.

Using the RolloTube S-line Sun for purposes other than previously mentioned is impermissible.



Never use the tubular motor in continuous operation. Doing so will cause serious damage.



Never use the DuoFern radio system and its components for the remote control of appliances and systems with increased safety-relevant requirements or where there is an accident risk.

- Applications of this kind require additional safety equipment. Observe the respective statutory regulations for the installation of such systems.

The installation, electrical connection and maintenance must be carried out by a qualified person with appropriate training or by a specialist awning firm in accordance with the instructions in this manual.

Blockage detection / Obstacle detection

Tubular motor safety features.

If the awning is blocked or an obstacle is encountered, the tubular motor stops and automatically travels briefly in the opposite direction.

Fabric relief / fabric tensioning

The strain on the awning fabric is automatically relieved by briefly reversing after reaching the respective end point.

The strain on the fabric is only relieved when the top end point has been self-taught (awning retracted).

The fabric tensioning function is active for the self-taught and manual end point setting.

DIN EN 13659

"Shutters and external Venetian blinds - Performance requirements including safety."

This standard determines the performance requirements that externally attached shutters and blinds must fulfil. It also contains significant hazards with regard to the design, transportation, installation, operation and maintenance of these shutters and blinds.

DIN VDE 0100, Part 701 and 702

"Erection of low voltage installations - Part 7-701 and 7-702"

This standard defines the requirements for special installations or locations, rooms with a bath or shower / basin etc.

Torque monitoring

The torque monitoring protects the awning and the complete system from being destroyed and people from being injured. It is also used to find the end points, amongst other things.

DuoFern

RADEMACHER radio technology for controlling compatible products.

End points

An end point is defined and set for each direction of travel of the awning. Once this point has been reached, the tubular motor switches off and the awning stops.

SmartHome Box

The RADEMACHER SmartHome Box is a central controller unit for RADEMACHER radio products.

Transient operation (KB)

Tubular motors are not designed for continuous operation. Transient operation defines the maximum permissible running time.

Magnetic ring

The magnetic ring (14) is located in the area of the drive head (6). It is driven by the awning shaft (11) and the adapter (8) and is used to find the end points, and monitor/control the shaft rotations in normal mode.

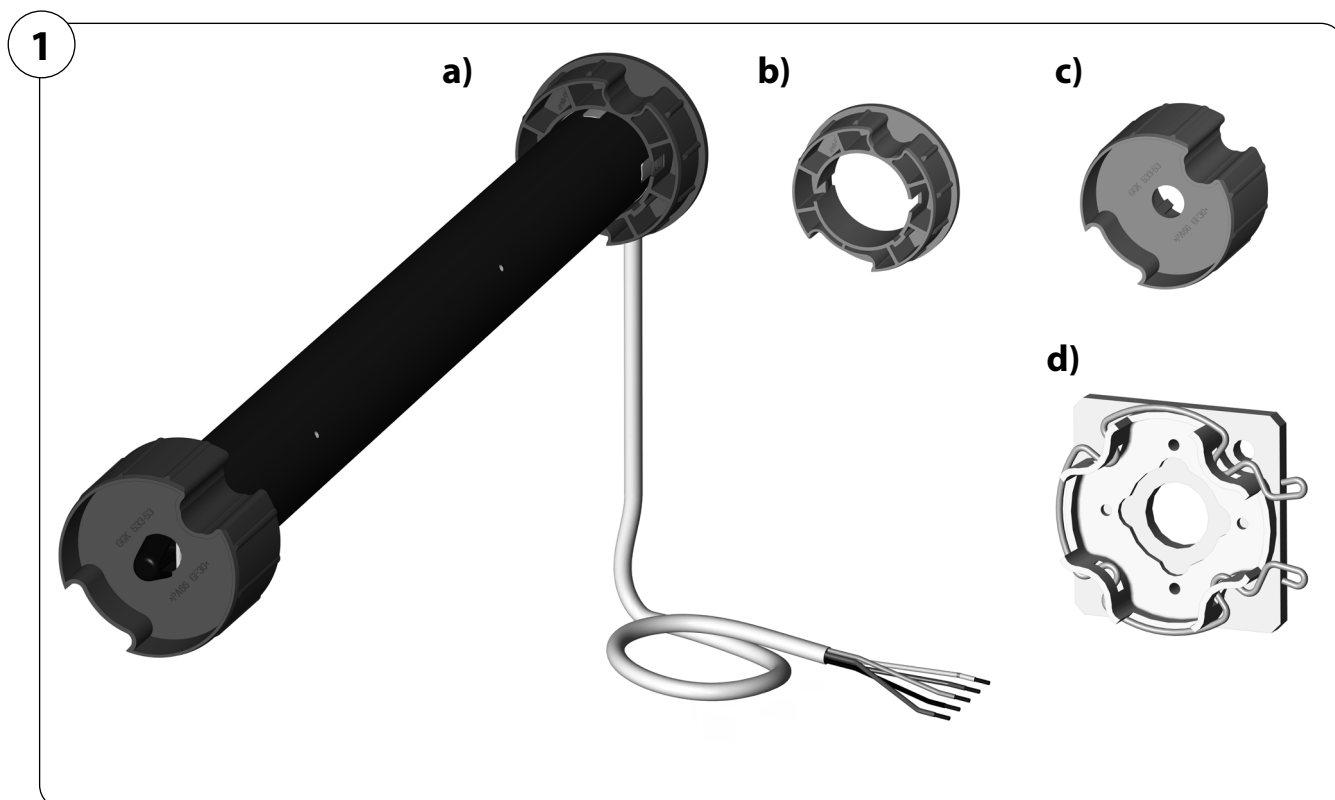
Configuration of KNX/EIB actuators for RADEMACHER tubular motors

- KNX/EIB actuators are used to control electrically operated roller shutters, awnings etc.
- Some parameters must be set prior to commissioning in order to ensure trouble-free operation.

Universal setting cable

RADEMACHER accessory for the specialist awning firm to set the end points.

Type	4090-1
Item no.	9600 00 86



Included in delivery

RolloTube S-line Sun DuoFern	Small	Medium
(a) Tubular motor, including cable (2,5m)	1 x	1 x
(b) Adapter	1 x	1 x
(c) Catch	1 x	1 x
(d) Click drive bearing (for awnings)	1 x	1 x

Please note:

Customer-specific scope of delivery

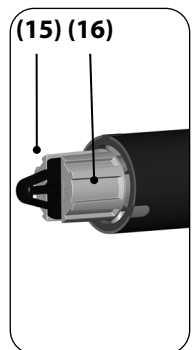
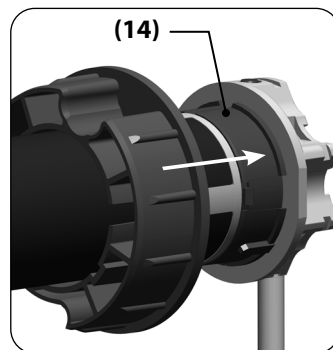
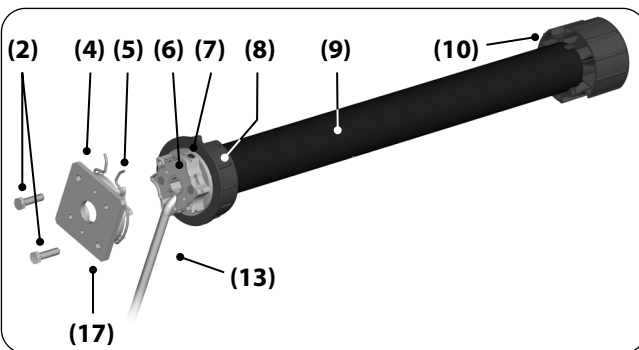
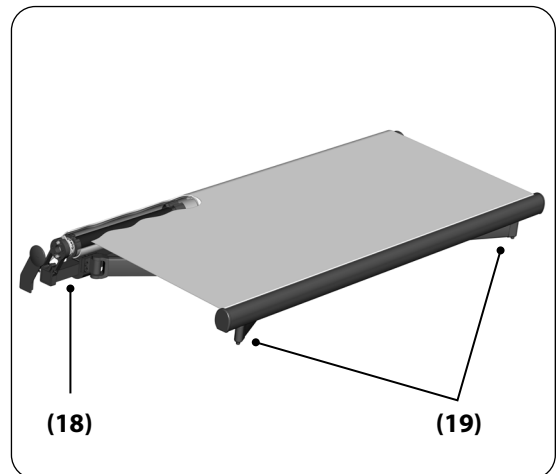
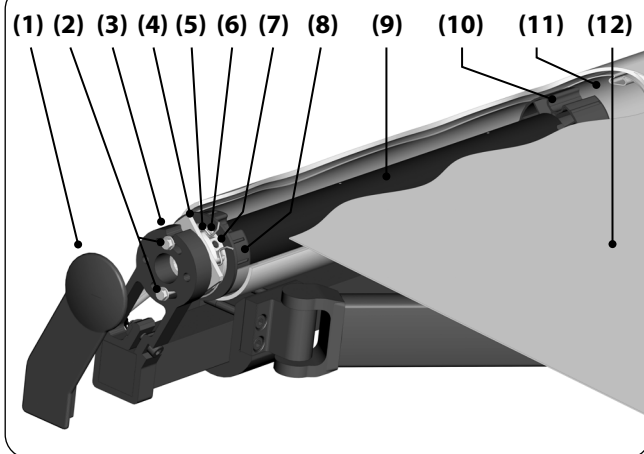
After unpacking please check the following:

Check that the package contents match the scope of delivery listed on the package.

Check the details on the type plate

- ☐ Check the details for the motor type.
- ☐ Check that the voltage / frequency corresponds to the local mains conditions.

2



Key to the overall view

- | | |
|---------------------------|-----------------------------------|
| (1) Side cover | (11) Awning shaft |
| (2) Assembly screws | (12) Awning shaft |
| (3) Bearing block | (13) Motor cable |
| (4) Click drive bearing * | (14) Magnetic ring |
| (5) Retaining spring * | (15) Retaining clip |
| (6) Drive head | (16) Drive adapter |
| (7) Set button | (17) Base plate for drive bearing |
| (8) Adapter * | (18) Crossbar of the awning |
| (9) Tubular motor | (19) Joint arms of the awning |
| (10) Catch * | |



* The necessary accessories and all tubular motor controllers for this type of tubular motor incl. the technical information and manuals can be found on our website.
www.rademacher.de

The RADEMACHER RolloTube S-line Sun DuoFern tubular motors are designed for retracting and extending awnings.

The RolloTube S-line DuoFern tubular motors are self-learning motors. The end positions are automatically learned during the first run cycles. This eliminates the need to set the end points or a teach-in run.

However of course, the end points can also be set manually see page 24.

The compact design and the self-learning motor ensure a quick and easy installation.

The RolloTube S-line Sun DuoFern impresses in daily operation with blockage detection in both directions of travel and through the obstacle detection, ensuring maximum safety and gentle operation.

Use in the DuoFern network

As soon as you integrate your RolloTube S-line Sun DuoFern into a DuoFern radio network, you can set and make use of many different automatic functions using DuoFern controllers such as the RADEMACHER SmartHome Box.

DuoFern controllers and transmitters must be connected to the DuoFern network.

Overview of functions:

- Self-learning motor with automatic end point setting
- Exact position detection, torque monitoring and obstacle detection
- Blockage and obstacle detection including reversing, as well as a built-in fabric relief and fabric tensioning system.
- Quick and easy installation thanks to the short design

Automatic fabric relief during normal operation

During normal operation, the awning runs up to the upper end point and subsequently shifts briefly in the opposite direction (reverses) in order to automatically relieve the strain on the awning fabric.

Requirements for correct fabric relief:

This function is only active if the **upper end point** is set to automatic/self-learning.

Function of the blockage detection system when retracting the awning

The tubular motor stops and automatically relieves the strain on the awning fabric by shifting briefly in the opposite direction (reversing) in the event that the awning is blocked by an obstacle when retracting.

Requirements for correct blockage detection:

- ☐ The awning must move easily and freely.



Moving a blocked (e.g. iced-up/jammed) awning can result in overloading and damage to the tubular motor and awning system.

- ☐ Do not move the iced-up/jammed awning and rectify the fault or remove the obstacle.

Automatic fabric tensioning during normal operation

During normal operation, the awning runs up to the outer end point and subsequently shifts briefly in the opposite direction (reverses) in order to automatically tension the awning fabric.

Requirements for correct fabric tensioning:

- ☐ The fabric tensioning function is always active after the first run cycles, after both the self-taught and manual end point setting.

Function of the obstacle detection system when extending the awning

The tubular motor stops and automatically shifts briefly in the opposite direction (reverses) in the event that the awning hits an obstacle while extending.

Requirements for correct obstacle detection:

- ☐ The catch must be mounted with the freewheel mechanism (see fig. 6, page 15), original factory settings.
- ☐ Obstacle detection can be activated/deactivated via the SmartHome Box.

The RolloTube S-line Sun DuoFern can be controlled on site using a push button in jog mode.

By briefly tapping the up or down button, the awning will extend or retract completely until it reaches the set end point. Tapping the button or opposite direction once more causes the motor to stop.

After longer pressing of the up or down button (longer than approx. 1 second) the motor stops when the button is released!

6.4 Operation using a switch

The RolloTube S-line Sun DuoFern can be controlled on site using a switch.

By briefly pressing the up or down direction on the switch, the awning will extend or retract completely until it reaches the set end point. By deactivating the specified direction of travel the motor can be stopped at the desired position.

6.5 Jog mode using a 1-pole button

The RolloTube S-line Sun DuoFern can also be controlled on site using a 1-pole button.

Activating the function

The function is deactivated in the factory settings; once the button has been connected, the function must first be activated at the tubular motor, see page 22.

The function can be deactivated again as required.

Switching sequence on the button

Retract / stop / extend / stop ...

By entering its radio code, the RolloTube S-line Sun DuoFern can be logged on to a SmartHome Box or a DuoFern Manual Central Operating Unit.

Then use the remote log-on / log-off function to activate other DuoFern devices (e.g. DuoFern Manual Transmitter).

Time window for activation via DuoFern radio code

After switching on the power supply, the radio code is active for a maximum of 2 hours. Once this time has elapsed, activation using the radio code is no longer possible. Briefly disconnect the RolloTube S-line Sun DuoFern from the mains to reactivate the time window.

You will find the DuoFern radio code on the enclosed label on the motor cable.



It is imperative that you store the enclosed label safely e.g. by fixing it to the cover sheet of these instructions.

This means that you will still be able to access log-on mode for the RolloTube S-line Sun DuoFern, without having to open the side cover of the awning.



7. Important installation instructions

EN

Preparation for installation

- ☐ Check that the structural base is sufficiently stable for the operation of an electrically powered awning
- ☐ Check that the voltage / frequency on the type plate corresponds to local mains conditions prior to installation.
- ☐ You must remove or deactivate all cables and equipment not required for operation of the equipment prior to installation of the tubular motor.
- ☐ Moving drive parts to be operated at a height under 2.5 m from the floor must be protected.
- ☐ If the tubular motor is to be controlled with a switch with a default OFF pre-setting, then the switch is to be positioned in the line of sight of the tubular motor and at a height of at least 1.5 m.
- ☐ The set button (7) for the tubular motor must be easily accessible and the motor cable (13) must be laid without kinking.



Installing the tubular motor incorrectly can cause the tubular motor or awning to be damaged.

This applies to automatically operated awnings:

- ☐ A minimum gap of 0.4 m to other parts in the area must be maintained when the awning is fully extended.
- ☐ Awnings used in an awning system must maintain a minimum height of 1.8 m..

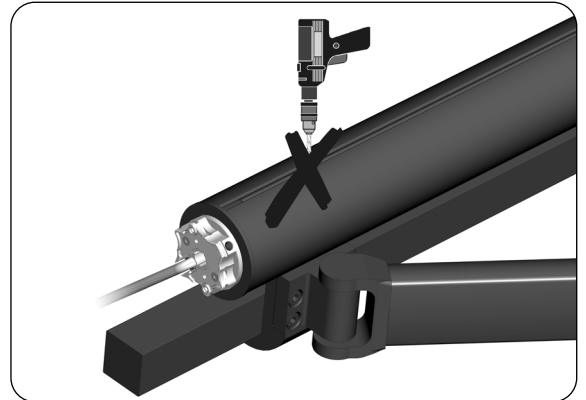


There is a risk of short-circuits and fire in the event of direct weather influences to the unprotected tubular motor.

- ☐ The mounted tubular motor may never be subjected to direct rain or snow, as this may lead to life-threatening situations due to short-circuits and damage to the motor.
- ☐ Only install the tubular motor in awning systems where the motor is structurally protected from the direct influences of rain and snow.
- ☐ Install a suitable protective hood for the tubular motor, if necessary.



Drilling and inserting screws in the area of the drive will cause the tubular motor to be damaged.



Risk of fatal injury from crushing in the event of operation without set end points.

- ☐ The end points must be set in order to ensure safe operation. In order to do so, please refer to the corresponding chapter in this manual on page 24.



Risk of injury when working at heights due to falling.

- ☐ Take suitable measures to ensure safe working at heights.
- ☐ Ensure that ladders and scaffolding stand securely.



7.1 Preparation of the awning system

EN

ATTENTION!

Risk of injury due to joint arms falling down (19). The joint arms (19) are under high spring tension and may fall down suddenly when the awning drive is released.

- Retract the awning fully and secure the joint arms (19) with two ratchet straps prior to mounting the tubular motor in order to avoid sudden dropping.



The preparation measures must be adapted to the existing awning system on site due to the various models of awning available.

1. Fully retract the awning.
2. Secure the joint arms (19) with ratchet straps in order to avoid sudden dropping.
3. Remove the awning gear mechanism.



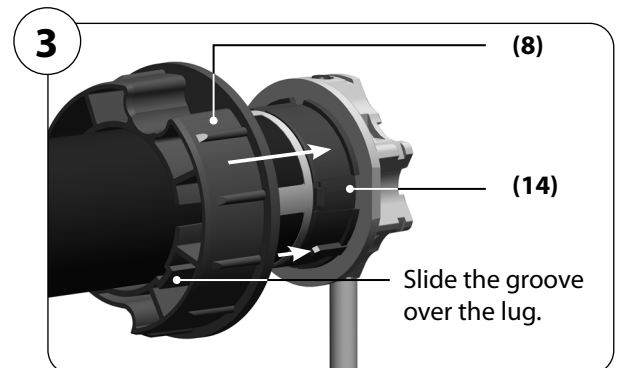
7.2 Mounting / dismantling the adapter (8)

Mounting the adapter (8)

1. Slide the adapter (8) over the magnetic ring (14) on the drive head until it engages. In doing so, check the correct positioning of the groove in the adapter (8).

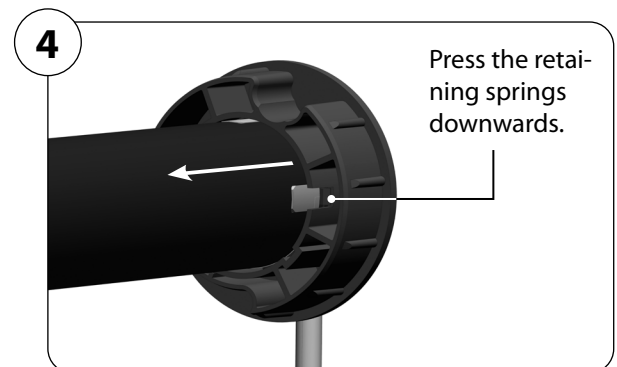


The adapter is supplied pre-installed by the factory.



Dismantling the adapter (8)

1. Press the two retaining springs on the magnetic ring (14) downwards and pull the adapter (8) off the magnetic ring (14).





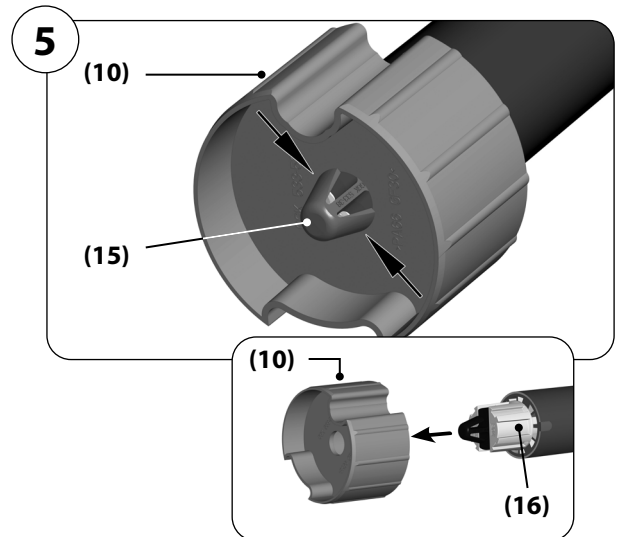
7.3 Dismantling the catch (10)

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The catch (10) can be mounted with or without the freewheel mechanism.

- The factory pre-setting for the catch is **"with the freewheel mechanism"**.
- The catch (10) must first be dismantled before changing the mounting mode.

1. Press the side parts of the retaining clip (15) together and pull the catch (10) off the drive adapter (16).



7.4 Mounting the catch (10) with the freewheel mechanism



If the tubular motor is to be operated with the self-learning end point setting and obstacle detection, then the catch (10) must be mounted with the freewheel mechanism (**original factory settings**).

1. Slide the catch (10) onto the drive adapter (16) so that it can free-wheel and so that it engages behind the retaining clip (15).

Free-wheeling is given if the catch (10) can be easily turned back and forth.

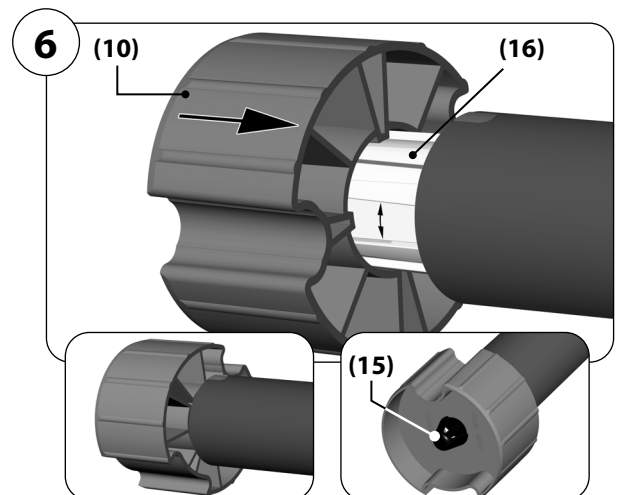


ATTENTION!



Installing the drive adapter (10) without the freewheel mechanism can cause damage to the awning or lead to malfunctions with the self-learning and manual end point setting.

- **Never** install the catch (10) without the freewheel mechanism.

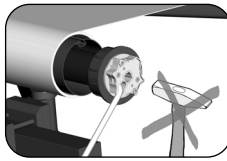




7.5 Sliding the tubular motor (9) into the awning shaft (11)

EN

ATTENTION!



Inserting the tubular motor (9) forcibly into the awning shaft (11) will cause serious damage.

- ❑ Never knock the tubular motor (9) with force into the awning shaft (11).

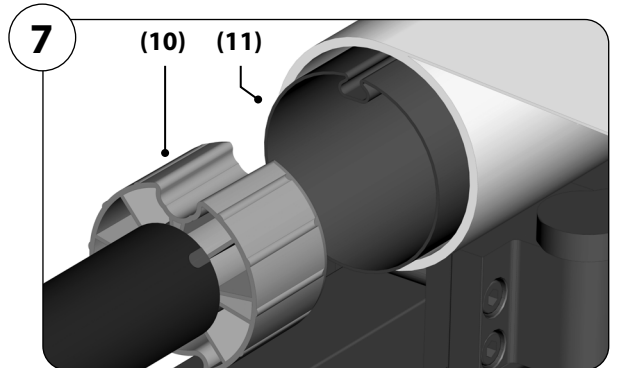


The set button (7) for the tubular motor must be easily accessible and the motor cable (13) must be laid without kinking.

1. First slide the catch (10) into the awning shaft (11).



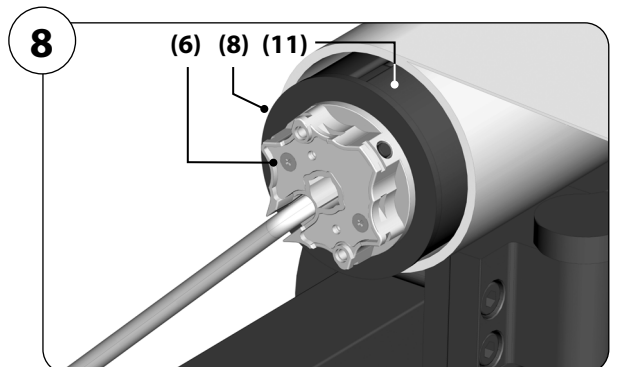
The motor must have sufficient free space for awning shafts with internal felt.



2. Subsequently press the tubular motor into the awning shaft (11) so that the adapter (8) is fully inserted into the awning shaft (11).

ATTENTION!

- ❑ In doing so, ensure that the adapter (8) does not slip off the magnetic ring (14) on the drive head (6) during the assembly process. Otherwise malfunctions may occur, see page 28.

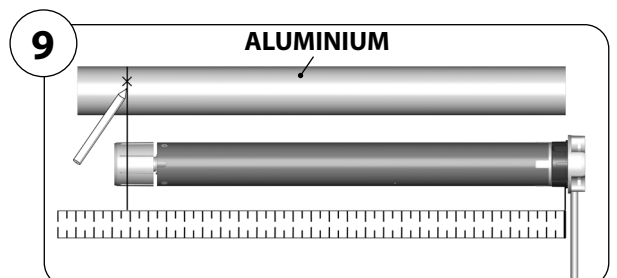


7.6 Preparation for use of the precision tubes



Please only use precision tubes made from aluminium.

1. Measure the distance between the adapter (8) and the rear third of the catch (10) and mark this distance on the precision tube.



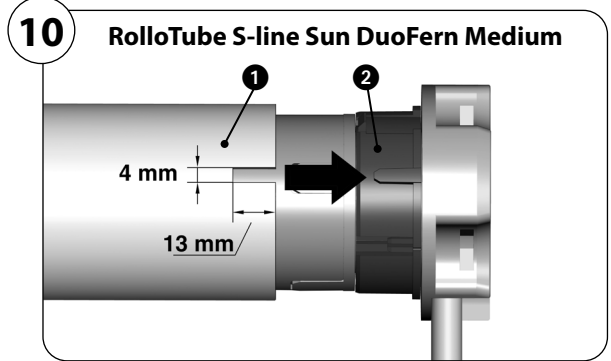


7.6 Preparation for use of the precision tubes

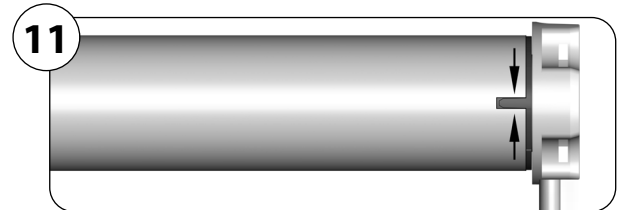
EN

2. Saw a groove in the end of the precision tube ① in order that the cam ② of the adapter (8) can be completely pressed into the tube.

□ There may not be any play between the groove ① and the cam ②.



3. Slide the tubular motor into the precision tube.



4. Mark the four fastening holes and subsequently drill them through the precision tube into the catch (10).

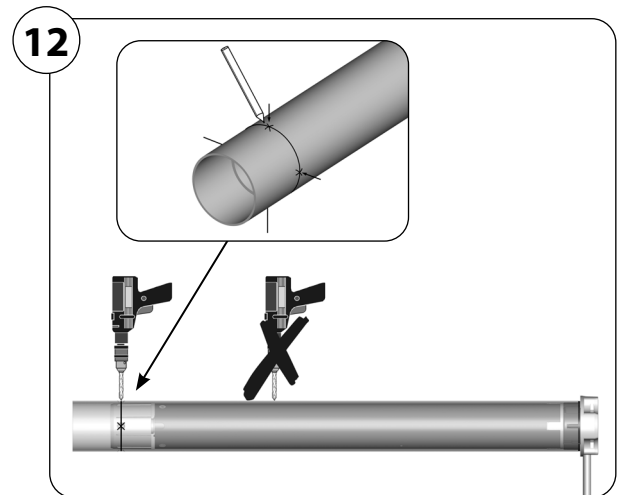
⚠ ATTENTION!

Drilling too deeply may break the freewheel mechanism.

□ Never drill deeper than 10 mm into catch (10).

Drilling in the area of the drive causes serious damage.

□ Never drill in the area of the drive (9).

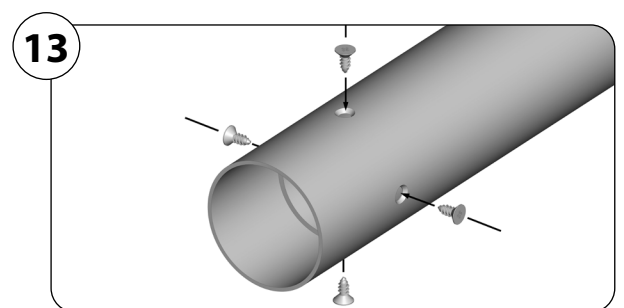


5. Screw or rivet the precision tube to the catch (10). Use four self-tapping sheet metal screws or four pop rivets for this.

⚠ ATTENTION!

Screws or rivets that are too long interfere with the freewheel mechanism.

□ Do not use screws or rivets longer than 10 mm.





7.7 Mounting the drive bearing (4)

EN

7.7.1 The drive bearing as a click bearing (4)

1. Screw the drive bearing (4) to the previously removed bearing block (3).

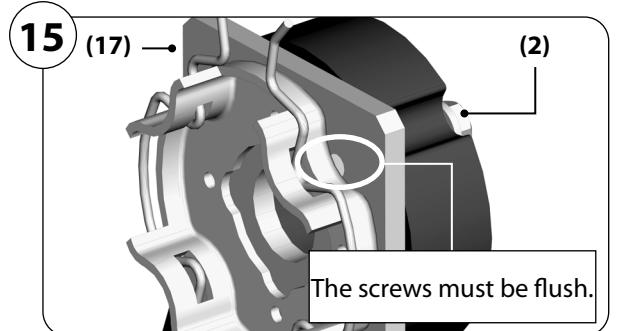
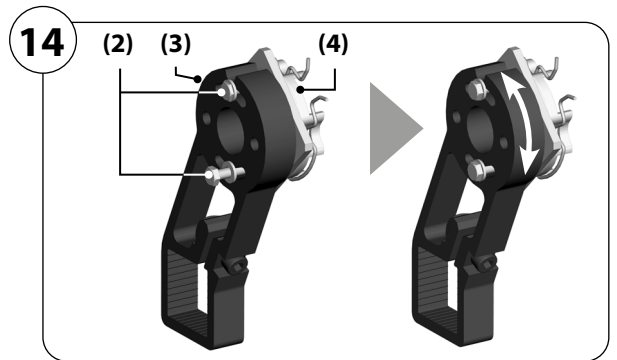
Mount the drive bearing so that the set button (7) on the tubular motor is easily accessible at all times.

ATTENTION!



If excessively long assembly screws are used, the drive bearing (4) may be bent or damaged.

- The assembly screws (2) must sit flush with the base plate (17) as otherwise the drive bearing (4) may be bent and pressed up in front of the base plate (17).
- This applies particularly if the inner assembly holes are used on the base plate (17).

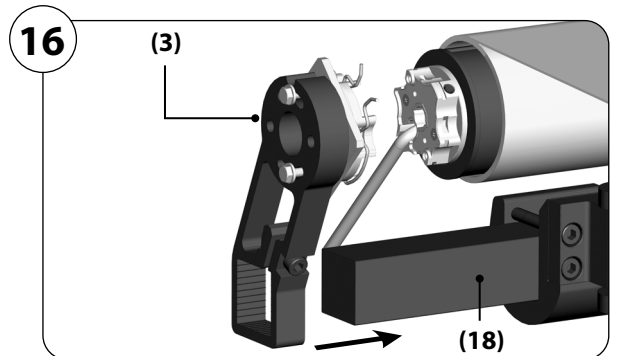


2. Subsequently slide the bearing block (3) back onto the crossbar (18) of the awning until the drive bearing (4) fully engages on the drive head (6).
- 2.1 Check that the set button (7) on the motor (9) is easily accessible. Correct the position of the drive bearing (4) on the bearing block (3) if necessary.

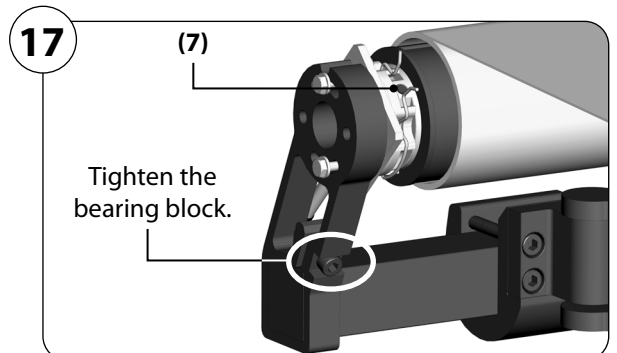


The tubular motor can be fitted in 4 positions in the click bearing (4).

You can release the motor from the click bearing (4) at any time by spreading the retaining spring (5).



3. Finally screw the bearing block (3) back onto the crossbar (18) of the awning.



7.7.2 Mounting in other drive bearing versions

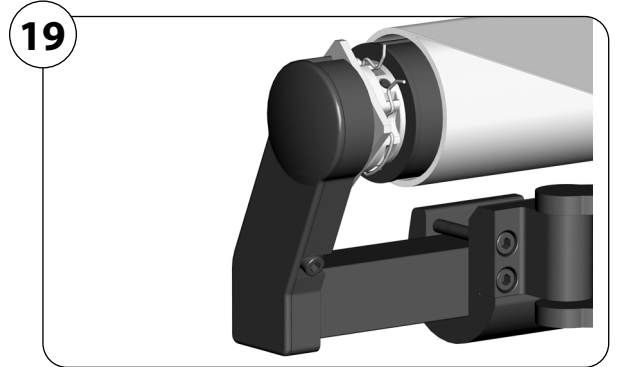
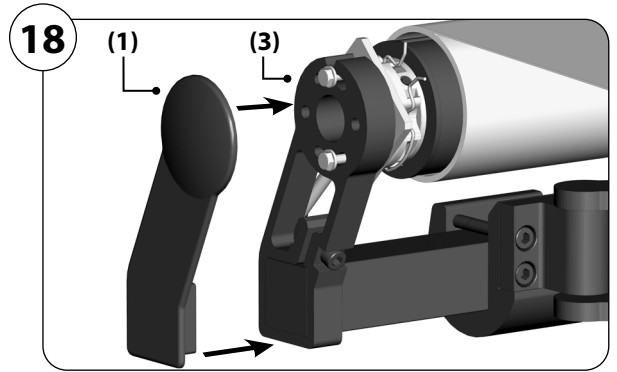
The assembly of other bearing types is undertaken in the same way as in the previous description. In doing so, pay attention to the special characteristics of the respective bearing type, e.g. the connection between the drive head and the drive bearing with a cotter pin.



7.8 Preparing the awning for electrical connection and commissioning

EN

1. Finally, place the side cover (1) (if available) back on the bearing block (3).
2. Release the ratchet straps from the joint arms.
3. Finally, check that the installation work has been carried out properly.





8. Safety instructions for the electrical connection

EN

DANGER!



Risk of fatal electric shock when touching electrical components.

- ☐ Carry out all installation and connection work only in an isolated, de-energised state.
- ☐ Disconnect all phases of the mains power lead and secure it to prevent any reconnection.
- ☐ Check that the system is de-energised.

Fixed-installation devices...

...must be equipped on the installation side with a circuit-breaker for each phase in accordance with DIN VDE 0700. Switches with a contact opening width of min. 3 mm can be used as circuit-breakers (e.g. power switch, power circuit breaker or residual-current-operated circuit-breaker).

WARNING!



Risk of short-circuit resulting from damaged cable.

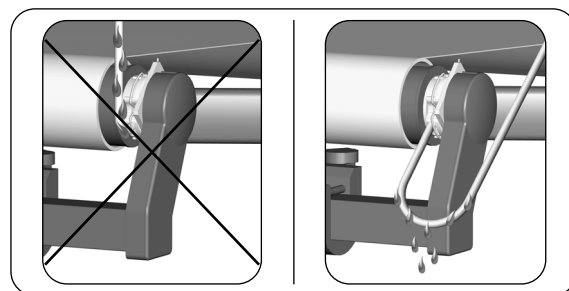
- ☐ Lay the motor cable (13) so that it cannot be damaged by moving parts of the awning.
- ☐ The mains connection for the drive may only be connected with the same conduction type. Consult customer services if necessary.
- ☐ Seal the wall duct after laying the motor cable (13) in order to prevent water penetration.

WARNING!



Risk of short-circuit resulting from water in the event of improper cabling.

- ☐ Never lay the motor cable (13) vertically upwards otherwise water may collect on the cable and run into the motor, leading to damage.
- ☐ Lay the cable in a loop. The loop will cause any water on the cable to collect at the lowest point, from where it can drain off.



8.1 Connecting the motor cable (13)

1. Connect the motor cable (13) according to the following wiring configuration.

Colour scale for the motor leads (13)

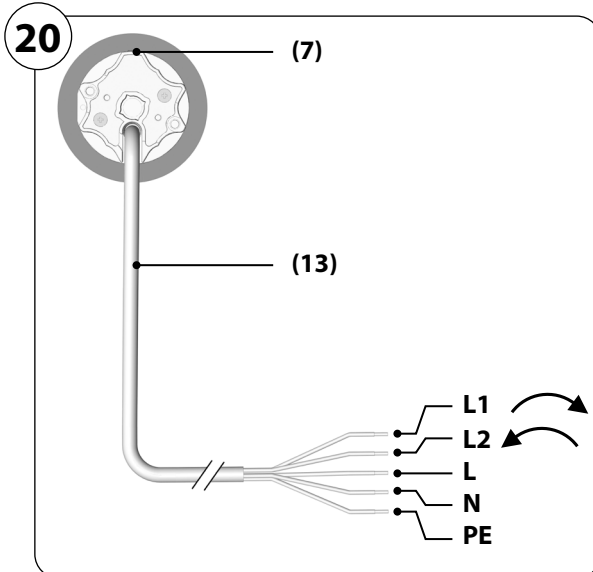
- | | | | |
|-----|---|---|------------------|
| L1 | = |  | (black) * |
| L2 | = |  | (brown) * |
| N | = | neutral terminal | (blue) |
| L | = | continuous phase | (grey) |
| PE | = | earth | (green / yellow) |
| (7) | = | Set button on tubular motor | |



* The actual direction of travel of the tubular motor and awning depends on the direction of installation and the wiring of the tubular motor.



Shortening the motor cable (13) can restrict the radio range. The antenna is also integrated in the motor cable.





8.2 Electrical connection of the tubular motor

8.2.1 Controlling the tubular motor via radio

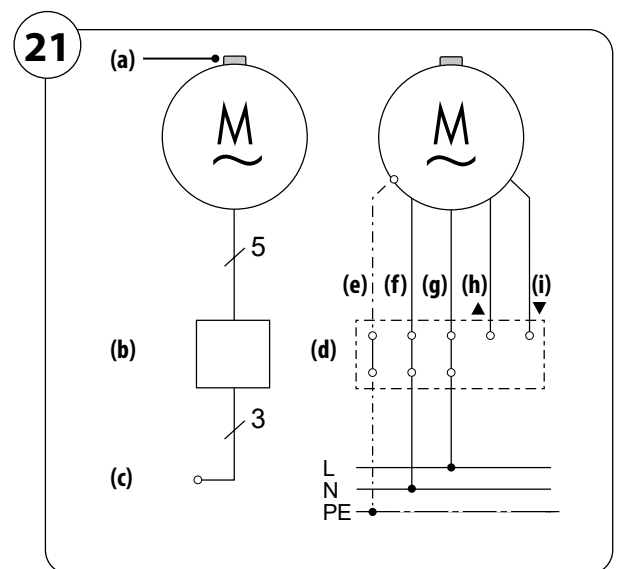
Legend:

- (a) = Set button (7)
(b/d) = Socket box
(c) = Mains 230 V/50 Hz

Pin assignment:

- (e) = PE green/yellow
(f) = N blue
(g) = L grey (continuous phase)
(h) =  black (direction of travel 1) *
(i) =  brown (direction of travel 2) *

* The black and brown wires (direction of travel 1 and 2) are not required for radio operation and therefore not connected.



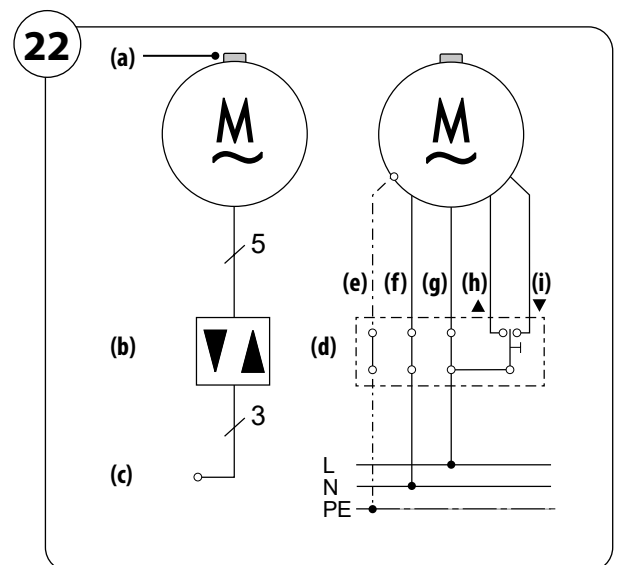
8.2.2 Controlling the tubular motor using a switch or a push button

Legend:

- (a) = Set button (7)
(b) = Switch or push button
(c) = Mains 230 V/50 Hz
(d) = Socket box

Pin assignment:

- (e) = PE green/yellow
(f) = N blue
(g) = L grey (continuous phase)
(h) =  black (direction of travel 1) *
(i) =  brown (direction of travel 2) *



Example: Circuit layout with a push button



When using a switch, we recommend that the mains power to the motor is switched off (switch in zero position) after reaching the end points. This avoids the motor experiencing sources of interference or excess voltages.



8.2 Electrical connection of the tubular motor

EN

8.2.3 Controlling the tubular motor using a 1-pole button (closer)

Legend:

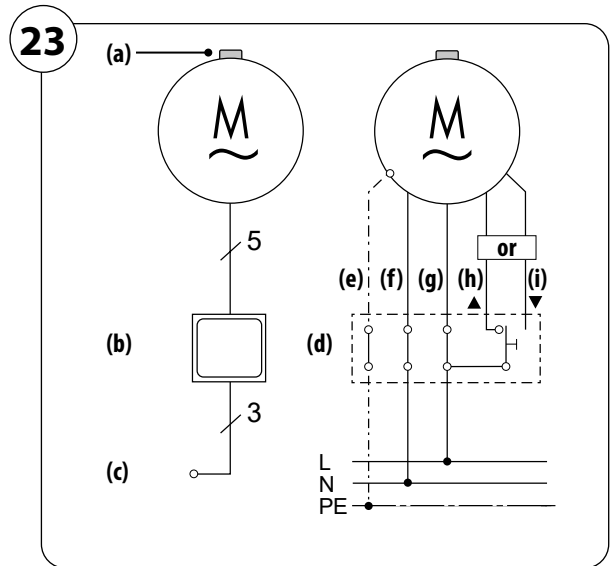
- (a) = Set button (7)
 (b) = 1-pole button
 (c) = Mains 230 V/50 Hz
 (d) = Socket box

Pin assignment

- (e) = PE green / yellow
 (f) = N blue
 (g) = L grey (continuous phase)
 (h) =  black (direction of travel 1)
 (i) =  brown (direction of travel 2)



Once the button has been connected the function must be activated on the RolloTube S-line Sun DuoFern.



Activating the '1-pole button' function

1. Tap the button 4 x briefly and press and hold the 5th time.
2. The connected tubular motor will acknowledge this with a slight movement, and the function is activated.

The switching sequence is as follows:

Extend / Stop / Retract / Stop / ...

Deactivating the '1-pole button' function

Repeat the steps 1. and 2.

8.2.4 Parallel connection of several motors

It is possible to connect numerous RADEMACHER tubular motors in parallel. The number of motors to be connected in parallel is dependent on the capacity of the switchgear and circuit-breakers.



The end points must be set at each individual motor prior to parallel connection. Please refer to the respective operating manual.



It is not possible to control individual motors if the equipment is connected in parallel.

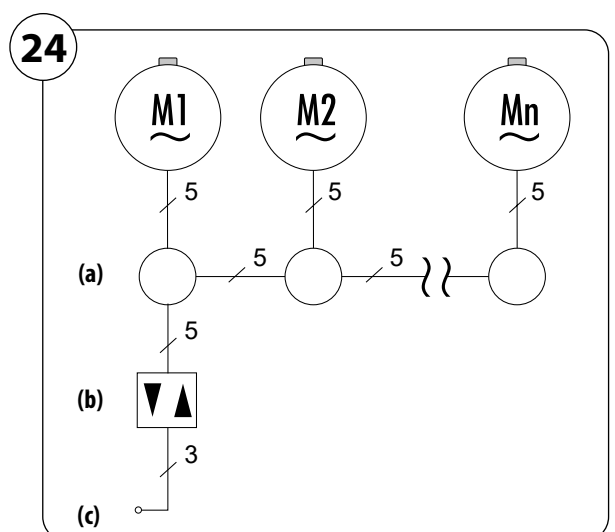
Parallel connection with Venetian blind switches or Venetian blind buttons

Up to five motors can be switched in parallel with RADEMACHER Venetian blind switches or Venetian blind buttons.

Parallel connection with RADEMACHER controllers (e.g. Troll Comfort)

Please refer to the technical specifications for the respective number of tubular motors that can be connected in parallel.

Installation example



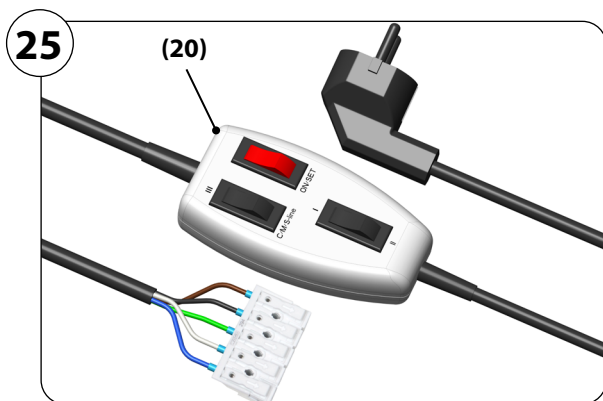
Legend:

- (a) = Junction box
 (b) = Controller, e.g. 1-pole switch / button
 (c) = Mains 230 V / 50 Hz



8.3 Connection of the universal setting cable for manual end point setting

EN



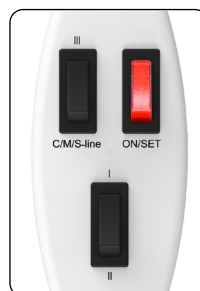
Pin assignment:

The connection is made with the same colours as the motor cable (13) of the RolloTube S-line Sun DuoFern, see figure [20].

1. Open the terminal contacts by pressing the plungers and connect all of the wires of the motor cable (13) with the same colours and corresponding to their functions, see also figure [20].

Button assignment for RolloTube S-line Sun DuoFern:

Button 2



Button 3

Button 1

Button 1 = direction of travel (I / II)

Button 2 = set button (III)

Button 3 = continuous phase (ON/SET)



9. Self-learning mode

EN

The RolloTube S-line Sun DuoFern is delivered from the factory in self-learning mode and can be put into operation immediately after the electrical connection.

1. Switch on the mains power supply. When using the universal setting cable, press the On/Set button.

The RolloTube S-line Sun DuoFern is ready for operation immediately.

2.   First extend and then retract the awning.
The end positions are automatically learned during the first run cycles.

3. Subsequently check the direction of travel, if the RolloTube S-line Sun DuoFern is being operated using a switch or button.

Switch the lines for the rotation direction if the direction of travel is wrong, see connection diagrams [22/23] on pages 21/22.



The processes must not be interrupted while learning the outer end point.

While learning the outer end point, it is important to note that the awning motor runs until the fabric hangs loosely and then moves back automatically until the fabric is taut again and stops. This is a sign that the outer end point has been learned.



Over-dimensioned tubular motors can lead to malfunctions during end point setting in self-learning mode.

Please monitor the awning closely during this process. If the motor does not stop when the fabric is taut again, but the joint arms fold and retract the awning again, the motor is over-dimensioned for the system and the process must be interrupted. The outer end point must be set manually in this case.



10. Manual adjustment of end points

You can also adjust the end points manually if required:

- ☐ The manual setting of the outer end point is done first and then the upper end point setting, e.g. during the initial installation.
- ☐ Manual adjustment of an end point in combination with the self-learning mode.

Initial installation

For initial installation, the awning specialist can carry out the end point setting with the help of the **set button (7)** on the motor or with a commercially available **universal setting cable (20)**.



In order to do so, follow the more detailed information provided in the operating manual of the respective accessories.

Subsequent modification of the end points with external controllers

If you want to subsequently modify the end points of your awning motor, you can adjust these with your controller (e.g. Troll Comfort).

WARNING!



Risk of fatal injury (electric shock) due to tearing off the motor cable (13).

- ☐ Ensure that the motor cable (13) is not taken up by the moving awning parts or torn off during the setting process.



Important conditions for adjusting the end points and for safe operation

- ☐ End points must be set in order to switch off the motor when they are reached for both directions of travel, retract () / extend () .
- ☐ The tubular motor must be fully installed.

CAUTION!

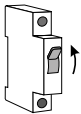
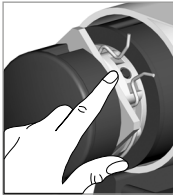
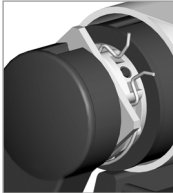
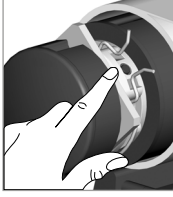
Risk of injury when adjusting the awning due to crushing of the hands by the moving awning.

- ☐ Never reach into the area of the awning shaft (11) and joint arms (19) when the motor is running.



10. Manual adjustment of end points

EN

		With the set button on the tubular motor	OR	With the universal setting cable
1.	First, switch on the mains power or continuous phase at the universal setting cable.	 ON		 ON/SET The LED on button 3 must light up continuously.
2.	Extend the awning first.  ATTENTION A combination of the endpoint adjustment with a DuoFern radio remote control can cause malfunctions.			 I Direction of travel 1 or II Direction of travel 2
3.	In addition press the set button on the tubular motor.			III press/tap twice briefly and press and hold the third time.
4.	Release the button again as soon as the desired end point is reached.			III
5.	You can correct the end point in small steps by briefly pressing the button.			III
6.	Switch off the specified direction of travel after successfully setting the end points. Move the motor briefly in the opposite direction to save the end point.	 Set the switch to the neutral position and release the set button.		I II Set the rocker switch to the centre position.
7.	Next, switch off the continuous phase at the universal setting cable.			ON/SET



10. Manual adjustment of end points

EN

Reset the original connection in accordance with the connection diagrams [21 to 23] on pages 21 and 22 if you have carried out the setting with the universal setting cable.



In the event that a malfunction occurs during the setting process, e.g. the tubular motor only runs for a single rotation even when you press and hold the set button, the adapter **(8)** may have slipped off the drive head **(6)**.

□ Check and, if necessary, correct the positioning of the adapter **(8)**, see page 28.



10.1 Test run / modifying the end points

Test run

1. Subsequently check the direction of travel, if the RolloTube S-line Sun DuoFern is being operated using a switch or button.
Switch the lines for the rotation direction if the direction of travel is incorrect, see connection diagrams [**22/23**] on pages 21/22 .
2. Check the settings and allow the awning to run in both directions, until the end points switch off the motor.



The fabric tensioning function is active during the manual end point setting after the first run cycle.



ATTENTION!



The tubular motors are designed for transient operation (approx. 4 min.).

If this period is exceeded, or if the equipment is switched over frequently, then the motor may heat up and the thermal protection system will switch it off.

□ In this case, allow the motor to cool down for 20 minutes.

Modifying the end points

Move the awning back to the centre position and begin the process again.



11. Reloading the factory settings

EN

Self-learning mode with a smooth stop is active again after loading the factory settings.

Notes for carrying out the setting

- ☐ Either use a new commercially available universal setting cable (20).
- ☐ The tubular motor may not be in operation.

Factory settings:

End points:	no end points stored
Self-learning mode:	activated
Blockage detection:	activated
Obstacle detection:	activated
Jog mode using a 1-pole button:	deactivated
Fabric relief and Fabric tensioning :	activated

When using the universal setting cable (20)

1. Button 3 - ON/SET

First, switch on the continuous phase.



2. Button 1 - switch on the desired direction of travel (I or II)

> while simultaneously (within one second) pressing and holding

Button 2 (set button III), until the tubular motor confirms this by briefly running up and down (approx. 5 seconds).

After that the factory settings are loaded.

Subsequently:

- ☐ Release **Button 2** (set button III)
- ☐ **Button 1** (I/II) in the middle position
- ☐ Switch off continuous phase - **Button 3** (ON/SET)



3. Switch off the mains power supply and reset the original connection in accordance with the connection diagrams [21 to 23] on pages 21 and 22 if you have carried out the setting with the universal setting cable.

...the motor fails to start?**Possible cause:**

- ☐ The mains voltage is not available.

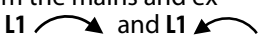
Solution:

- ☐ Check the power with a meter to ensure that the supply voltage (230 V) is available and check the wiring.
- ☐ Observe especially the information relating to impermissible connection types.

...the wiring is incorrect?**Possible cause:**

- ☐ The control lines are mixed up.

Solution:

- ☐ Disconnect the lead from the mains and exchange the wires for  .

...the tubular motor stops after a short period of time during the setting and test procedures?**Possible cause:**

- ☐ The adapter (8) may have slipped off the magnetic ring (14) on the drive head (6).

Solution:

- ☐ Check that the adapter (8) sits flush with the drive head (6) and is fully inserted into the awning shaft (11).
- ☐ Slide the adapter (8) back so that it is flush with the drive head (6) and then press the tubular motor into the awning shaft (11) so that the adapter (8) is inserted fully in the awning shaft, see illustrations [3 / 8]. Re-adjust the end points if necessary, see page 24.

...the tubular motor stops between the two end points during normal operation?**Possible cause:**

- ☐ The thermal protection system has triggered.

Solution:

- ☐ Wait approx. 20 minutes until the motor has cooled down.

...the tubular motor stops whilst extending the awning?**Possible cause:**

- ☐ The motor must push the awning out because the awning shaft (11) is not running smoothly or is corroded.

Solution:

- ☐ Check/restore the free movement of the awning or consult a specialist awning firm.

... the tubular motor continues to retract the awning after the tensioning of the fabric during the automatic outer end point setting?**Possible cause:**

- ☐ The tubular motor may be over-dimensioned.

Solution:

- ☐ The outer end point must be set manually in this case.

... the tubular motor cannot retract the extended awning again?**Possible cause:**

- ☐ The tubular motor may be under-dimensioned.

Solution:

- ☐ Use a tubular motor with a more powerful driving force.

... the fabric has become very loose and blocked over the extended awning arms during the manual end point setting?**Solution:**

- ☐ At this point, perform a new top end point setting or a factory reset.

Motor series:		SLDSS xx/xx PZ		SLDSM xx/xx PZ				
Nominal torque:	Nm	6	10	10	20	30	40	50
No-load speed	rpm	28	16	16	16	16	16	12
Nominal voltage	V	230	230	230	230	230	230	230
Frequency	Hz	50	50	50	50	50	50	50
Nominal power	W	121	121	112	145	191	198	205
Current consumption	A	0.53	0.53	0.49	0.64	0.83	0.86	0.89
On-period (KB)	min.	4	4	4	4	4	4	4
Number of wires		5	5	5	5	5	5	5
Core cross section	mm ²	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Connecting cable	m	2,5	2,5	2,5	2,5	2,5	2,5	2,5
End switching range: (number of revolutions.)	rev.	112	64	64	64	64	64	48
Insulation class		H	H	H	H	H	H	H
Protection class		I	I	I	I	I	I	I
Protection type in accordance with VDE 700		IP 44	IP 44	IP 44	IP 44	IP 44	IP 44	IP 44
Motor length without bearing	mm	485	485	487	487	546	546	546
Tube diameter	mm	35	35	45	45	45	45	45
Sound pressure level (LpA)	dB(A)	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70
Transmission frequency	MHz	434.5	434.5	434.5	434.5	434.5	434.5	434.5
Max. transmission power	mW	10	10	10	10	10	10	10
Approx. range								
- In a building (depending on the building structure)	m	30	30	30	30	30	30	30
- Outdoors	m	100	100	100	100	100	100	100
Number of parallel tubular motors that can be connected in parallel (when using RADEMACHER controllers, e.g. Troll Comfort)		3	3	2	2	2	2	2

14. Configuration of KNX/EIB actuators for RADEMACHER tubular motors

In order to ensure trouble-free operation of RADEMACHER tubular motors with KNX/EIB actuators, the following parameters must be set prior to commissioning:

Transient operation

If possible, transient operation (slat adjustment) should be switched off.

e.g. Mode for transient operation
Time: = 0 ms

If transient operation cannot be deactivated from within the software application...

...then you must ensure that the time between transient operation and long-term operation on the key sensor is less than the time between transient operation and long-term operation on the actuator. This will ensure that transient switch-off of the actuator is prevented when holding the sensor key down.

Long-term operation

The motor **must** be switched off at the latest after 180 seconds.

e.g. Basis for long-term operation
Basis: = 2.1 s
Factor: = 86
= (2.1 s x 86 = 180.6 s)

CE DELTA DORE RADEMACHER GmbH hereby declares that the tubular motors in the RolloTube S-line Sun DuoFern Medium series comply with the Directives **2006/42/EC (Machinery Directive)** and **2014/53/EU (Radio Equipment Directive)**.

The full text of the EU declaration of conformity is included with the product and is kept on file by the manufacturer.

DELTA DORE RADEMACHER GmbH
Buschkamp 7
46414 Rhede (Germany)

Warranty terms and conditions

Information on our warranty conditions is enclosed separately with this product.



16. Logging DuoFern devices on/off

EN

In order to control the RolloTube S-line Sun DuoFern using the SmartHome Box or a DuoFern transmitter (e.g. DuoFern manual control), **every DuoFern device** must be connected to the RolloTube S-line Sun DuoFern verbinden.

You can connect up to 20 DuoFern devices, e.g. SmartHome Box, DuoFern manual control, DuoFern manual transmitter Standard, etc. to the RolloTube S-line Sun DuoFern.

There are different options for logging a DuoFern device on/off from the RolloTube S-line Sun DuoFern:

- ☐ By pressing the set button on the tubular motor.
- ☐ By using a roller shutter switch or push button.
- ☐ By using a radio code.

Time window for activation via DuoFern radio code

After switching on the power supply, the radio code is active for a maximum of 2 hours. Once this time has elapsed, activation using the radio code is no longer possible. Briefly disconnect the RolloTube S-line Sun DuoFern from the mains to reactivate the time window.



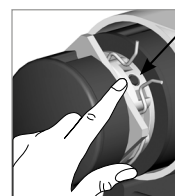
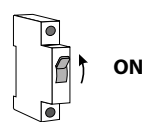
16.1 Logging a DuoFern device on/off using the set button

Requirement

The tubular motor must be stopped.

1. Switch on the mains power.
2. Activate log-on/off mode for the tubular motor **by briefly pressing** the set button (7).
The tubular motor confirms this by briefly travelling up and down.
3. Activate log-on/off mode on the DuoFern device.
 Please read the operating manual for the respective DuoFern device.
4. The tubular motor acknowledges successful log-on by starting up briefly.
5. Log the next DuoFern device on or off, or end the process.

With the set button on the tubular motor



set button (7)



120 seconds
Log-on/off mode remains active for approx. 120 seconds..



Pay attention to the time remaining until the device is logged-on or off



16.2 Logging a DuoFern device on/off using a switch/button or universal setting cable

EN

Requirement

The tubular motor must be stopped.

1. Switch on the mains power.

2. Activate log-on/off mode for the tubular motor as follows.



120 seconds

Log-on/off mode remains active for approx. 120 seconds.

3. Activate log-on/off mode on the DuoFern device.

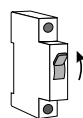


Please read the operating manual for the respective DuoFern device.

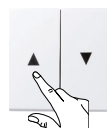
4. The tubular motor acknowledges a successful log-on/off by starting up briefly.

5. Log the next DuoFern device on or off, or end the process.

Using a switch/button



ON



A desired direction of travel

Tap 2 x and press and hold the third time until the tubular motor starts up briefly.

Release/switch off the button again.



Pay attention to the time remaining until the DuoFern device is logged-on or off.

With the universal setting cable



ON/SET

The LED on button 3 must light up continuously.

I

Direction of travel 1

or

II

Direction of travel 2

Switch on/off briefly 2 x and hold the third time until the tubular motor starts up briefly

I

Set the rocker switch to the centre position.

II

ON/SET

To terminate the operation switch off Button 3 (continuous phase.)



16.3 Activating log-on mode using the remote log-on function

The RolloTube S-line Sun DuoFern can be set to log-on mode in combination with a SmartHome Box or a DuoFern Manual Central Operating Unit by using the remote log-on function in order to activate other DuoFern devices (e.g. DuoFern Manual Transmitter).

