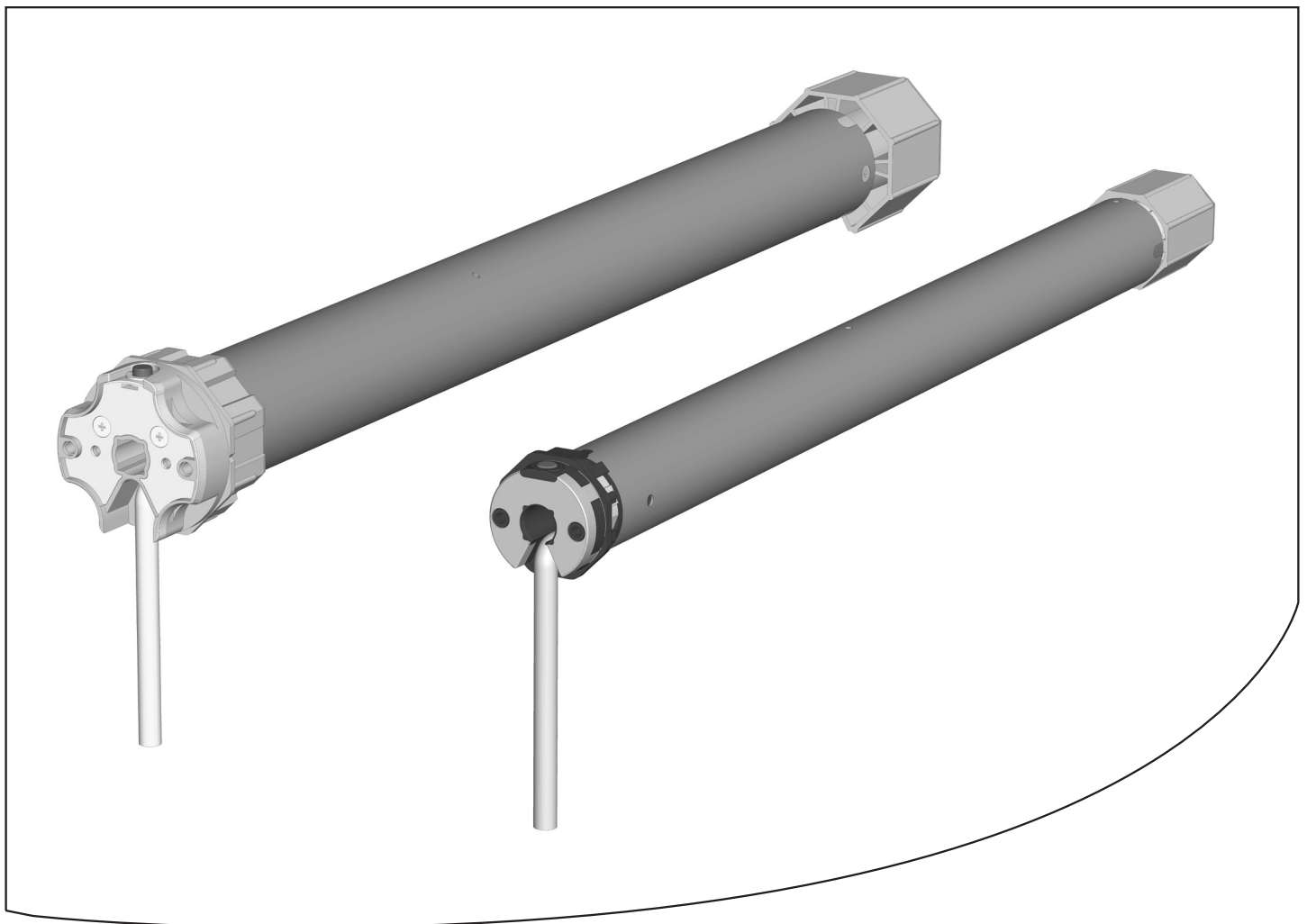




**EN** Operating and installation instructions for RADEMACHER tubular motors ..... 27

Applicable for the following series: RolloTube Intelligent Small/Medium

Item numbers: 2640 06 95 / 2640 10 95 / 2660 10 95 / 2660 20 95 / 2660 30 95 / 2660 40 95 / 2660 50 95



Please note:

Site of installation:

.....

Serial number:

.....

## i Dear Customers,

With your purchase of this tubular motor, you have decided in favour of a quality product manufactured by **RADEMACHER**. We would like to thank you for your confidence.

**RADEMACHER tubular motors** have been developed with the greatest possible convenience in mind. Having applied uncompromising quality standards, and carried out thorough testing, we are proud to be able to present you with this innovative product.

It is brought to you by all the highly-qualified personnel here at **RADEMACHER**.



### CE Mark and Conformity

This product fulfils the requirements of all applicable European and national directives.

Conformity has been verified. The corresponding declarations and documentation are available on file at the manufacturer's premises.

## i These instructions...



... serve to describe the installation, electrical connection and operation of RADEMACHER tubular motors of series RolloTube Intelligent Small and Medium.

Before you begin work, please read these instructions through completely and follow all the safety instructions.

Please store these instructions in a safe place and pass them on to any future owners.

Damage resulting from non-compliance with these instructions and safety instructions will void the guarantee. We assume no liability for any consequential damage.

## i Key to symbols



### Danger of fatal electric shock

This sign warns of danger when working on electrical connections, components, etc. It requires that safety precautions be taken to protect the life and health of the person concerned.



### This concerns your safety.

Please pay particular attention and carefully follow all instructions marked with this symbol.

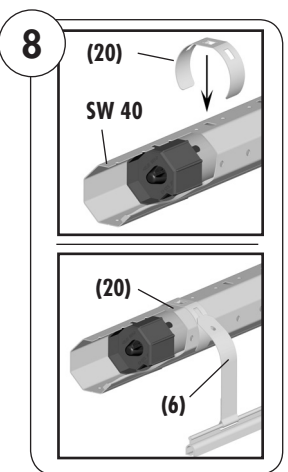
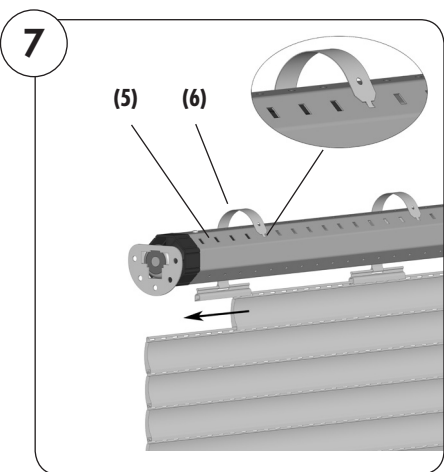
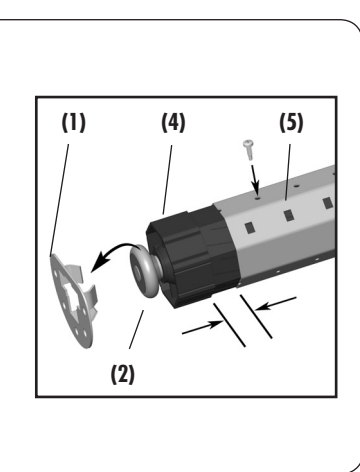
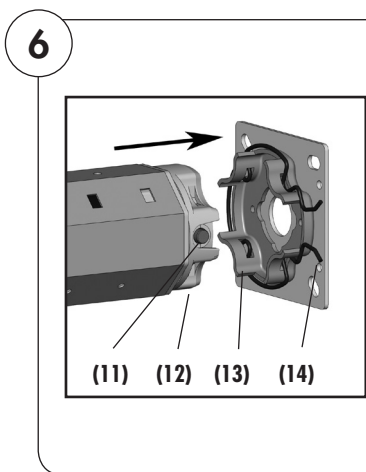
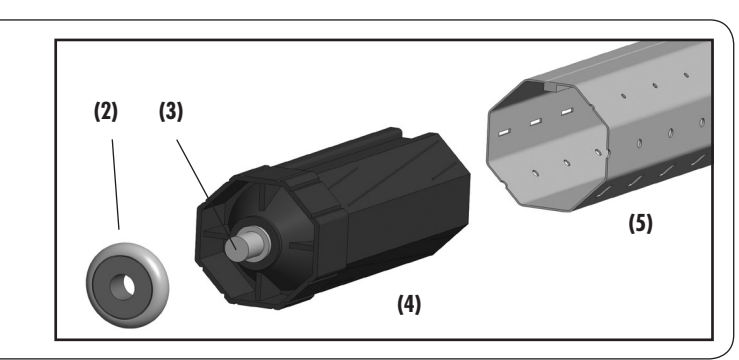
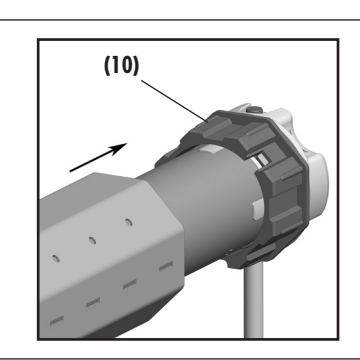
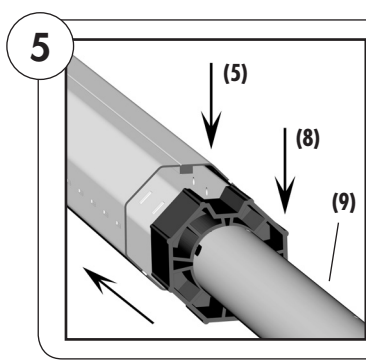
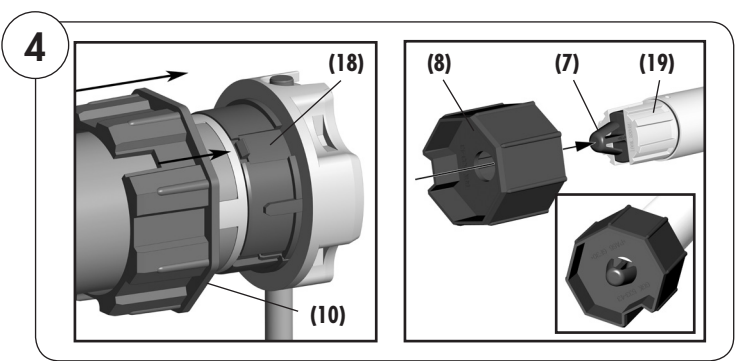
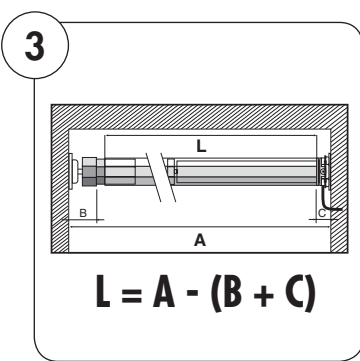
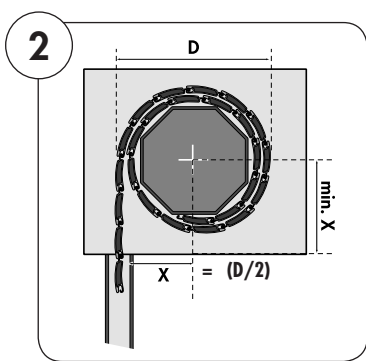
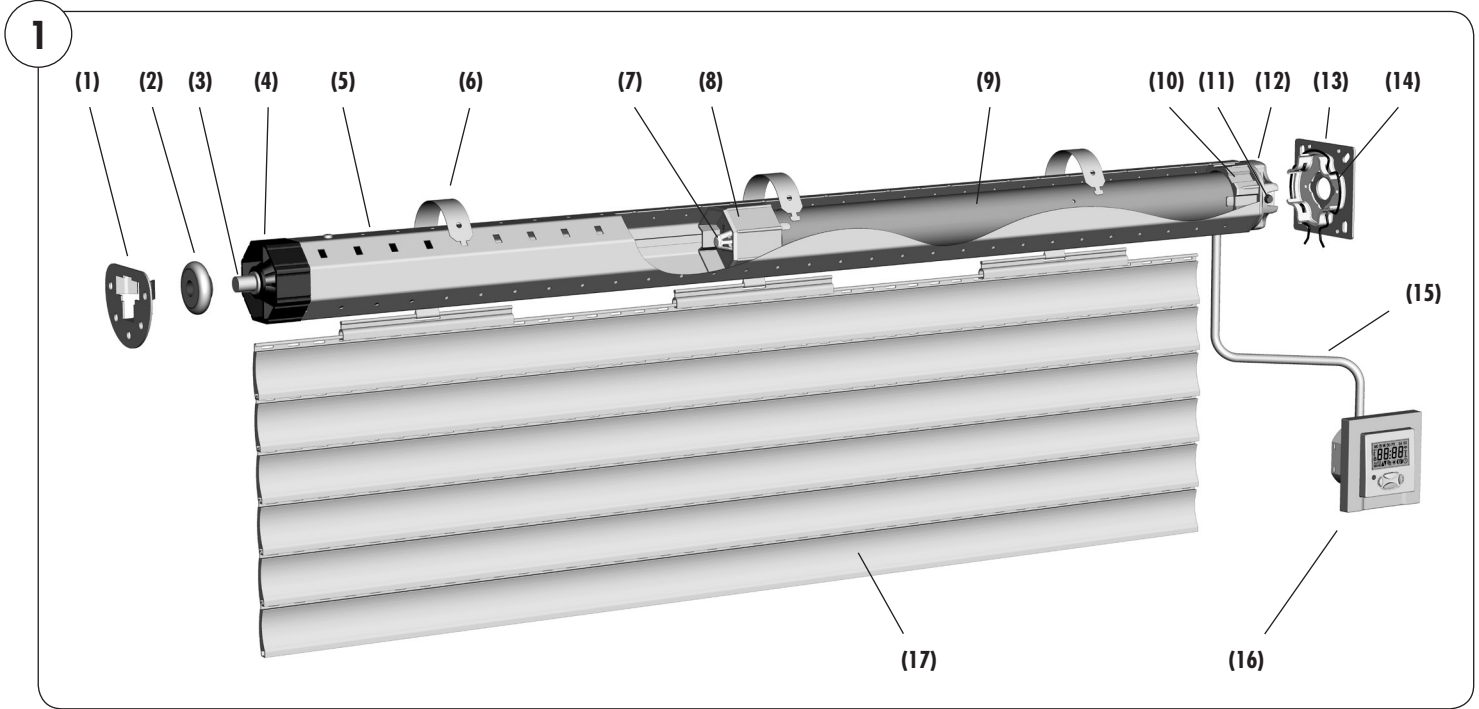


This symbol warns of malpractices that can result in personal injury or property damage.

### NOTE/IMPORTANT/CAUTION

In this way, we wish to make you aware of the following content in order to ensure optimal functionality.

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## Key to the overall view (Figure ①)

EN

- (1) Counter bearing
- (2) Ball bearings
- (3) Axle pin on bearing capsule
- (4) Bearing capsule
- (5) Rotating union
- (6) Fastening spring
- (7) Retaining clip
- (8) Catch
- (9) Tubular motor
- (10) Adapter
- (11) Set button
- (12) Drive head
- (13) Drive end bearing
- (14) Retainer
- (15) Motor cable
- (16) Controller (e.g. Troll Comfort)
- (17) Roller shutter casing
- (18) Limit ring
- (19) Drive adapter
- (20) Hook-in brackets

**Please note:**

Customer-specific scope of delivery

**After unpacking please check the following:**

- ◆ Check that the package contents matches the scope of delivery listed on the package.
- ◆ Check that the motor type corresponds to the specifications on the type plate.



## General safety instructions



### Danger due to electric shock when working on all electrical systems.

- ◆ 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 pages 41/42).
- ◆ Always undertake mounting and connection work with the equipment disconnected from the mains power.



### Mortal danger in the event of failure to observe these instructions!

#### Observe the regulations regarding installation in damp rooms.

Especially observe DIN VDE 0100, parts 701 and 702 when installing in damp rooms. These regulations contain mandatory protective measures.



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

- ◆ Never use defective or damaged equipment.
- ◆ Check the drive and mains cable beforehand for damage.
- ◆ Consult our customer service department (see page 52) in the event that you discover damage on the equipment.



### According to DIN EN 13659, it is necessary to determine that the movement conditions for the shutters are maintained in accordance with EN 12045.

The displacement must amount to at least 40 mm on the lower edge in the rolled-out position with a force of 150 N in the upwards direction. In doing so, it must be ensured that the extending speed of the shutters for the final 0.4 m is less than 0.2 m/s.



### Potential risk to life and limb resulting from uncontrolled starting of the drive.

Never attempt to manually stop the motor/shutters 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 specialist engineer.



### 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 control units.
- ◆ Do not allow children or persons with limited capabilities to use the fixed control units or remote control systems.

#### For roller shutters:

- ◆ Watch the moving roller shutters and keep other people away from the area until the movement has completed.
- ◆ Undertake all cleaning work on the roller shutters with the equipment disconnected from the mains power.

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

- ◆ Awnings may not be operated if work is being carried out nearby (e. g. windows being cleaned).
- ◆ For automatically actuated awnings:
- ◆ Awnings must be disconnected from the power supply if work is being carried out nearby.

#### Regular maintenance of awnings increases operational reliability.

- ◆ Regularly check the awnings for poor balance as well as damaged leads and springs.
- ◆ Have damaged awnings repaired by a specialist 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.

## i

## Proper use / operational conditions

### Only use the tubular motors for opening and closing roller shutters and awnings.

#### IMPORTANT

- ◆ In the event of outside installation the motor cable must be laid on a suitable empty tube up to the junction box under observation of local electrical regulations.
- ◆ Only use the manufacturer's original components and accessories.

### Only use tubular motors which correspond to the local conditions in terms of their output. Incorrectly dimensioned tubular motors can lead to damage:

- ◆ An insufficiently dimensioned tubular motor can be damaged due to overloading.
- ◆ An excessively dimensioned tubular motor can cause damage, for example, to the roller shutters and roller shutter casing when configuring the automatic end-point setting.

Consult a specialist dealer when selecting the tubular motor and observe our tractive force specifications on our Website: [www.rademacher.de](http://www.rademacher.de)

### Operating conditions

- ◆ A continuous 230 V /50 Hz mains supply must be available at the site of installation for the electrical connection in combination with on-site switchgear (fusing).

## i

## Incorrect use

### Never use the tubular motor:

For systems with increased safety-relevant requirements or where there is an increased risk of accidents. Such use would require additional safety equipment. Observe the respective statutory regulations for the installation of such systems.

The RADEMACHER Intelligent series of tubular motors are designed for opening and closing roller shutters and awnings.

RolloTube Intelligent tubular motors are equipped with the new Safe-Drive system for position detection, torque monitoring and obstacle detection. The drive's compact design and fully automatic end point configuration ensures for straightforward and convenient installation.

The RolloTube Intelligent impresses in daily operation with automatic roller shutter compensation as well as the blockage and obstacle detection system (with reversing function), ensuring maximum safety and gentle operation.

### Overview of functions:

- ◆ Commissioning with a single run command. Self-learning motor with fully automatic end point configuration.
- ◆ Safe-Drive method for precise positioning, torque monitoring and obstacle detection.
- ◆ Blockage and obstacle detection including reversing function
- ◆ Obstacle detection can be arbitrarily configured thanks to the new snap-in FlexiClick system.
- ◆ Maintenance free end point thanks to automatic roller shutter compensation.
- ◆ Quick and easy installation thanks to the new shorter design.
- ◆ Optionally available: Universal RT ConfigTool for individual configuration of the motor parameters.

## Blockage detection function

**The tubular motor stops and automatically shifts into the opposite direction (reversing) in the event that an obstacle is detected while opening (e.g. if a roller shutter is iced-up).**

### NOTE

Do not move iced-up roller shutters and rectify the fault or remove the obstacle.

## Obstacle detection function

**The tubular motor stops and automatically shifts briefly in the opposite direction (reversing) in the event that the roller shutter hits an obstacle while closing.**

### NOTE

**The reversing mechanism after obstacle detection can be switched on / off if necessary, please refer to page 48.**

### Requirements for correct obstacle detection:

- ◆ The catch with freewheel mechanism must be mounted (see Fig. 4.a, page 36).
- ◆ The roller shutter must be mounted to the rotating union with the fastening springs or with the fixed shaft connector.
- ◆ Roller shutters must always run vertically in the guide rails of the window.

## Function of the shutter length compensation system

**The shutter length compensation system is active subsequent to every automatic learning process for the upper end point. Afterwards, the tubular motor no longer runs fully against the upper end point in order to protect the roller shutters and the end points.**

**For example, seized roller shutters can cause the automatically learned end points and runs to be changed over a period of time. In order to compensate for this, the tubular motor periodically runs automatically to the upper and lower end points (the cycle for this is configured at the factory).**

### NOTE

- ◆ The roller shutter compensation system operates automatically during normal operation, so that generally you will not notice it.
- ◆ If the upper end point is manually configured, then the roller shutter compensation system is inactive.



# Important assembly instructions

### IMPORTANT

- ◆ Check that the voltage / frequency on the type plate corresponds to local mains conditions prior to installation.



- ◆ All cables and equipment not required for operation of the equipment is to be removed or deactivated 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 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 cover of the roller shutter box must be freely accessible and removable.

- ◆ Never dismantle the stopper from the final roller shutter lamella. Otherwise the roller shutters may slip through into the roller shutter box and be damaged.



### CAUTION

Installing the tubular motor at an angle can cause the tubular motor or roller shutters to be damaged. For example, roller shutters wound at an angle can block the drive and cause damage.

- ◆ Always ensure that the tubular motors and bearings are mounted horizontally.
- ◆ Please ensure that the rotating union (5) and the roller shutters (17) run smoothly and freely downwards after installation.
- ◆ The roller shutters (17) may not run over the bearing, the bearing capsule (4) or the drive head (12) during operation.
- ◆ Ensure that the rotating union (5) and the fastening springs (6) of the drive (9) do not touch. They may not rub against the tubular motor (9) during operation.



### For automatically actuated 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.



**Only use tubular motors which correspond to the local conditions in terms of their power. Incorrectly dimensioned tubular motors can lead to damage.**

- ◆ Incorrectly dimensioned drives and counter bearings can cause the roller shutter system to be damaged. Only use original bearings supplied by the manufacturer. Third-party drives and counter bearings must be selected in accordance with the torque specifications of the respective tubular motors.

### Risk of injury in the event of incorrect installation (impact injuries and contusions).

- ◆ The motor can eject from the drive bearing in the event of incorrect installation/ fastening. Fasten the tubular motor with the securing devices provided.

### Mortal danger in the event of operation without configured end points.

- ◆ The end points must be configured in order to ensure safe operation. In order to do so, please refer to the corresponding chapter in this manual provided on page 43.



# Installation of the tubular motor

### NOTE

The following installation instructions apply to standard installation situations in combination with RADEMACHER tubular motors and accessories.

The drive head (12) of the motor can be installed on either the right or left sides of the roller shutter box. These instructions depict the installation on the right-hand side.

### Required minimum width for the roller shutter box:

<b>Tubular motor type:</b>	<b>Small</b>	<b>Medium</b>
<b>Minimum width approx.:</b>	<b>56 cm</b>	<b>67 cm</b>





## Mounting the bearing (Figure ②)



Check that the bearing is installed horizontally. Roller shutters wound at an angle can block the drive and cause damage.

1. **First determine the position of the drive (13) and counter bearing (1) in the roller shutter box.**

Wind the roller shutter casing fully onto the rotating union and measure **diameter D**. See figure ② in order to determine the position of the centre of the bearing to the guide rail.

1.

### IMPORTANT

When installed, the wound roller shutter must run vertically in the guide rails on the window.

2.

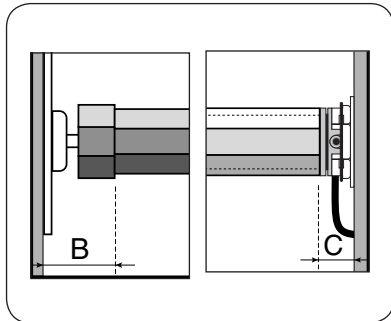
**Fasten the bearing in accordance with the bearing type and on-site conditions.**

Mount the drive bearing (13) so that the set button (11) will be easily accessible and the motor cable can be laid without kinking.

**Check that the bearing is installed horizontally. Roller shutters wound at an angle can block the drive and cause damage.**



## Determine the length of the rotating union (Figure ③)



**B** = Counter bearing / Bearing capsule

**C** = Drive end bearing / motor

1. **Measure the wall gap of the drive bearing (13) and counter bearing (1) as shown.**

2. **Measure the roller shutter box and calculate the required shaft length (L).**

**Length of the rotating union:  $L = A - (B + C)$**

3. **Shorten the rotating union (5) to the required size.**

Cut the shaft to size with a hacksaw at a right-angle. Remove the burrs from the shaft internally and externally with a file.



## Mounting / dismantling the adapter (Figure ④)

1. **Mounting the adapter (10)**

Slide the adapter (10) over the limit ring (18) on the drive head until it engages. In doing so, check the correct positioning of the groove in the adapter (10).

2.

**Dismantling the adapter (10)**

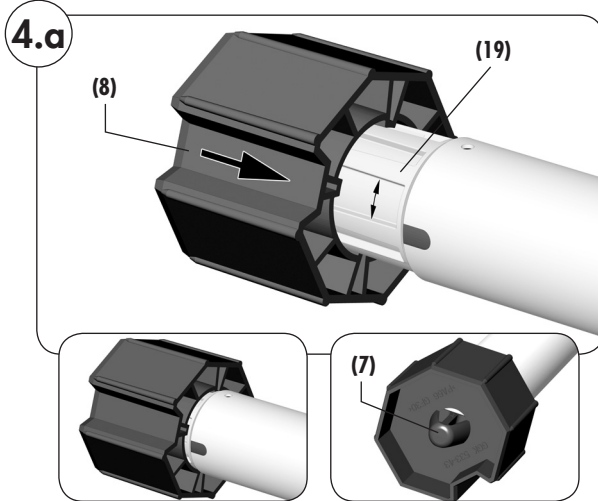
Press the two retaining springs on the limit ring (18) downwards and pull the adapter (10) off of the limit ring (18).



## Mounting the catch with freewheel mechanism (Figure 4.a) \*

EN

\* = supplied state



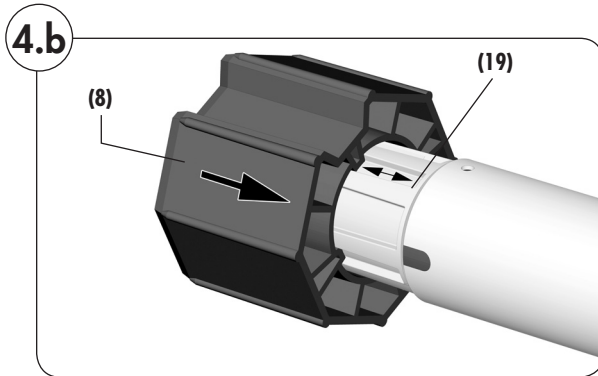
### IMPORTANT

If the tubular motor is to be operated with automatic end point configuration and obstacle detection, then the catch (8) must be mounted with free-wheeling action.

1. Slide the catch (8) onto the limit ring (19) so that it can free-wheel and so that it engages behind the retaining clip (7).  
Free-wheeling is given if the catch (8) can be easily turned back and forth.



## Mounting the catch without freewheel mechanism (Figure 4.b)



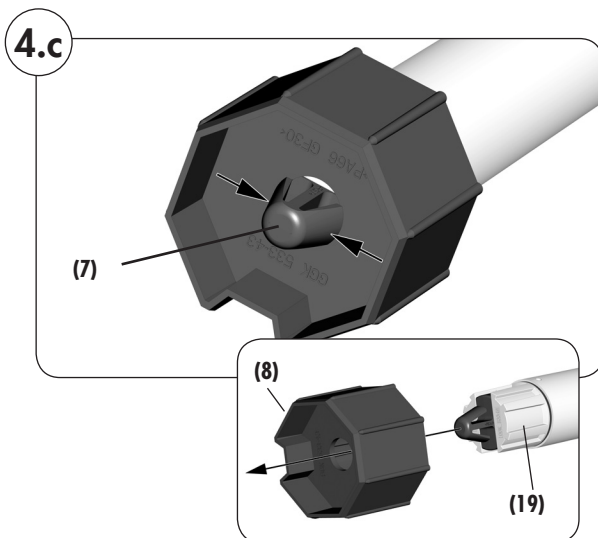
1. Slide the catch (8) onto the limit ring (19) so that it cannot free-wheel and so that it engages behind the retaining clip (7).

### NOTE

- ◆ If the catch (8) is mounted without the freewheel mechanism, then the tubular motor will work without obstacle detection and without automatic end point configuration.
- ◆ It may be necessary to mount the catch (8) without the freewheel mechanism for very lightweight roller shutters or for roller shutters which do not drop easily, in order to avoid premature switch-off.



## Dismounting the catch (Figure 4.c)

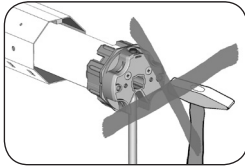


1. Press the side parts of the retaining clip (7) together and pull the catch (8) off of the drive adapter (19).



## Sliding the tubular motor into the rotating union (Figure 5)

EN



**Never knock the motor (9) with force into the rotating union (5).**  
Doing so will cause serious damage.

1. **First slide the catch (8) into the rotating union (5).**  
**IMPORTANT**  
The motor (9) must have sufficient free space for rotating unions with internal felt.

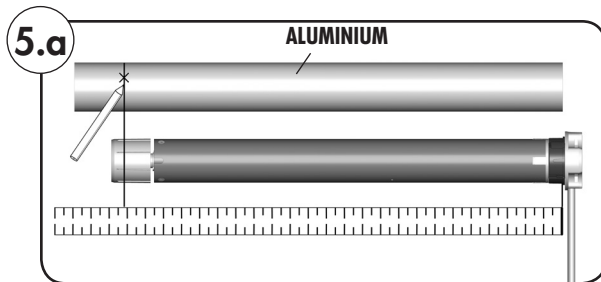
2. **Subsequently, press the rotating union (5) fully onto the adapter (10).**  
**IMPORTANT**  
In doing so, ensure that the adapter (10) does not slip off of the limit ring (18) on the drive head (12) during the assembly process. Otherwise malfunctions may occur, see page 49.



## Preparation for use of precision tubes (Figures 5.a - 5.f)

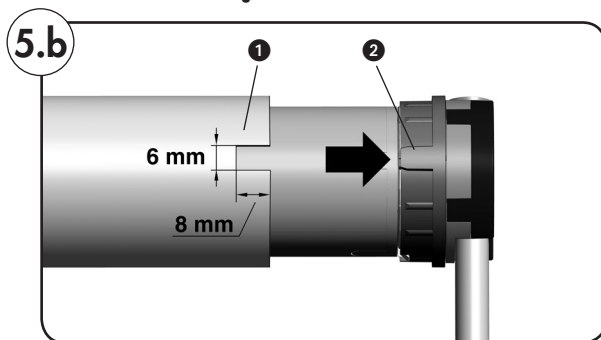
### IMPORTANT

- ◆ Please only use precision tubes made from aluminium.
- ◆ The following steps can be left out when using octagonal steel shafts.



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

### RolloTube Intelligent Small

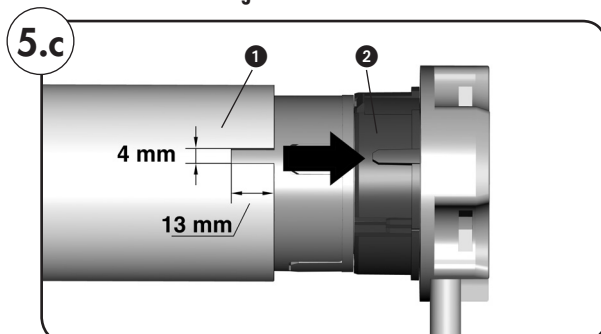


2. **Saw a groove in the end of the precision tube 1 in order that the cam 2 of the adapter (10) can be completely pressed into the tube.**

### NOTE

- ◆ There may not be any play between the groove 1 and the cam 2.
- ◆ The dimensions for groove 1 are dependent on the tubular motor type used, see illustrations.

### RolloTube Intelligent Medium

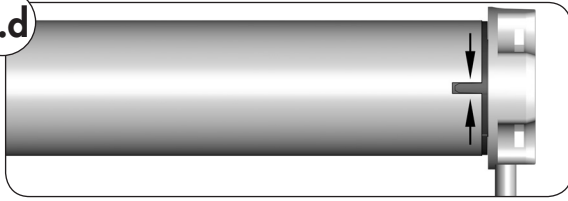




## Preparation for use of precision tubes (Figures 5.a - 5.f)

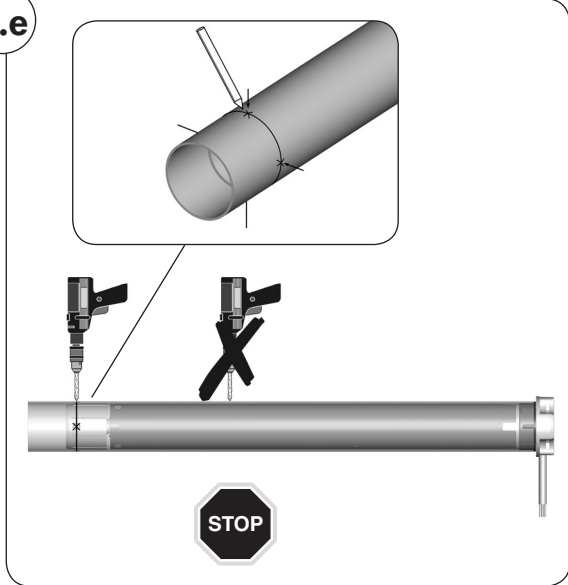
EN

5.d



3. Slide the tubular motor into the precision tube.

5.e

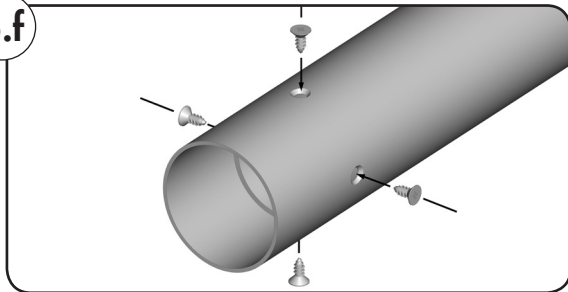


4. Mark the four fastening holes and subsequently drill them through the precision tube in the catch (8).

### ATTENTION

- ◆ Never drill deeper than 10 mm into the catch (8).
- ◆ Never drill in the area of the drive. Doing so will cause serious damage.

5.f



5. Screw or rivet the precision tube to the catch (8).

Use four self-tapping sheet metal screws or four pop rivets.



## Inserting the bearing capsule (Figure 5)

1. Slide the bearing capsule (4) into the rotating union (5) and subsequently place the ball bearing (2) onto the axle pin (3).



## Mounting the motor into the bearing (Figure ⑥)

EN

1.

### Drive bearing (as click bearing)/(13)

Press the drive head (12) lightly onto the drive bearing (13) until it engages.

#### NOTE

The set button (11) must be easily accessible.

The tubular motors can be fitted into the click bearing (13) in 4 positions. The motors can be released from the click bearing (13) at any time by means of expanding the retaining clips (14).

### Drive bearing (all other bearing types)

Hook the drive head (12) into the corresponding drive bearing and secure, for example, with a cotter pin.

2.

### Counter bearing (1)

Insert the other end of the rotating union (5) with the ball bearing (2) into the counter bearing (1).

In the event that you are using a different bearing to the RADEMACHER click bearing, you may need to secure the drive with a secondary cotter pin.

3.

Correct any slight inaccuracies in size by means of sliding the bearing capsule (4) in or out.

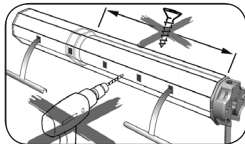
#### IMPORTANT

- ◆ Finally, secure the bearing capsule (4) with a screw.
- ◆ The bearing capsule (4) must be inserted at least 2/3 of its length into the rotating union (5).



## Mounting the roller shutter casing (Figure ⑦/⑧)

Mount the roller shutter casing (17) with fastening springs (6) (accessory) onto the rotating union (5).



Never drill in the area of the drive or insert screws in order to secure the roller shutters.

#### IMPORTANT

- ◆ Operating the equipment without a stopper may cause the roller shutters to run into the roller shutter box and be damaged.

The roller shutters must always be fitted with a stopper or end-rail.

1.

Slide the fastening springs (6) onto the upper-most lamella of the roller shutter casing (17).

2.

Place a fastening spring (6) every 40 cm into the rectangular holes of the rotating union (5).

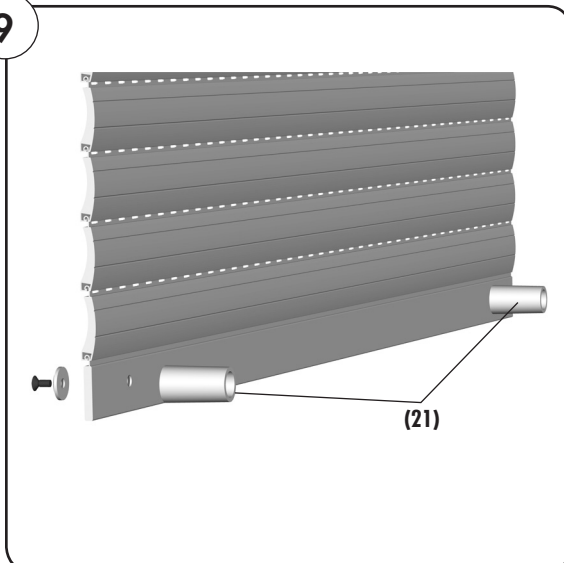
2.a

For SW 40 rotating unions (with external groove) use hook-in brackets (20) in order to mount the fastening springs (6); see figure ⑧.



## Mounting the roller shutter stopper or an end-rail (Figure ⑨)

9



The illustration shows a roller shutter with external stoppers (21), which are installed on the rails.

#### IMPORTANT

- ◆ Automatically setting the end points without a stopper (21) or operating the equipment without a stopper (21) may cause the roller shutters to run into the roller shutter box and be damaged.
- ◆ The roller shutters (17) must always be fitted with a stopper (21) or end-rail. For this reason, always mount the respective part before commissioning (see example in figure ⑨).



# Safety information regarding the electrical connection



### Danger due to electric shock when working on all electrical systems.

- ◆ 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.
- ◆ Disconnect all poles from the mains and secure them against unintentional reconnection.
- ◆ Check that the system is dead.
- ◆ Always undertake mounting and connection work with the equipment disconnected from the mains power.



### Risk of short-circuit resulting from damaged cable.

- ◆ Lay all cables in the roller shutter box so that they cannot be damaged by moving machinery.
- ◆ The mains connection for the drive may only be connected with the same conduction type. Consult customer services if necessary.

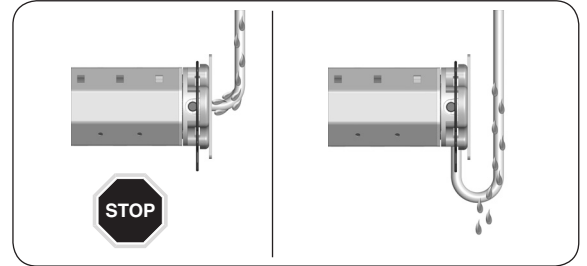
### Fixed-installation devices...

...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).

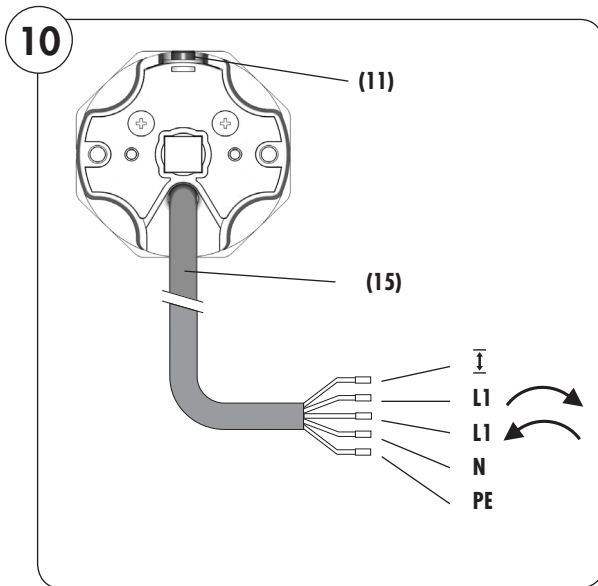


### Risk of short-circuit resulting from water in the event of improper cabling.

Never lay the motor cable (15) vertically upwards, as 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.



## The motor cable (Figure 10)



1. Feed the motor cable (15) into the designated junction box or terminal box after hooking the motor in place.

### Colour scale for the motor leads (15)

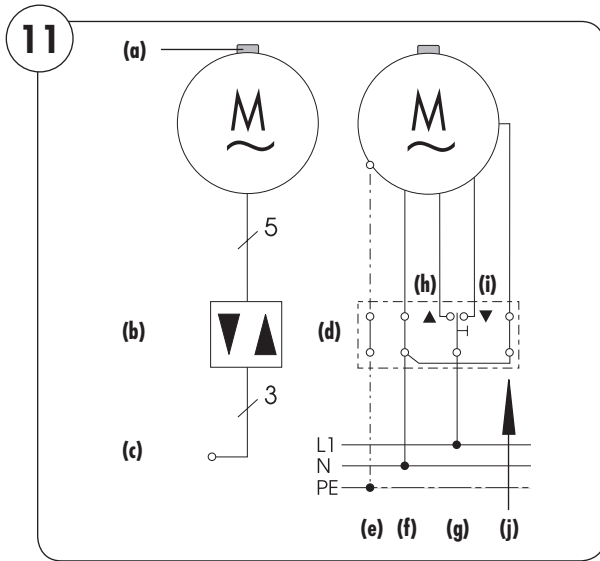
- I = set lead (white)
- L1 = (black) \*
- L1 = (brown) \*
- N = neutral (blue)
- PE = earth (green / yellow)

(11) = Set button on tubular motor

\* **NOTE** The actual direction of rotation for the tubular motor and the roller shutter depends on the direction of installation and the wiring of the tubular motor.



## Control of a drive from a single point with a 1-pole switch / button



**Legend**

- (a) = set button (11)
- (b) = Controller (e.g. 1-pole switch / button)
- (c) = Mains 230 V/50 Hz
- (d) = Socket box

**Pin assignment**

- (e) = PE green / yellow
- (f) = N blue
- (g) = L1 black
- (h) = (▲) black
- (i) = (▼) brown
- (j) = I white (set lead)

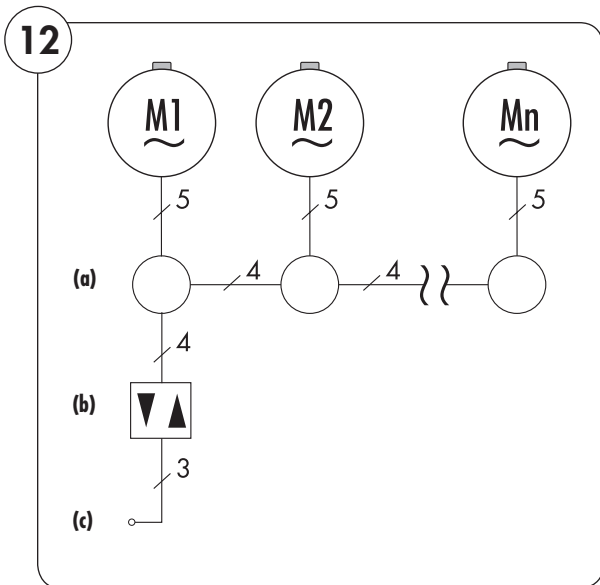
**IMPORTANT**

◆ The **set lead (j)** must be connected to **neutral (f)** after configuration of the end points.



## Parallel connection of several motors (Figure 12)

**Installation example**



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

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.

**NOTE**

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

**End point adjustment**

If several motors are connected in parallel, it is still necessary to set both end points for each tubular motor, either automatically or manually, see page 43. In order to do so, the set button for each tubular motor must be accessible.

**IMPORTANT**

For this reason, the **set lead (j)** for each individual tubular motor must be laid up to the respective junction box, enabling subsequent manual configuration of the end points at any time.

**Parallel connection with blinds switches or blinds buttons**

RADEMACHER blinds switches or blinds buttons enable up to 5 motors to be switched in parallel.

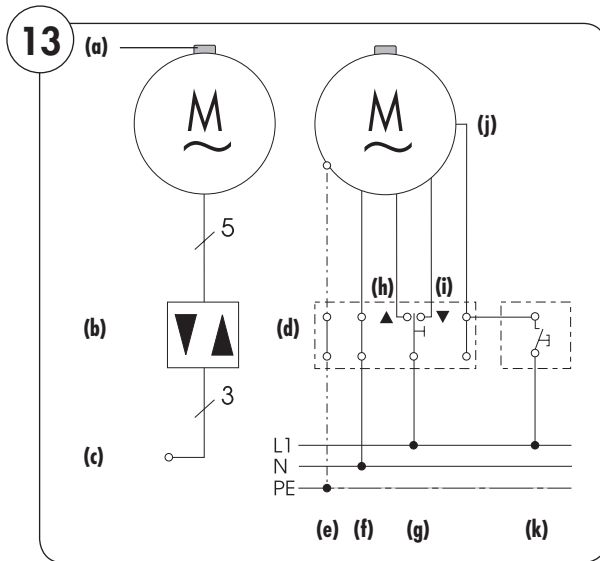
**Parallel connection with RADEMACHER controllers (e.g. Troll Comfort)**

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

**Legend**



## ...for subsequent adjusting the end point with the set line



### Legend

- (a) = set button (11)
- (b) = Controller (e.g. 1-pole switch / button)
- (c) = Mains 230 V/50 Hz
- (d) = Socket box

### Pin assignment

- (e) = PE green / yellow
- (f) = N blue
- (g) = L1 black
- (h) = (▲) black
- (i) = (▼) brown
- (j) = ⚪ white (set lead)
- (k) = external button

### IMPORTANT

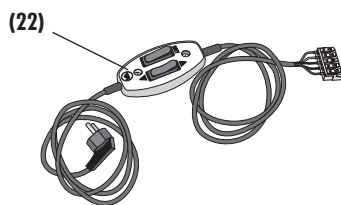
The set lead (j) must be connected to neutral (f) after configuration of the end points, see figure 11.



## Use of the set line for manual end point adjustment

The set lead (j) enables the function of the motor set button (11) to be externally positioned. If the set lead (j) is connected to an external button (see above), you will be able to use this button as a set button for configuring the end points.

Feed the set line (j) for the motor cable (15) to the designated switching point (e.g. up to the switch socket).



### Use of the set line (j) for initial installation

For initial installation, the roller shutter engineer can connect the motor cable (15) to a commercially available cord switch device (22) in order to configure the end points for the tubular motors.

### NOTE

Observe the various configuration options for the end points on page 43.

### Use of the set line (j) for subsequent modification of the end points:

If you want to subsequently modify the end points for an existing roller shutter installation, then you must commission an electrician to connect the set lead (j) in accordance with the connection diagram 13 to a commercially available button (230 V/50 Hz). You will then be able to use this button and your roller shutter controller to modify the end points.

### Use of the set line (j) after configuration of the end points:

The respective external switch must be disconnected again after the end points are configured and the motor connection must be configured in accordance with connection diagram 11.

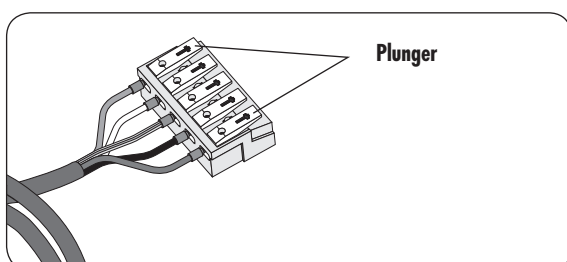


### IMPORTANT

The set lead (j) must be connected to neutral (f) after configuration of the end points.



## Connection of a cord circuit setting unit



1.

Open the terminal contacts by pressing the plungers and connect all of the wires of the motor cable (15) corresponding to their functions, see figure 10.





## End point adjustment



### Mortal danger due to tearing off the motor cable (15).

Ensure that the motor cable (15) is not taken up by the rotating union (5) or torn off during the configuration process.

### You have various options for configuring the end points, which are described in the following section:

- ◆ Automatic configuration of the end points.
- ◆ Manual configuration of the end points:
  - Manually setting the upper end point and setting the lower end point by means of obstacle detection.
  - Setting the upper end point by means of blockage detection and manually setting the lower end point.
  - Manually setting the upper end point and lower end point.

### Important relationship between the configuration of the lower end point and installation of the catch.

- ◆ If the catch is mounted without the freewheel mechanism, then the tubular motor will not switch off automatically, as it will not detect an obstacle and the lower end point will not be detected.
- ◆ If the catch is mounted with the freewheel mechanism, then the tubular motor will switch off automatically as soon as the freewheel travel is overcome and the roller shutter lamella are closed.

### IMPORTANT

- ◆ **Operating the equipment without a stopper (21) may cause the roller shutters to run into the roller shutter box and be damaged.**  
The roller shutters must always be fitted with a stopper (21) or end-rail.
- ◆ End points must be set in order to switch off the motor when they are reached for both directions of travel up (▲) /down (▼).
- ◆ The tubular motor must be fully installed.
- ◆ There must be a suitably fixed limit (e.g. window sill) in the area of the lower end point if the end point is to be configured automatically.
- ◆ **The set lead (j) must be connected to neutral (f) after configuration of the end points.**



## Automatic configuration of the end points

This factory setting can be used in order to automatically search for and configure the end points for the tubular motor.

### NOTE


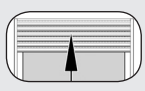
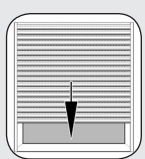

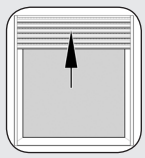
In the event that the end point configuration fails, you must reset the tubular motor to the factory setting (see page 47), in order to repeat the process.

### Requirements for automatic configuration of the end points:

- ◆ The catch (8) must be mounted with the freewheel mechanism activated (see Figure 4.a, page 36).

### IMPORTANT

- ◆ The tubular motor may not be disconnected from the mains during the automatic end point configuration process. The mains connection must be ensured continuously.

1.		<p><b>First move the roller shutters upwards.</b></p> <p>In order to do so, depending on the tubular motor installation situation, press the up (▲) button or down (▼) button for the tubular motor.</p> <p><b>IMPORTANT</b></p> <p><b>a) First move the roller shutter upwards when automatically adjusting the end points.</b> If the roller shutters first move downwards, then the direction of travel must first be reversed.</p>
2.		<p><b>The roller shutters will travel to the upper limit point and switch off briefly.</b></p>
3.		<p><b>Afterwards, the tubular motor will reverse and the roller shutters will move downwards.</b></p>
4.		<p><b>As soon as the roller shutters are fully closed, the tubular motor switches off automatically. The position of the roller shutters will be stored as the lower end point.</b></p>
5.		<p><b>Subsequently, the roller shutters will travel up again and then switch off. This position will be stored as the upper end point.</b></p> <p><b>IMPORTANT</b></p> <p><b>b) The roller shutter should remain at the upper end point following automatic adjustment.</b></p> <p><b>c) The end points cannot be correctly adjusted if the two conditions a) (see Point 1) and b) are not met. In this case, reset the tubular motor to its factory settings (refer to page 47) and repeat the process.</b></p> <p><b>NOTE</b></p> <p>The roller shutters will be protected during standard operations, due to the fact that they will not be tensioned by knocking against the stopper.</p>
6.		<p><b>Finally, disconnect the tubular motor from the mains for a few seconds. Subsequently, the tubular motor is ready for operation.</b></p> <p><b>IMPORTANT</b></p> <p><b>The set lead (j) must be connected to neutral (f) after configuration of the end points.</b></p>



# Manual adjustment of end points

### Initial installation



For initial installation, the roller shutter engineer can carry out the end point configuration with the help of the **set button (11)** on the motor or with a commercially available **cord switch device (22)**.

Further information can be obtained from the cord switch device operating instructions.

### Subsequent modification of the end points with external controllers

If you want to subsequently modify the end points for your tubular motor, you can use an **external switch as set button**, as previously shown, or you can use your roller shutter controller (e.g. Troll Comfort) in order to readjust the endpoints.

### Key assignment on cord switch device (22)

-  **Set button**
-  **Change direction of travel (▲/▼)**



### IMPORTANT

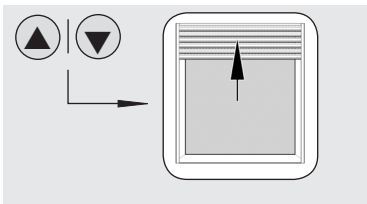
- ◆ **Operating the equipment without a stopper (21) may cause the roller shutters to run into the roller shutter box and be damaged.**  
The roller shutters must always be fitted with a stopper (21) or end-rail.
- ◆ End points must be set in order to switch off the motor when they are reached for both directions of travel up (▲) / down (▼).
- ◆ In order to do so, the tubular motor must be fully installed.
- ◆ Never dismantle the stopper from the final roller shutter lamella.
- ◆ The roller shutter box must be opened and the set button (11) on the tubular motor must be freely accessible.
- ◆ Do not allow the shutters to knock against the mechanical stops and maintain a safety gap of 2 - 3 cm.

**Risk of crushing injuries to the hand when working with the roller shutter box open.**  
Never reach into the area of the rotating union when the motor is running.



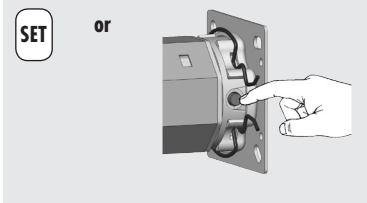
# Manually setting the upper end point and automatically setting the lower end point

1.



First move the roller shutters upwards.

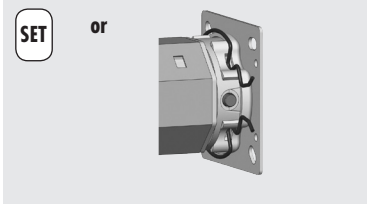
2.



Press and hold the corresponding set button\* until the upper end point is reached.

\* on the motor, the cord switch device (22) or the external switch.

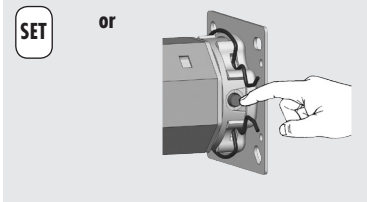
3.



Release the set button as soon as the roller shutters have reached the desired end point.

The motor stops and the upper end point is stored.

4.



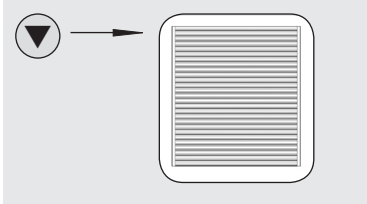
You can correct the end point in small steps by briefly pressing the set button.

### IMPORTANT

In the event that a malfunction occurs during configuration, e.g. in the event that the tubular motor only runs for a single rotation even when the set button is pressed, it is unlikely that the tubular motor is faulty. Possibly the adapter (10) has slipped off of the motor head.

Check and, if necessary, correct the positioning of the adapter (10), see page 49.

5.



Finally, move the roller shutters down. As soon as the roller shutters are fully closed, the tubular motor switches off automatically. The position of the roller shutters will be stored as the lower end point.

### NOTE

In the event that the end point configuration fails, you must reset the tubular motor to the factory setting (see page 47), in order to repeat the process.

Finally, disconnect the tubular motor from the mains for a few seconds. Subsequently, the tubular motor is ready for operation.

6.

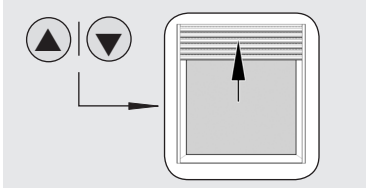
### IMPORTANT

The set lead (j) must be connected to neutral (f) after configuration of the end points.



# Automatically setting the upper end point and manually setting the lower end point **EN**

1.

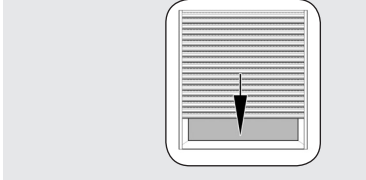


The roller shutters will travel to the upper stop until the tubular motor switches off automatically.

**IMPORTANT**

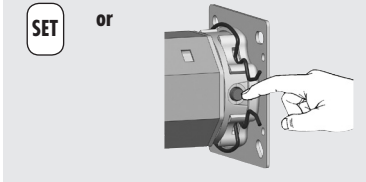
Never interrupt the sequence while the process is running. The roller shutters must be allowed to travel up without interruption.

2.



Afterwards, the tubular motor will reverse and the roller shutters will move downwards.

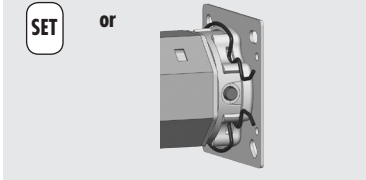
3.



Press and hold the corresponding set button\* until the lower end point is reached.

\* on the motor, the cord switch device (22) or the external switch.

4.



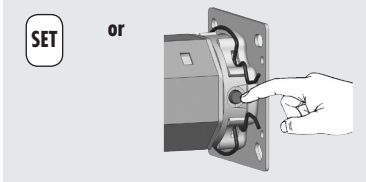
Release the set button as soon as the roller shutters have reached the desired end point.

The motor stops and the lower end point is stored.

**NOTE**

These methods are useful if you want to leave the ventilation slats between the roller shutter lamella open.

5.



You can correct the lower end point in small steps by briefly pressing the set button.

**IMPORTANT**

In the event that a malfunction occurs during configuration, e.g. in the event that the tubular motor only runs for a single rotation even when the set button is pressed, it is unlikely that the tubular motor is faulty. Possibly the adapter (10) has slipped off of the motor head.

Check and, if necessary, correct the positioning of the adapter (10), see page 49.

**NOTE**

In the event that the end point configuration fails, you must reset the tubular motor to the factory setting (see page 47), in order to repeat the process.

6.

Finally, disconnect the tubular motor from the mains for a few seconds. Subsequently, the tubular motor is ready for operation.

**IMPORTANT**

The set lead (j) must be connected to neutral (f) after configuration of the end points.



## Manually setting the upper / lower endpoints

EN

1.



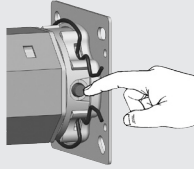
First set the switch / controller to upward travel (▲) / downwards travel (▼).

**NOTE**

In the event of incorrect direction of rotation, disconnect the lead from the mains and exchange wires L1  and L1 .

2.

SET or



Press and hold the corresponding set button\* until the desired end point is reached.

The roller shutters travel up / down.

\* on the motor, the cord switch device (22) or the external switch.

3.

SET or

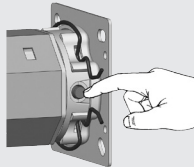


Release the set button as soon as the roller shutters have reached the desired end point.

The motor stops and the upper / lower end point is stored.

4.

SET or



You can correct the end point in small steps by briefly pressing the set button.

**IMPORTANT**

In the event that a malfunction occurs during configuration, e.g. in the event that the tubular motor only runs for a single rotation even when the set button is pressed, it is unlikely that the tubular motor is faulty. Possibly the adapter (10) has slipped off of the motor head.

Check and, if necessary, correct the positioning of the adapter (10), see page 49.

**NOTE**

The end points are maintained permanently even in the event of power failure.

**IMPORTANT**

The set lead (j) must be connected to neutral (f) after configuration of the end points.



## Test run / modifying the end points

Check the configuration and allow the roller shutters to run in both directions, until the end points switch off the motor.

**Thermal protection**

The tubular motors are designed for brief operation (approx. 4 mins).

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 shut it off.

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

**Modifying the end points**

Move the roller shutters back to the centre position and begin the process again.





## Configuring tubular motors

The tubular motors can be individually configured with the help of a cord circuit setting unit (22).

**The following configurations are possible.**

- ◆ Reload the factory settings.
- ◆ Switching the reversing mechanism after obstacle detection on / off.
- ◆ Switching shutter compensation on / off

**NOTE**

Further settings can be undertaken with the help of the optionally available RT ConfigTool. Please refer to the information on our Website in relation to this ([www.rademacher.de](http://www.rademacher.de)).



## Loading factory settings during the commissioning process

Automatic end point configuration is available again once the factory settings have been loaded.

**NOTE**

We recommend undertaking these settings with two persons.

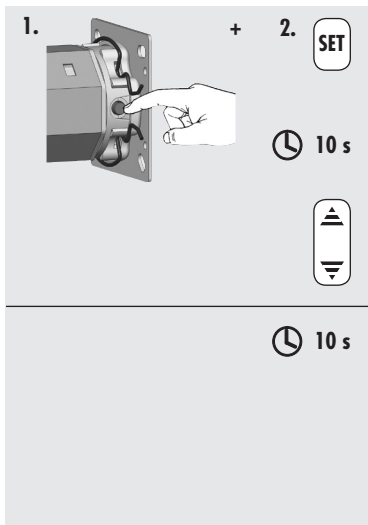
**IMPORTANT**

**The tubular motor may not be in operation.**

**Factory settings:**

End points:	No end points stored
Automatic adjustment of the end points:	activated
Reversing after obstacle detection:	activated
Reversing after blockage detection:	activated
Shutter compensation:	activated

1.



First press the set button (11) on the tubular motor and subsequently press the SET button on the cord circuit setting device (22) (possibly a second person carries this out). Press and hold both buttons for approx. 10 seconds.

Additionally switch on the tubular motor (▲/▼). Hold all buttons.

2.



After approx. 10 seconds the tubular motor acknowledges loading of the factory settings by briefly running up and down.



## Switching the reversing mechanism on / off after obstacle detection

EN

1.



First press and hold the SET button on the cord circuit setting device (22) and subsequently press and hold the up or down button for 10 seconds.

After 10 seconds the reversing function will be switched on or off.

**Factory setting = reversing is switched on.**

2.



After approx. 10 seconds the tubular motor acknowledges switching on / off of the reversing function by briefly starting up.



## Switching the automatic roller shutter compensation mechanism on / off

1.



First press and hold the SET button on the cord circuit setting device (22) and subsequently press and hold the up (▲) or down (▼) button for 20 seconds.

◆ After 10 seconds, the reversing function will be switched on or off.

◆ After 20 seconds, the shutter compensation function will be switched on or off.

**Factory setting = shutter compensation is switched on.**

2.



**Take note of the tubular motor's reactions.**

After approx. 10 seconds the tubular motor acknowledges deactivation of the reversing settings.

**Continue to hold down the button:**



After approx. 20 seconds the tubular motor acknowledges switching on / off of the shutter length compensation function by briefly starting up.

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

- ◆ Mains power 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 wires for **L1**  and **L1** .

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

- ◆ The adapter (10) may have slipped off of the limit ring (18) on the drive head (12).

**Solution:**

- ◆ Check that the adapter (10) sits flush with the drive head (12) and is fully inserted into the rotating union (5).
- ◆ Slide the adapter (10) back so that it is flush with the drive head (12) and slide the rotating union (5) fully onto the adapter (10), see Figure ⑤. Re-adjust the end points if necessary, see page 43.

**...Automatic adjustment of the lower end point does not work.****Possible cause:**

- ◆ The catch (8) is mounted without the freewheel mechanism.

**Solution:**

- ◆ Configure the lower end point manually, see page 46.

**...The tubular motor stops between the two end points during normal operation?****Possible cause 1:**

- ◆ The bearing capsule (4) may not be secured with a screw to the rotating union (5) (see Figure ⑥), causing the rotating union (5) to slip from the motor and the adapter (10) to come away from the limit ring (18) on the drive head (12).

**Solution 1:**

- ◆ Check for correct fitting of the bearing capsule (4) and the adapter (10). Use a self-locking bolt to secure the bearing capsule (4) to the rotating union (5) and remount the motor in accordance with the information on pages 34 - 39.

**Possible cause 2:**

- ◆ The thermal protection system has triggered.

**Solution 2:**

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

**...The roller shutters stop during upward or downward travel?****Possible cause:**

- ◆ Iced-up roller shutters or obstacle on the guide rail.

**Solution:**

- ◆ Move the roller shutters a short distance in the respective opposite direction.
- ◆ Rectify iced-up roller shutters or obstacle.

**...The set line is not available locally and the SET button on the tubular motor is not accessible, however, the end points should be manually configured.**

**Solution**

- ◆ In order to carry out this configuration, it is necessary to connect both control lines for up (▲) and down (▼) separately to the phase (L).
- ◆ Either use an external button with two switching contacts or the commercially available cord circuit set device (22).
- ◆ **Always have the connection work carried out by a specialist electrician and observe the safety information relating to the electrical connection on page 40.**

**NOTE**

Further information can be obtained from our Website at [www.rademacher.de](http://www.rademacher.de).

**Brief instructions for configuring the upper end point.**

1. **Once the electrical connection is made, determine the direction of rotation by means of briefly pressing the button.**



2. **Press and hold the up (▲) button.**

If the roller shutters are not yet at the upper end point, then they will now travel up to this position.

**NOTE**

If the roller shutters are at the upper end point, then you must first move the roller shutters down.



1. 1 x 0,5 s **Additionally, briefly press the down (▼) button 2 times for 0.5 seconds each time and on the third press, hold the button down.**

2. 1 x 0,5 s

3. hold down



4. **Release both buttons immediately as soon as the desired upper end point has been achieved. The end point is thereby stored.**

5.

**Set the lower end point if necessary.**

**NOTE**

Configuration for the lower end point is undertaken in the same way as for the upper end point. In order to do so, ensure that you first press the down (▼) button and then press the up (▲) button.



6. **Switch off the mains power supply and re-configure the original connection in accordance with connection diagram ① on page 41.**

...The set line is not available locally and the SET button on the tubular motor is not accessible, however, the factory settings are to be loaded.


#### Solution

- ◆ In order to carry out this configuration, it is necessary to connect both control lines for up (▲) and down (▼) separately to the phase (L).
- ◆ Either use an external button with two switching contacts or the commercially available cord circuit set device (22).
- ◆ **Always have the connection work carried out by a specialist electrician and observe the safety information relating to the electrical connection on page 40.**


#### NOTE

Further information can be obtained from our Website at [www.rademacher.de](http://www.rademacher.de).

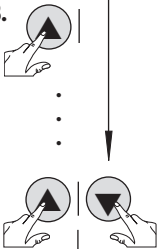
#### Brief description for loading the factory settings.

1.  Once the electrical connection is made, determine the direction of rotation by means of briefly pressing the button.

---


2.  Press the down (▼) button and wait until the roller shutters have travelled to the lower end point.  
**IMPORTANT**  
Keep holding down the down (▼) button even after the lower end point has been reached.

---


3. 

1.	1 x 0,5 s	Additionally, briefly press the up (▲) button 5 times for 0.5 seconds each time and on the sixth press, hold the button down.
2.	1 x 0,5 s	
3.	1 x 0,5 s	
4.	1 x 0,5 s	
5.	1 x 0,5 s	
6.	hold down	


---

4.  After a short time, the tubular motor acknowledges by briefly running up and down.  
The factory settings are now loaded.


---

5.  Now release both buttons.


---

6.  Carry out automatic end point configuration, also refer to page 43.  
**IMPORTANT**  
Hold down the up (▲) button until the automatic end point configuration process is complete.

---

7.  Switch off the mains power supply and re-configure the original connection in accordance with connection diagram ① on page 41.



Motor series	Small		Medium					
<b>Type:</b>	6/28	10/16	10/16	20/16	30/16	40/16	50/12	
	6	10	10	20	30	40	50	[Nm] Rated torque:
	28	16	16	16	16	16	12	[RPM] No-load speed:
	230	230	230	230	230	230	230	[V] Rated voltage:
	50	50	50	50	50	50	50	[Hz] Frequency:
	121	121	112	145	191	198	205	[W] Rated output:
	0.53	0.53	0.49	0.64	0.83	0.86	0.89	[A] Power consumption:
	4	4	4	4	4	4	4	[Min.] Cyclic duration factor (KB):
	5	5	5	5	5	5	5	Number of wires:
	0.75	0.75	0.75	0.75	0.75	0.75	0.75	[mm <sup>2</sup> ] Core cross section:
	3	3	3	3	3	3	3	[m] Cable length (standard):
	32	32	32	32	32	32	32	[U] Limit switch range: (number of revolutions)
	H	H	H	H	H	H	H	Insulation class:
	I	I	I	I	I	I	I	Protection class:
	IP 44	IP 44	IP 44	IP 44	IP 44	IP 44	IP 44	 Protection class in accordance with VDE 700:
	PVC	PVC	PVC	PVC	PVC	PVC	PVC	Conduction class:
	485	485	487	487	546	546	546	[mm] Motor length without bearing:
	35	35	45	45	45	45	45	[mm] Tube diameter:
	3	3	2	2	2	2	2	Number of parallel tubular motors connectible (when using RADEMACHER controllers, e.g. Troll Comfort)

## Configuration of KNX/EIB blinds actuators for RADEMACHER tubular motors

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

### Transient operation

If possible, transient operation (lamella 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 Mark and EC Conformity

Tubular motors of series **RolloTube Intelligent Small and Medium** (item numbers.: 2640 06 95 / 2640 10 95 / 2660 10 95 / 2660 20 95 / 2660 30 95 / 2660 40 95 / 2660 50 95) complies with the requirements of the current European and national directives:



2006/42/EC Machinery directive

2006/95/EC Low-voltage directive

2004/108/EC EMC directive

Conformity has been verified. The corresponding declarations and documentation are available on file at the manufacturer's premises.

RADEMACHER Geräte-Elektronik GmbH

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46414 Rhede (Germany)

RADEMACHER Geräte-Elektronik GmbH provides a 5 year guarantee for new equipment installed in accordance with the installation instructions. All construction faults, material defects and manufacturing defects are covered by the warranty.

**The following are not covered by the warranty:**

- ◆ Improper mounting or installation
- ◆ Failure to observe the mounting and operating instructions
- ◆ Improper operation or loading
- ◆ External influences such as impacts, knocks or weather influences
- ◆ Repairs and modifications carried out by third-party, unauthorised persons
- ◆ The use of improper accessories
- ◆ Damage caused by impermissible power surges (e.g. lightning).
- ◆ Malfunctions caused by frequency overlapping and other radio disturbances.

RADEMACHER shall remedy any defects, which occur within the warranty period free of charge either by repair or by replacement of the affected parts or by supply of a new replacement unit or one to the same value. There is no general extension of the original warranty period by delivery of a replacement or by repair as per the terms of the warranty.

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\* 30 seconds free of charge, subsequently 14 cents / minute from German fixed line networks and max. 42 cents / minute from German cellular networks.