

Troll Comfort DuoFern

Operating and Assembly Manual for 50 mm Switch Range



RolloHomeControl

RADEMACHER



Item No:

3650 05 72 (ultra-white)

3650 05 82 (aluminium)

With your purchase of a **Troll Comfort DuoFern**, you have chosen a quality product manufactured by RADEMACHER. Thank you for the trust you have placed in us.

The **Troll Comfort DuoFern** has been designed both in order to provide optimal convenience and operability as well as to ensure solidity and durability. Having applied uncompromising quality standards and thorough testing, we are proud to be able to present this innovative product to you.

It's brought to you by all the highly-qualified personnel here at RADEMACHER.



These instructions...

...describe how to install, connect the electrical system and operate your **Troll Comfort DuoFern**.



Before you begin, 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 resulting damage.

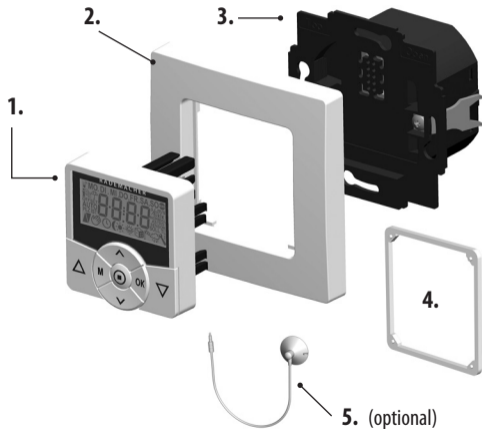
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i 1. Included in delivery

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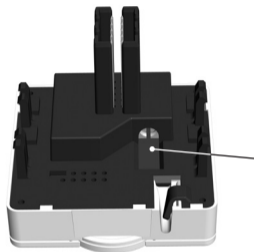
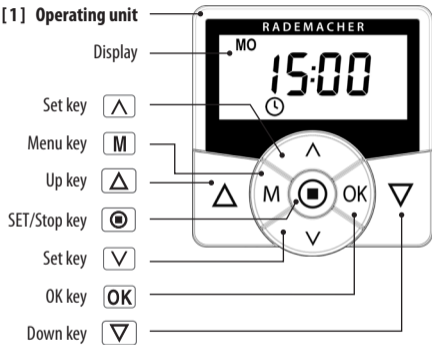
Legend

1. Control unit (50 x 50 mm)
2. Frame
3. Installation housing
4. Spacer frame, see page 67
5. Light sensor (optional), accessories, see page 122
6. 1 x operating manual (not illustrated)

i 2. General view - operating unit

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[1] Operating unit



Connection socket for the light sensor.
Installation, see page 65



Operating keys [Up / Down]



- ◆ Manual operationw [Up / Down].



SET/Stop key, []

- ◆ Manual roller shutter stop.
- ◆ Configuration (setting) of various functions.



Menu key, [M]

- ◆ Call up the main menu.
- ◆ Go back or return to the standard display.



The set keys, [/]



- ◆ Selects the desired menu item.
- ◆ Setting the parameters (increase / decrease) / pressing and holding a key for an extended period causes the digits to change more quickly.



[OK] key

- ◆ Confirms and opens the selected menu.
- ◆ Confirm entry.
- ◆ Continue to next entry.

i 4. Display symbol legend

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[MO ... SO] Week days
88:88 Time / setting parameters

 DuoFern icon

 Information

 Switching programme

 Rain display

[OFFSET] OFFSET (for Astro time)

[SET] Setting

[AUTO] Automatic operation

[PLZ] Postcode

[IST] ACTUAL value

 Direction of travel - up / down

 Automatic mode off

 Timer periods

 Automatic dusk function


 Automated solar function

 Automatic dawn function

 Random function

 Automatic wind function

 Rain function

 System settings

[SOLL] SET value

 Automatic slat adjustment

[T] Log mode

[L] Light function

[NORMAL] Switching modes

[ASTRO]

[SENSOR]

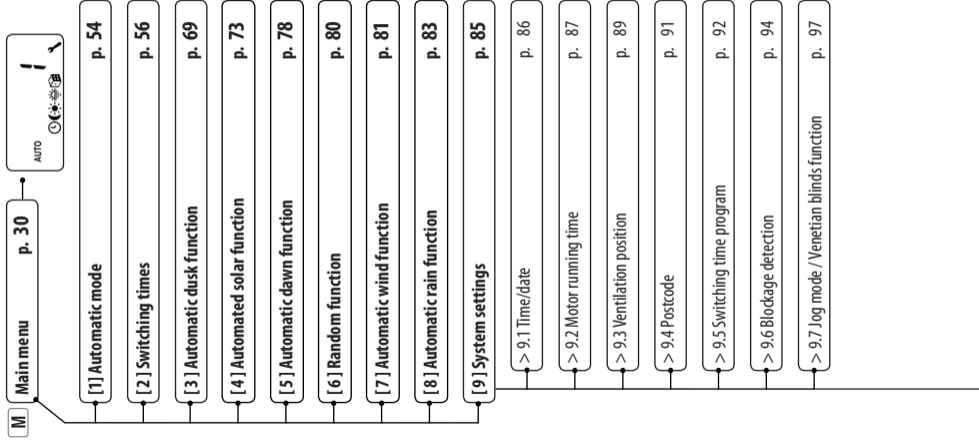
 Blockage detection

[%] Position (percent)

[°C] Temperature (°C)

[m/s] Wind speed
(metres/second)

[klx / lx] Brightness
(klx = Kilolux / lx = Lux)



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i 6. Key to symbols

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Risk of fatal electric shock.

This symbol 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.

NOTE / IMPORTANT / CAUTION

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



Please read the operating instructions for an external device described at this point, (e.g. a tubular motor).



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

- ◆ The electrical connection and all work on electrical systems must only be carried out by a qualified electrician in accordance with the connection instructions in these operating instructions, see page 27.
- ◆ 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 equipment. Please contact our Customer Service department in the event of faults, see page 124.



Incorrect use leads to an increased risk of injury.

- ◆ Children may not be permitted to play with the Troll Comfort DuoFern.
- ◆ Train all personnel to use the Troll Comfort DuoFern safely.
- ◆ Avoid allowing persons with limited abilities to operate the equipment and prevent children from playing with fixed controllers.
- ◆ Never remove the operating unit from the installation housing during operation.

Only use the **Troll Comfort DuoFern** for connecting and controlling a tubular motor for:

- ◆ Roller shutters
- ◆ Venetian blinds and slats
- ◆ Awnings
- or
- ◆ Controlling lights or other electrical appliances

Operating conditions:

- ◆ The tubular motor must be fitted with a mechanical or electronic end position switch.
- ◆ Only operate the Troll Comfort DuoFern in dry rooms.

- ◆ A 230V / 50 Hz power supply, together with a site-provided disconnecting device (fuse, MCB), must be available at the installation location.
- ◆ The installation and operation of the Troll Comfort 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.

IMPORTANT

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

Using the Troll Comfort DuoFern for purposes other than previously mentioned is impermissible and is regarded as improper use.

- ◆ Never use the DuoFern radio system and its components (e.g. Troll Comfort DuoFern) for remote control of devices and systems with heightened safety-relevant requirements or where there is a heightened risk of accidents. This shall require additional safety equipment. Observe the respective statutory regulations for the installation of such systems.
- ◆ Do not install the Troll Comfort DuoFern outside.

The **Troll Comfort DuoFern** is designed for controlling roller shutters, Venetian blinds, slats or awnings by connecting a corresponding tubular motor as well as lights (or other electrical appliances).

The Troll Comfort DuoFern can be controlled individually on site or it can be integrated into a DuoFern network.

The DuoFern receivers (actuators) and transmitters must be connected to the DuoFern network.

NOTE

You can find a detailed description of the various functions, configuration options and possible combinations for the DuoFern system at:

<http://www.rademacher.de/duofern>.

Central control of DuoFern devices with a single Troll Comfort DuoFern.

A **DuoFern network** generally includes the **DuoFern manual central** operating unit or the **HomePilot®** (together with the associated user interface) as the central controllers.

Alternatively you can also use the Troll Comfort DuoFern as a central controller. To do so, you must configure the corresponding **DuoFern mode**.

The following DuoFern modes are available for selection, see page 45.

[1] = **DuoFern receiver**

[2] = **DuoFern transmitter**

[3] = **Local operation (factory setting)**



Roller shutter control

The system enables roller shutters to be automated.

Manual operation

It is possible to manually control the connected tubular motor at any time by using the controls.

Central control of several Troll Standard controllers

The Troll Comfort DuoFern can also be used as a central controller for several Troll Standard controllers, as an alternative to connecting a tubular motor. You can obtain additional connection and circuit examples from our website at www.rademacher.de

External controller via the two inputs E1 and E2.

The Troll Comfort DuoFern features two configurable inputs **E1** and **E2** (230 V / 50 Hz) for connecting external signal transducers (e.g. Venetian blinds switch / environmental sensor, etc.), see page 104.

Brief description of blockage detection function

The Troll Comfort DuoFern is able to monitor the **torque** of motors equipped with a **mechanical end point setting**. This enables the controller to switch off the motor in the event of overloading or blockage, see page 94.

Assembly

The Troll Comfort DuoFern can be integrated into most commercially available switch ranges with the help of a corresponding intermediate frame 50 x 50 (DIN 49075). Suitable switch ranges are detailed on the following page.

i 10.1 Compatible switch ranges (please also refer to www.rademacher.de)

EN

Manufacturer	switch range
BERKER	Arsys / K1 / S1
BUSCH-JAEGER	Busch-Duro 2000 Si / Reflex Si / alpha exclusive / alpha nea / solo / impuls
GIRA	Standard-System / S-Color System / stainless steel range / Standard 55
JUNG	CD 500 / ST 550 / LS 990 / CDplus and CD, however, with coloured rings
MERTEN	M1 / Atelier / Artec / Tracent / Antik Neu
PEHA	Standard / Dialog / Aura
LEGRAND	Creo / Tenara
VEDDER	Alessa (plus)

NOTE

- ◆ It may be necessary to use an intermediate frame 50 x 50 * (DIN 49075), depending on the respective switch range used.
- ◆ Certain switches require the supplied spacer frame [8] to be installed when using the RADEMACHER light sensor **.

* not included

** accessories, see page 122.

HomePilot®									
DuoFern environmental sensor									
DuoFern manual central operating unit									
* WR ConfigTool with DuoFern central operating unit									
RolloTron Comfort DuoFern									
DuoFern standard manual transmitter									
DuoFern wall controller									
DuoFern functions	Value range	Factory setting	A	B	C	D	E	F	G
1. Manual operation	Up / Stop / Down	-	●	●	●		●		●
2. Direct drive to a desired %-position	0 % - 100 %	-							●
3. Manual mode on / off	on / off	Off			●	●	●		●
4. Automatic timer on / off	on / off	On			●	●	●		●
5. Random function	-	-			●		●		●
6. Automatic dawn function	-	-			●		●	●	●
7. Automatic dawn function on / off	on / off	Off			●	●	●		●
8. Automatic dusk function	-	-			●		●	●	●
9. Automatic dusk function on / off	on / off	Off			●	●	●		●

* The "WR ConfigTool" software can be downloaded from our website at www.rademacher.de

i 10.2 DuoFern network function table

DuoFern functions	Value range	Factory setting	A	B	C	D	E	F	G
10. Sun function	-	-			●			●	
11. Automated solar function on / off	on / off	Off			●	●	●		●
12. Sunshine position	0 % - 100 %	50 %				●	●		●
13. Wind function	-	-						●	
14. Automatic wind function on / off	on / off	Off				●	●		●
15. Direction of rotation for wind	Up / Down	Up				●	●		●
16. Rain function	-	-						●	
17. Automatic rain function on / off	on / off	Off				●	●		●
18. Direction of rotation for rain	Up / Down	Up				●	●		●
19. Running time	2 s - 150 s	150 s				●	●		●
20. Ventilation position	on / off	Off				●	●		●
21. Ventilating position	1 % - 99 %	80 %				●	●		●
22. Reversal of direction of rotation	on / off	Off	●	●		●	●		●
23. Connectivity test	-	-						●	●
24. Connect with radio code **	-	-				●	●		●
25. End point setting for RADEMACHER tubular motors via radio **	-	-		●			●		

** feature not supported by Troll Comfort DuoFern.

i 10.2 DuoFern network function table

DuoFern functions	Value range	Factory setting	A	B	C	D	E	F	G
26. Reset via radio (3-stage)	-	-				●			●
27. Single-button operation	-	-							
28. Jog mode	-	-		●			●		
29. Blinds mode	on / off	Off				●	●		●
30. Standard slat position #	0 % - 100 %	0 %				●			●
31. auto Tilt after manual stop direction "Down" #	on / off	On				●			●
32. auto Tilt in sunshine position #	on / off	Off				●			●
33. auto Tilt in ventilation position #	on / off	Off				●			●
34. auto tilt after moving to a %-position #	on / off	On				●			●
35. Slat run time #	100 ms - 5000 ms	1500 ms (1.5 s)				●			●
36. Motor dead time	0 ms / 160 ms / 480 ms	0 ms (off)				●			●
37. Manual operation lamp ##	on / off	-				●			●
38. Unit / light mode ##	Unit / light mode	Light mode				●			●
39. Stairwell function ##	on / off	Off				●			●
40. Stairway time (impulse duration) ##	100 ms - 3276 s	3 minutes (180 s)				●			●

only with Venetian blinds mode active / ## only with lamp function activated

- ◆ Display background illumination
- ◆ Installation wizard for easy commissioning.
- ◆ Configurable blockage detection for mechanical tubular motors
- ◆ Manual operation on site
- ◆ Direct configuration and movement to a target position
- ◆ Switching automatic mode on/off
- ◆ Easy configuration with menu-driven operation
- ◆ Timer periods
 - Configuration of opening [▲] and closing times [▼] for your roller shutters.
- ◆ Switching programme:
 - Weekly switching times
 - One switching time pair [▲/▼] for (MON...SUN) [**MO...SO**]
 - Weekday and weekend switching times
 - One switching time pair [▲/▼] for (MON...FRI) [**MO...FR**]
 - One switching time pair [▲/▼] for (SAT + SUN) [**SA + SO**]
 - Individual day switching times
 - One switching time pair [▲/▼] for every day of the week (MO / TU / WE / TH / FR / SA / SU) [**MO / DI / MI / DO / FR / SA / SO**]
 - Activate a second switching time block
 - Double switching times (see page 57/92)
- ◆ Automatic dusk function
 - Automatic darkness function with the Astro programme
 - Automatic darkness function with connected light sensor
- ◆ Automated solar function (with light sensor)
- ◆ Automatic dawn function with the Astro programme
- ◆ Random function (random delay of 0 to 30 minutes)

- ◆ Ventilating position
- ◆ End point setting
- ◆ Key lock
- ◆ Blinds mode
 - Automatic slat adjustment
 - Jog mode
 - Setting the running time
- ◆ Automatic wind function
- ◆ Rain function
- ◆ Light function (controlling electrical appliances)
- ◆ Switching reversal of rotation direction on/off
- ◆ Automatic summer / winter changeover
- ◆ Permanent storage of the settings
- ◆ External control via the two configurable inputs **E1 / E2**

Description and configuration of the individual functions

A precise description of the individual functions and settings is included starting on page 30.

DuoFern settings

The settings required for operating the equipment in a DuoFern network are specified starting on page 40.

i 11. Important information prior to electrical installation and mounting

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Installation and electrical connection of the Troll Comfort DuoFern may only be undertaken with the supplied installation housing [3].

The connecting terminals [4] are located at the bottom of the installation housing [3].



NOTE

Installation housings for other variants of the Troll controller are not compatible.



You must configure the end stops for the tubular motor before using for the first time and making the final electrical connection.

- ◆ If no end stops are configured, then it is vital that both end points are configured for the tubular motor, as failure to do so can lead to malfunctions.
- ◆ In order to do so, follow the information provided in the operating manual for the respective tubular motor.



Parallel connection of electronic tubular motors

A maximum of 3 tubular motors can be connected in parallel to the Troll Comfort DuoFern (e.g. RADEMACHER electronic tubular motors).



To do so, please refer to the operating manual for the corresponding tubular motor.

Parallel connection of mechanical tubular motors

A cut-off relay is required in order to connect mechanical tubular motors in parallel.

Requirements for blockage detection

Blockage detection is only operational if a **mechanical tubular motor** is connected.

Function of inputs E1 and E2

Both inputs can be configured independently of each other. You can configure the functions of the inputs in menu **9.8.6**, depending on the required purpose of the connected signal transducers, see page 104.

You can obtain connection and circuit examples from our website at **www.rademacher.de**

i 12. Safety instructions for electrical connection

EN



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

- ◆ The electrical connection and all work on electrical systems must only be carried out by a qualified electrician in accordance with the connection instructions in these operating instructions.
- ◆ Carry out all installation and connection work only in an isolated, zero-volts state.
- ◆ Disconnect all phases of the mains power supply cable and secure it to prevent any reconnection.
- ◆ Check the system for a zero-voltage status.
- ◆ Prior to connecting, compare the information about voltage / frequency on the device with that of the local electrical grid operator.



Incorrect wiring may lead to short-circuits and destroy the device.

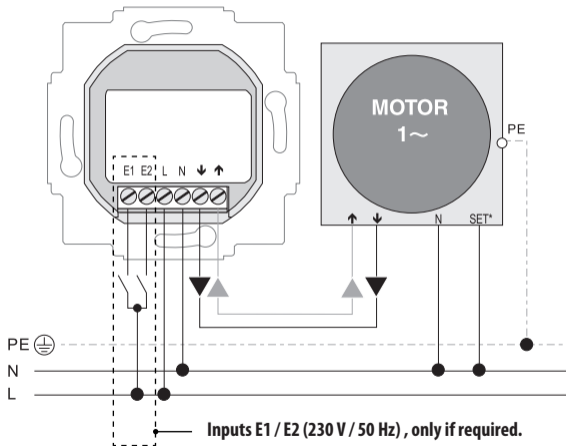
- ◆ Follow the pin assignment detailed in the wiring diagram.
- ◆ Follow all the electrical connection specifications in the operating instructions of your tubular motor and that of the external controller (when using E1/E2).



Connection of a second phase to E1 or E2 will cause the Troll Comfort DuoFern to be damaged.

- ◆ When **inputs E1 / E2** are used, they must always be connected to the **same phase**.
- ◆ If another phase is connected, the **incorrect mains voltage (380 V / 50 Hz)** will be applied to the inputs and damage the Troll Comfort DuoFern.

i 12.1 Connecting a tubular motor



Connecting the white set cord (SET) from RADEMACHER tubular motors

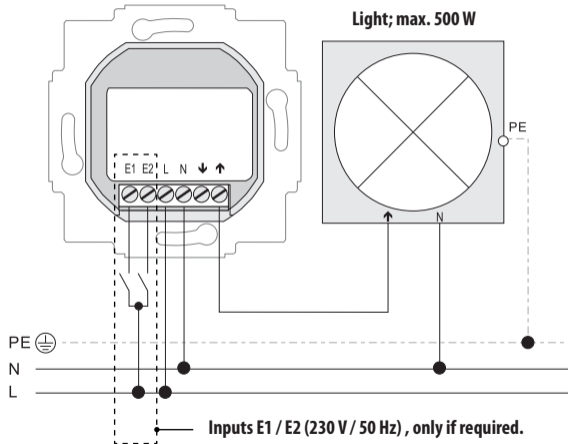
- * The **white set cord (SET)** from RADEMACHER tubular motors must be connected to the **neutral terminal [N]** to ensure trouble-free operation of the tubular motor.

i 12.2 Connecting a light

If required, you can connect a garden light (or other electrical appliance) to the controller instead of a tubular motor and use the light function to control it, see page 107, menu **9.8.8 [light function configuration]**.

NOTE:

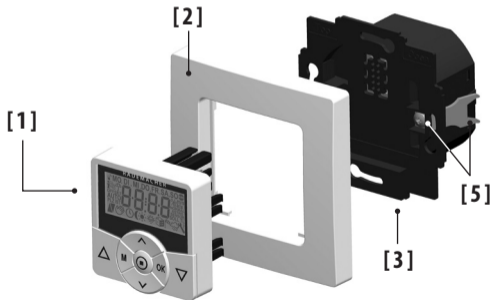
The maximum switching capacity is 500 W.



i 13. Assembly

The Troll Comfort DuoFern is designed for flush-mounted installation.

For this, you require a **58 mm flush-mounted box**. We recommend using a deep box.



Installation procedure:

1. Switch off the mains.
2. Make the electrical connection according to the wiring diagram (see page 27 / 28).
3. Route the power cables to the flush-mounted box.
4. Slide the installation housing [3] into the flush-mounted box and clamp the claws [5] in place with the screws provided.
5. Fit the frame [2].
6. Carefully insert the operating unit [1] into the installation housing [3].
7. Switch the mains power again back on again.

Mounting the light sensor, see page 64.

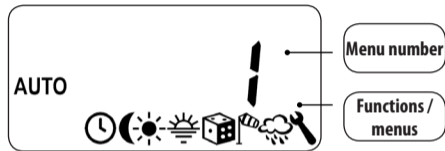
i 14. Brief description of the standard display and main menu

The standard display (example)



- ◆ Displays the current day of the week and time.
- ◆ Displays the activated functions.
- ◆ Manual operation of the Troll Comfort DuoFern is only possible from the standard display.

The main menu



- ◆ Enables display and selection of the individual functions and menus.
- ◆ Manual operation is not possible from the main menu.
- ◆ No automatic control commands will be executed during the configuration process.
- ◆ If no key is pressed within 120 seconds, the display automatically changes from the active menu back to the standard display. Changes to settings are nevertheless saved.

i 14.1 Opening and closing the menu (example: activating the random function)

EN

1. Call up the **main menu**.
By pressing the [M]-key in the standard display.



2. Select the desired **menu** or menu number.



The selected menu is indicated by a **flashing icon**.

3. Open the menu by pressing the [OK] button.



4. Select the desired setting and confirm with [OK].



5. Subsequently the **main menu** will be displayed again.



NOTE

Pressing the [M]-key from any of the menus will return you to the **standard display**.



approx.
1 sec.

i 15. Initial commissioning with the help of the installation wizard

EN

An installation wizard is available in order to help you configure the Troll Comfort DuoFern quickly and easily. The wizard automatically guides you through the configuration process **for initial commissioning** or after a **software reset** (see page 114).

Quitting the installation wizard

Pressing the [M]-key for one second causes the installation wizard to be cancelled prematurely.

Readiness for operation

The Troll Comfort DuoFern is ready for use as soon as the installation wizard has finished.

In addition, you can individually customise your settings and make changes at any time from the main menu and the system settings menu.

1. Set and confirm the **time**.



NOTE

Pressing the setting key for an extended period causes the numbers to progress more quickly.

2. Set and confirm the **date**.



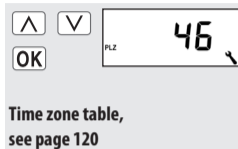
3. Set and confirm the **year**.



i 15. Initial commissioning with the help of the installation wizard

EN

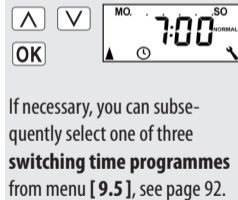
4. Set and confirm the first two digits of your **German postcode [PLZ]** or the desired **international time zone**.



5. Set and confirm the **opening time [▲]**.

Pre-setting:

This closing time mode applies to the entire week (MON...SUN) [**MO...SO**].



- a) Configure the **switching time mode for the opening time [▲]**.

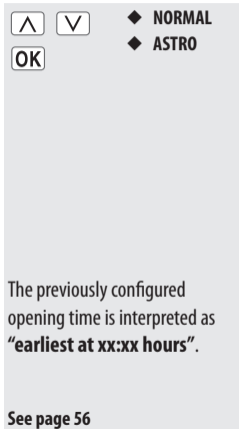
NORMAL

The roller shutters open at the configured opening time.

ASTRO

The roller shutters open at the daily calculated dawn time.

Switching time mode >



i 15. Initial commissioning with the help of the installation wizard

EN

- b) If [ASTRO] is selected, then the calculated opening time for the current day is displayed.



- c) Continue to set the closing time.

OK

6. Set and confirm the closing time [▼].

▲

▼

OK



If necessary, you can subsequently select one of three **switching time programmes** from menu [9.5], see page 92.

Pre-setting:

This closing time mode applies to the entire week (MON...SUN) [MO...SO].

- a) Configure the **switching time mode for the closing time [▼]**.

NORMAL

The roller shutters close at the configured closing time.

ASTRO

The roller shutters close at the daily calculated dusk time.

▲

▼

OK

- ◆ NORMAL
- ◆ ASTRO
- ◆ SENSOR

The previously configured closing time is interpreted as "**latest at xx:xx hours**".

i 15. Initial commissioning with the help of the installation wizard

EN

SENSOR

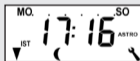
The roller shutters close every day at dusk, as measured by the light sensor.

Switching time mode >

- b) If **[ASTRO]** is selected, then the calculated closing time for the current day is displayed.
- c) Confirm the setting.

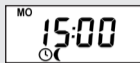
The previously configured closing time is interpreted as “**latest at xx:xx hours**”.

See page 56



OK

- 7. The **standard display** is shown as soon as the final setting is confirmed. The Troll Comfort DuoFern is now ready for operation.



Example

NOTE






You have the option of deactivating individual switching times as required. In order to do so, the value **[OFF]** can be selected after the value **[23:59]**.

△ ▽ 16. Manual operation

EN

Manual operation is possible from the standard display at any time and has priority over the programmed automatic functions.

Example for manual control of a roller shutter

1.  **Open the roller shutters.**
Briefly pressing the button causes the roller shutters to move to the upper end point.
2.  /  or  **Causes the roller shutters to stop in the interim.**
3.  **Closing the roller shutters.**
Briefly pressing the button causes the roller shutters to move to the configured **ventilation position** or to the lower end point.



Ventilation position, see page 89

If the ventilation position is configured, the roller shutters will first roll down to this position.

Pressing the [**Down**] key once more causes the roller shutters to continue downwards.

If necessary, you can enter an arbitrary **target position** for your roller shutters which you can then move to directly. The Troll Comfort DuoFern is able to move to the target position and stop the roller shutters fully independently and automatically. It is not necessary to give an additional manual movement or stop command.

Automatic movement after approx. two seconds.

The system will initiate movement to the configured target position automatically if no button is pressed for approx. two seconds.

NOTE

- ◆ In order to use this function, it is necessary to previously determine and configure the **running time** for the connected tubular motor, see page 87.
- ◆ The ventilation position is ignored when moving to the target position.

1. Display the current position of the roller shutters by briefly pressing one of the buttons.



The current position is given as a **percentage** [%].

2. Enter the desired target position by repeatedly pressing the key (e.g. 20 %).



The arrows [▲/▼] indicate the resulting direction of travel.

3. The roller shutters will automatically move to the target position and stop after approx. two seconds.

Value = roller shutter position:

0 % = fully opened

100 % = fully closed

If a DuoFern environmental sensor is being used on site, it is possible to view the environmental sensor's weather data on-screen.

NOTE

In the event that multiple environmental sensors are being received, the desired environmental sensor can be selected in **menu 9.9.4** (see page 51).

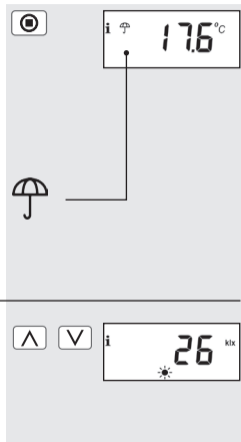
1. As soon as an environmental sensor is detected, an [**i**] icon appears in the standard display.



2. The **weather data** can be called up by briefly pressing the [**SET/Stop**] key.

Initially, the temperature is displayed [**°C**].

If an umbrella appears additionally on the display, then the environmental sensor has detected rain.





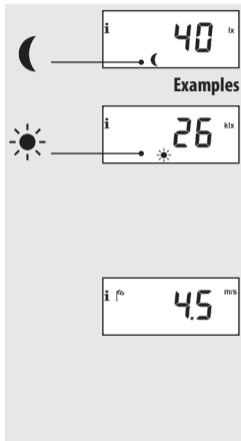
3. Pressing on of the [**Set keys**] enables all of the weather data to be accessed successively:

i 16.2 Displaying weather data

EN

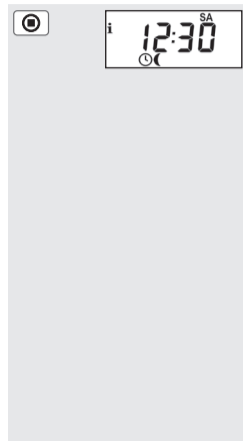
- a) The level of **brightness** is displayed in lux [lx] and kilolux [klx].

At values below 50 lux, the [] icon (dawn / dusk) appears, above 50 lux, the [] icon appears in the display.



- b) **Wind speed** in metres per second [m/s].

4. Back to normal view.
The weather data display closes after approx. 10 seconds if no keys are pressed.





17. DuoFern settings; brief description

EN

In order for your Troll Comfort DuoFern to react to control signals from the DuoFern network, it is necessary to log each DuoFern device (e.g. DuoFern manual central operating unit, etc.) onto the Troll Comfort DuoFern.



To do so, please read the operating instructions for the respective DuoFern device.

Maximum number of connected devices

You can assign a **maximum of 20 DuoFern devices** to a single Troll Comfort DuoFern.

Additional information about logging on can be obtained from the **login matrix** on our website under:

www.rademacher.de

The following section serves to describe all required **DuoFern Settings** for the Troll Comfort DuoFern.

The **DuoFern settings** immediately affect the subsequent automatic function settings and the integration of the Troll Comfort DuoFern into the DuoFern network.



17. DuoFern settings; brief description

EN

Menu 9.9 - DuoFern Settings

The DuoFern settings are undertaken in **Menu 9.9**. You can find an overview of all menus and sub-menus for the Troll Comfort DuoFern on pages 10 and 11.



Menu 9 - System settings

Icon	Menu	Page
	<i>9.9</i> DuoFern settings.....	41
-	<i>9.9.1</i> Logging on and off	42
-	<i>9.9.2</i> Setting the DuoFern mode	45
	<i>9.9.3</i> Setting the solar mode.....	48
	<i>9.9.4</i> Switching weather data on/off	51
	<i>9.9.5</i> Display DuoFern address	52



17.1 Menu 9.9.1 - Logging DuoFern devices on/off

EN

1. Select and open menu **9.9.1 Log-on/off.**



2. The number of assigned DuoFern devices is displayed.



e.g. one device.

3. **Logging on DuoFern devices.**

- a) Switch the respective DuoFern device to **login mode.**



- b) Start the login procedure on the Troll device. The display flashes **[On]**.

- c) The **new number** of logged-on devices is displayed after successful login.

- d) Log-in the next DuoFern device.

or

- d) Back to menu selection.



e.g. two devices

The motor starts up briefly by way of confirmation.

Repeat 3. a) + 3. b)





17.1 Menu 9.9.1 - Logging DuoFern devices on/off

EN

4. Logging off DuoFern devices.

- a) Switch the desired DuoFern device to **logout mode**.
- b) Start the logout procedure on the Troll device. The display flashes **[OFF]**.
- c) The **new number** of logged-on devices is displayed after successful logout.



e.g. one device.

The motor starts up briefly by way of confirmation.

- d) Log-out the next DuoFern device.

or

- d) Back to menu selection.

Repeat 4. a) + 4. b)

M

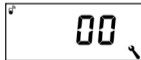
NOTE

If you want to delete all connections to all assigned DuoFern devices, press and hold the set key [**V**] for four seconds.

Subsequently all of the connections will be deleted.



4 sec.





17.1 Menu 9.9.1 - Logging DuoFern devices on/off

EN

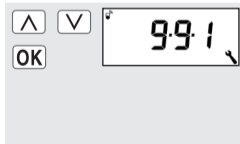
Clearing the DuoFern network.

This function enables you to log off all DuoFern devices from the Troll Comfort DuoFern that are no longer accessible via radio.

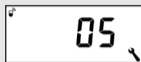
NOTE

All battery-operated DuoFern transmitters (e.g. the DuoFern manual central operating unit) **cannot** be logged off using this function.

1. Select and open menu **9.9.1 Log-on/off.**



2. The number of assigned DuoFern devices is displayed.



3. Activate the **clear** function.



4 sec.

In order to do so, press and hold the key for approx. four seconds.

4. Subsequently, all currently registered DuoFern devices will be displayed.



5. Back to menu selection.





17.2 Menu 9.9.2 - Set DuoFern mode

EN

The Troll Comfort DuoFern features three **DuoFern modes** which enable you to specify how the Troll device behaves within the DuoFern network or local installation on-site.

The following DuoFern modes are available for selection:

[1] = **DuoFern receiver**

[2] = **DuoFern transmitter**

[3] = **Local operation (factory setting)**

Mode [1] - DuoFern receiver

- ◆ The Troll Comfort DuoFern is integrated into a **central automatic DuoFern** network as **[receiver]** (e.g. via a DuoFern manual central operating unit or HomePilot®, etc.).
- ◆ In addition, it can be remotely controlled by other DuoFern devices (e.g. a DuoFern manual transmitter).

Function

- ◆ **Not** all local timer periods and automatic functions are available to the Troll Comfort DuoFern in mode [1].
- ◆ The controls and functions are realised in the same manner as for all DuoFern receivers (actuators).



Mode [2] - DuoFern transmitter

- ◆ The Troll Comfort DuoFern is integrated into a DuoFern network as a **central controller [transmitter]** and is intended to provide automatic functions for other DuoFern receivers.
- ◆ In addition, it can be remotely controlled by other DuoFern devices (e.g. a DuoFern manual transmitter).

Function

- ◆ The timer periods and automatic functions configured on the Troll Comfort DuoFern are available in mode [2].
- ◆ The configured timer periods and automatic functions on the Troll Comfort DuoFern will be transmitted to all registered DuoFern receivers and will be executed by the respective devices.

Mode [3] - Local operation (factory setting)

- ◆ The configured automatic functions and switching times on the Troll Comfort DuoFern are available **locally** (e.g. for controlling a locally connected tubular motor).
- ◆ In addition, control commands can also be received and executed from the DuoFern network (e.g. from a DuoFern manual transmitter).

Function

- ◆ In mode [3], the timer periods and automatic functions configured on the Troll Comfort DuoFern are only executed by a locally connected tubular motor.
- ◆ The timer durations and automatic functions are **not** transmitted to other DuoFern receivers.



1. Select and open Menu 9.9.2 - DuoFern mode.



2. Select and confirm the mode.



- 1 = DuoFern receiver
- 2 = DuoFern transmitter
- 3 = Local operation

NOTE

Regardless of the set mode, all manual and automatic control signals received via radio will be executed on site.

Exception:

Control commands for the automated solar functions will only be accepted if the **solar mode [3]** is activated (see next chapter).



17.3 Menu 9.9.3 - Setting the solar mode

EN

This function enables you to determine how the Troll Comfort DuoFern reacts to signals from a locally connected light sensor or control commands from a central sun shading controller (e.g. a DuoFern radio sun sensor).

The subsequent configuration of the automated solar functions is correspondingly influenced by the selection of the solar mode.

The following solar modes can be selected:

- [1] = **Local light sensor**
- [2] = **Transmitter (local light sensor and transmitter function)**
- [3] = **Receiver (external sun sensor)**

Mode [1] - Local light sensor *

Select mode [1] if ...

- ◆ ...the Troll Comfort DuoFern is to be controlled by a light sensor connected to this device.

Functions and settings for the automated solar function:

- ◆ The roller shutters close to the position of the light sensor on the window.
- ◆ The solar limit value must be configured in menu 4.
- ◆ Mount the light sensor on the window at the position to which the roller shutters should lower when the sun shines.



Mode [2] - Transmitter (local light sensor and transmitter function) *

Select mode [2] if ...

- ◆ ...the Troll Comfort DuoFern and other registered DuoFern devices are to be controlled by a light sensor connected to the Troll system.

Functions and settings for the automated solar function:

- ◆ All roller shutters close to the configured sunshine position.
- ◆ The solar limit value must be set in menu 4.
- ◆ The desired sunshine position must be set on the Troll Comfort DuoFern (menu 4) and the other DuoFern devices. **
- ◆ Mount the light sensor as low as possible on the window so that it cannot be covered by the roller shutters.

Mode [3] - Receiver (external sun sensor)

Select mode [3] if ...

- ◆ ...the Troll Comfort DuoFern is to be controlled by an external sun sensor or a central sun shading controller.

Functions and settings for the automated solar function:

- ◆ The Troll Comfort DuoFern closes the roller shutters to the configured sunshine position.
- ◆ The desired sunshine position must be set on the Troll Comfort DuoFern (menu 4).

* No signals are executed from an external sun sensor or central sun shading controller in modes [1] and [2].

** Please read the operating manual for the respective DuoFern devices to configure the sunshine position.



17.3 Menu 9.9.3 - Setting the solar mode

EN

1. Select and open menu **9.9.3 solar mode.**



2. Select and confirm the **solar mode.**



- 1 = Local light sensor
- 2 = Transmitter
- 3 = Receiver



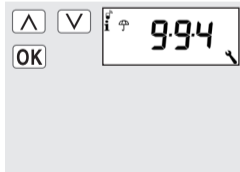
17.4 Menu 9.9.4 - Switch weather data on/off

This menu enables you to switch the weather data display on and off. If numerous environmental sensors are being received, then you can additionally select the desired environmental sensor.

NOTE

Environmental sensors update the weather data approx. every 5 minutes. For this reason, it can take a few minutes until the weather data is displayed.

1. Select and open menu 9.9.4 weather data.



2. Switch the weather data display on [On] or off [OFF].



- a) After switching on, the DuoFern address of the respective environmental sensor is displayed. The last four digits are displayed.



Display if no environmental sensor is detected.

3. Select and confirm the desired environmental sensor.





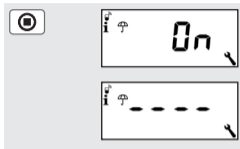
17.4 Menu 9.9.4 - Switch weather data on/off

EN

NOTE

All detected environmental sensors can be deleted if necessary.

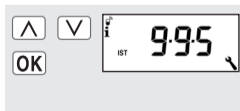
- In order to do so, briefly press the [SET/Stop] key.
- This display is shown by way of acknowledgement.



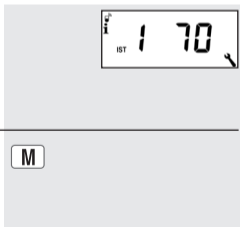
17.5 Menu 9.9.5 - Display DuoFern address

Each DuoFern device has its own unique address via which it communicates on the DuoFern network. If necessary, you can display the DuoFern address for the Troll Comfort DuoFern device.









- Select and open menu **9.9.5 DuoFern address**.



- In each case, two digits of the six-digit address are shown in the form of a ticker (e.g. 70 5E 25).
- Back to menu selection.



Main menu

Icon	Menu	Page
AUTO	1 Automatic mode	54
	2 Switching times	56
	3 Automatic dusk control	69
	4 Automated solar function	73
	5 Automatic dawn control	78
	6 Random function	80
	7 Automatic wind function	81
	8 Automatic rain function	83
	9 System settings	85

Standardised menu structure for Troll range

A standardised, cross-variant menu structure has been developed for all Troll models, featuring an identical set of menu numbers for each of the menus.

Automatic mode on

All of the activated automatic functions will be executed if the automatic mode is switched on. The corresponding icon is then shown in the standard display.

NOTE

- ◆ Manual operation is also possible in automatic mode.
-

Automatic mode off



Icon in standard display

- ◆ All automatic functions are deactivated; only manual operation is possible.
- ◆ All automatic icons are switched off in the standard display.
- ◆ Inputs E1 and E2 will not be taken into consideration, unless the automatic wind function is activated.

OK Toggling directly to the standard display

- To do so, press and hold **[OK]** for approx. one second.

OK
approx.
1 sec.

MO 15:00
Automatic mode on

MO 15:00
Automatic mode off

Switch on/off in menu 1

- Call up the main menu.

M

- Select and open menu 1 **[AUTO]**.

^

v

OK



- Select and confirm the desired setting.

^

v

OK



- On** = Automatic mode on
OFF = Automatic mode off

- Subsequently the main menu will be displayed again.



18.3 Switching times (opening and closing times) [▲/▼]; brief description

EN

You can configure various opening [▲] and closing times [▼] for the Troll Comfort DuoFern in order to open or close your roller shutters at your preferred times.

For this purpose, there are three switching time programmes available in menu 9.5 [] see page 92:

[1] Weekly switching times (factory setting)

- ◆ One switching time pair [▲/▼] for (MON...SUN) [**MO...SO**]

[2] Working day and weekend switching times

- ◆ One switching time pair [▲/▼] for (MON...FRI) [**MO...FR**]
- ◆ One switching time pair [▲/▼] for (SAT + SUN) [**SA + SO**]

[3] Individual day switching times

- ◆ One switching time pair [▲/▼] for every day of the week
(MO / TU / WE / TH / FR / SA / SU)
[**MO / DI / MI / DO / FR / SA / SO**]

Double the amount of switching times by activating a second switching time block:

If necessary you can double the amount of available opening and closing times. In order to do so, a second **switching time block (n = 2)** must be activated in **menu 9.5** [🕒], see page 92.

IMPORTANT

If a second switching time block has been activated [**n 2**], you can select the desired switching time block (1,2) prior to setting the opening and closing times.

NOTE

The switching times in the second switching time block [**2**] cannot be linked to a **switching time mode** [**NORMAL / ASTRO / SENSOR**].

Application example for a second switching time.

You can use a second switching time, for example, to darken a child's bedroom at midday:

- The **first opening time** has been set to 8:00 hours.
- The roller shutters will open at 8:00 a.m.
- The roller shutters should close again at 12:00 hours and open again at 14:30 hours.
- In order to do so, a **second switching time block** must be selected and the appropriate **second opening and closing time** must be set.
- The **first closing time** was set to 20:00 hours.
- The roller shutters close at 20:00 hours.

Selecting a switching time mode.

Various **switch time modes** can be selected when configuring the opening and closing times.

The following switching time modes are possible:

- ◆ **NORMAL**
- ◆ **ASTRO**
- ◆ **SENSOR (only for closing times)**

Brief description of the switching time modes.

- ◆ **NORMAL**
The roller shutters move at the configured switching time.

◆ **ASTRO**

Calculation of the respective switching time by means of an “Astro” programme.

The opening and closing times are calculated in relation to the date and postcode. Subsequently they are linked to the previously configured switching times.

■ **Link to the opening time [▲]**

The roller shutters open at the daily calculated dawn time. The configured **opening time** is interpreted as “**earliest at xx:xx hours**”.

■ **Example a:**

- Dawn begins at 5:00 a.m.
- The opening time has been set to 7:00 a.m.
- Your roller shutters will open at 7:00 a.m.

■ Example b:

- Dawn begins at 08:00 a.m.
- The opening time has been set to 7:00 a.m.
- Your roller shutters will open at 08:00 a.m.

■ Link to the closing time [▼]

The roller shutters close at the daily calculated dusk time. The previously configured **closing time** is interpreted as “**latest at xx:xx hours**”.

■ Example a:

- Dusk begins at 17:00 hours.
- The closing time has been set to 20:00 hours.
- Your roller shutters will close at 17:00 hours.

■ Example b:

- Dusk begins at 22:00 hours.
- The closing time has been set to 20:00 hours.
- Your roller shutters will close at 20:00 hours.

◆ SENSOR (only for closing times [▼])

The closing time is controlled by a light sensor in relation to the level of brightness.

In addition, the measured twilight value is linked to the previously configured closing time. The configured closing time is interpreted as “**latest at xx:xx hours**”.

■ **Example a:**

- In winter dusk begins, for example, at approx. 17:00 hours.
- The closing time has been set to 20:00 hours.
- Your roller shutters will close at 17:00 hours.

■ **Example b:**

- In summer dusk begins, for example, at approx. 22:00 hours.
- The closing time has been set to 20:00 hours.
- Your roller shutters will close at 20:00 hours.

NOTE

You have the option of deactivating individual switching times as required. In order to do so, the value [**OFF**] can be selected after the value [**23:59**].

Subsequently the switching time will not be executed (even in ASTRO or SENSOR modes).



18.4 Menu 2 - Configuration of opening and closing times [▲/▼]

EN

1. Please check to see whether the desired switching time programme is configured.

See menu [9.5], page 92

2. Call up the main menu.

M

3. Select and open menu 2 [🕒] **Switching times.**

▲

▼

OK



Weekly switching times



Weekday / weekend switching times



The header of the display indicates which switching programme is currently active.

Individual day switching times



The following serves to describe the procedure for setting an **opening and closing time [▲/▼] as a weekly switching time.**

4. Activate and confirm the switching times.

On = Switching times on
OFF = Switching times off

▲

▼

OK





18.4 Menu 2 - Configuration of opening and closing times [▲/▼]

EN

5. Set and confirm an **opening time** [▲].



- a) Configure the **switching time mode for the opening time** [▲].



NORMAL

The roller shutters open at the configured opening time.

ASTRO

The roller shutters open at the daily calculated dawn time.

The previously configured opening time is interpreted as **“earliest at xx:xx hours”**.

See page 56

Switching time mode >

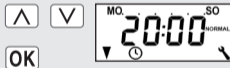
- b) If [ASTRO] is selected, then the calculated opening time for the current day is displayed.



- c) Continue to set the closing time.



6. Set and confirm a **closing time** [▼].



- a) Configure the **switching time mode for the closing time** [▼].





18.4 Menu 2 - Configuration of opening and closing times [▲/▼]

EN

NORMAL

The roller shutters close at the configured closing time.

ASTRO*

The roller shutters close at the daily calculated dusk time.

SENSOR*

The roller shutters close every day at dusk, as measured by the light sensor.

Switch time mode, see page 56.

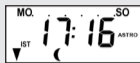
*

The previously configured closing time is interpreted as **“latest at xx:xx hours”**.

b) If [ASTRO] is selected, then the calculated closing time for the current day is displayed.

c) Return to main menu.

7. Return to standard display after making the final setting.



OK

M



18.4 Menu 2 - Configuration of opening and closing times [▲/▼]

EN

INFORMATION ABOUT THE [ASTRO] SWITCHING TIME MODE

- ◆ If [ASTRO] is selected as the switching time mode, the calculated darkness time can be individually customised by means of an offset between **-60** and **+60** minutes.
 - Dusk can be configured in **menu 3**, see page 69.
 - Dawn can be configured in **menu 5**, see page 78.

INFORMATION ABOUT THE [SENSOR] SWITCHING TIME MODE

- ◆ If [SENSOR] is selected as the switching time mode, then the desired **twilight limit value** can be configured in **menu 3**, see page 69.



18.5 Connecting a local light sensor [6]

If you intend to operate your Troll Comfort DuoFern and the connected tubular motor according to brightness levels, then you must connect the optionally available RADEMACHER light sensor [6] to the Troll Comfort DuoFern.

If the Troll Comfort DuoFern is intended to react to control signals from a **central sun shading controller** within the DuoFern network (e.g. a DuoFern radio sun sensor), then it is not necessary to connect the local light sensor [6].

i 18.5.1 Light sensor connection when using the supplied frame [2].

EN

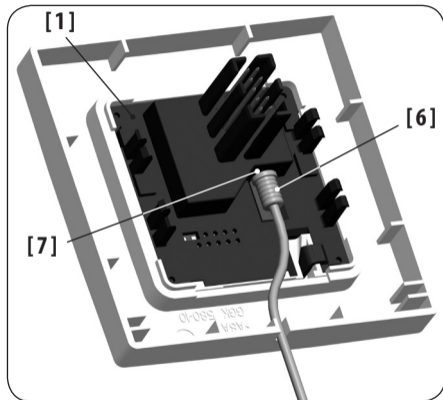
1. Carefully pull the operating unit [1] away from the installation housing [3].
2. Insert the light sensor plug * [6] into the socket [7] on the rear of the operating unit [1].
3. Feed the sensor cable into the cable bushing in the frame [2] and guide it out.
4. Carefully replace the operating unit [1] with frame [2] back onto the installation housing [3].

* Accessories, see page 122.



Excessive bending can damage the sensor cable.

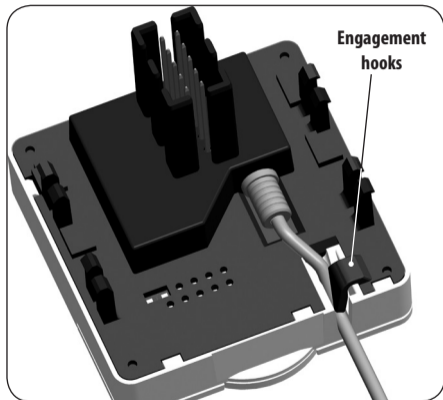
The sensor cable is a fibre optic cable. Avoid excessive bending or crushing of the sensor cable.



i 18.5.2 Light sensor connection when using a frame supplied by a third-party manufacturer.

EN

1. Carefully pull the operating unit [1] away from the installation housing [3].
2. Insert the light sensor plug [6] into the socket [7] on the rear of the operating unit [1].
3. Lay the sensor cable in the cable bushing of the operating unit. The sensor cable can be pressed into the engagement hooks with the help of a rounded object (for example, a 50 cent coin).
4. Carefully replace the operating unit [1] together with the frame back onto the installation housing [3].

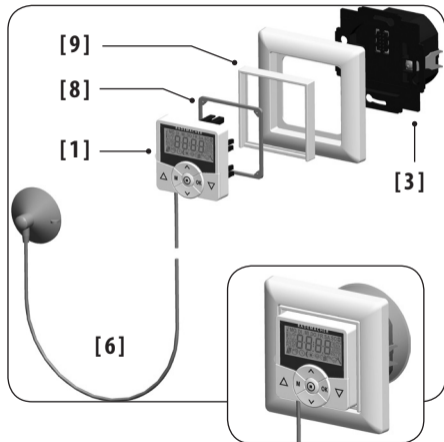


i 18.5.2 Light sensor connection when using a frame supplied by a third-party manufacturer.

NOTE

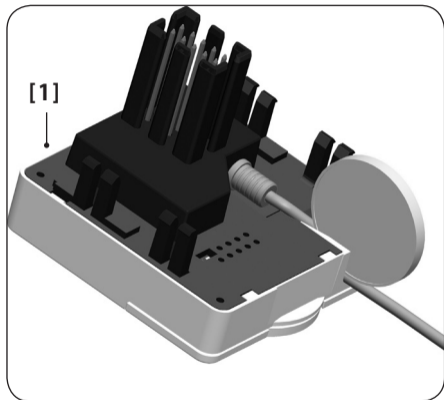
- ◆ If the cable bushing of the operating unit [1] is covered by the frame, then it will be necessary to fit the additionally provided spacer frame [8] onto the rear of the operating unit [1].
- ◆ It may also be necessary to use an intermediate frame [9] 50 x 50 * (DIN 49075), depending on the respective switch range used.

* not included



i 18.5.3 Dismantling the light sensor [6].

1. Carefully pull the operating unit [1] away from the installation housing [3].
2. If the sensor cable has been fixed in place by means of the operating unit's [1] engagement hooks, then it must first be released, for example, with the help of a 50 cent coin.
3. Pull the light sensor plug [6] out of the socket [7].
4. Replace the operating unit [1] back onto the installation housing [3].



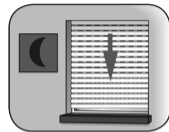
18.6 Automatic dusk function; brief description

The automatic dusk function causes the roller shutters to close automatically to the lower end point or configured ventilation position.

You can choose between two automatic dusk functions:

- ◆ Automatic dusk function with “Astro” programme
= switching time mode [**ASTRO**]
- ◆ Automatic dusk function with light sensor
= switching time mode [**SENSOR**]

Automatic dusk function with “Astro” programme



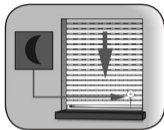
The twilight time is recalculated every day based on the geographical location and the current date (defined by the configured postcode). This means that it is not necessary to continuously readjust the closing time throughout the year.

Configure a custom offset period

An offset can be configured between **-60 and +60 minutes** in order to customise the calculated dusk time to your personal preferences.

A light sensor is not required for this function.

Automatic dusk function with connected light sensor



At twilight, the roller shutters will lower to the lower end limit or to the configured ventilation position after approx. 10 seconds. The roller shutters will open again once the configured opening time is reached or in the event of a manual command.

The required twilight limit is configurable.

NOTE

The automatic dusk function via light sensor is only executed once per day.

Mounting the light sensor, see page 64.

18.6.1 Menu 3 - Customising the automatic dusk function [C].

1. Call up the main menu.



2. Select and open Menu 3 [C] **Automatic dusk function.**



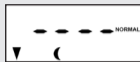
^ V
OK

3. Customise the automatic dusk function in accordance with the selected switching time mode.

- 3.1. [NORMAL]

No customisation is possible in this mode.

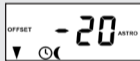
- a) Return to main menu.



- 3.2. [ASTRO]

Setting an offset.

The offset function can be used to modify the calculated Astro time by **+/- 60 minutes.**



Example

With a negative offset e.g. **"- 10"**, the calculated Astro time is triggered 10 minutes earlier.

18.6.1 Menu 3 - Customising the automatic dusk function [C].

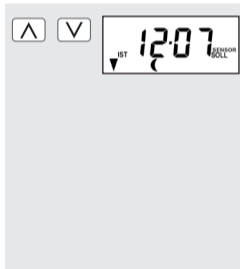
EN

- a) Subsequently, the resulting closing time is displayed.
- b) Return to main menu.



- 3.3. [SENSOR]
Customisation of the **twilight limit value** in switch time mode [SENSOR].

If the set limit value is not met due to the onset of twilight, the roller shutters will close.



ACTUAL value [IST]

Currently measured brightness (e.g. 12).

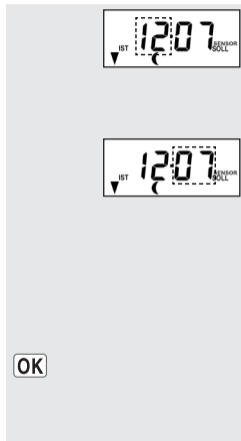
"- -" = too bright

SET value [SOLL]

Configurable set limit

- 01 = very dark,
approx. 2 Lux
- 15 = less dark,
approx. 50 Lux

- a) Return to main menu.





18.7 Automated solar function; brief description

The automated solar function enables brightness-dependent control of your roller shutters. To do this, the light sensor is secured to the window pane with a sucker and then plugged into the Troll Comfort DuoFern device.

or

An **external sun sensor** or a **central sun shading** controller transmits the required signals to the Troll Comfort DuoFern.

Automated solar function

Automatic moving of the roller shutter once a set limit is exceeded. The roller shutter end position can be freely selected by changing **the position of the light sensor** on the window pane or by setting the **sunshine position**.



Please note the state of the sun icon on the standard display.

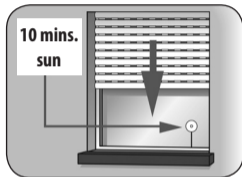
When the automated solar function is active, the sun icon flashes in the standard display as soon as the configured set limit is exceeded.

NOTE

The sun icon flashes when the solar program is activated in solar mode [3] (receiver - external sun sensor).



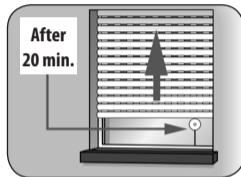
Automatic lowering



If the sensor detects uninterrupted sunlight for 10 minutes, the roller shutter lowers in:

- ◆ **solar mode [1]**
until its shadow covers the light sensor.
- ◆ **Solar mode [2] and [3]**
up to the configured sunshine position.

Automatic clearing in solar mode [1]



After approx. 20 minutes, the roller shutter is automatically raised a small amount to uncover the sensor. If the sun continues to shine, then the roller shutter remains in this position.

Automatic opening in solar modes [1] to [3]

If the brightness decreases below the configured solar set limit value, the roller shutters will return to the upper end point.



18.7 Automated solar functions; brief description

EN

NOTE

- ◆ The above mentioned delay times can be exceeded in the event of changing weather conditions.
- ◆ Automatic clearing is not undertaken in Venetian blinds mode, as the configured sunshine position is assumed.

The automated solar function will be terminated and must be reactivated if required after the following events:

- ◆ After manual actuation.
- ◆ After execution of an automatic function.
- ◆ After the upper end point is reached.



18.7.1 Menu 4 - Configuring the automated solar function [☀].

1. Call up the main menu.



2. Select and open Menu 4 [☀] **Automated solar function.**



3. Activate and confirm the automated solar function.

On = on

OFF = off





18.7.1 Menu 4 - Configuring the automated solar function [☀].

The following settings are required, depending on the **solar mode**:


- [1] Local light sensor
- [2] Transmitter (local light sensor and transmitter function)
- [3] Receiver (external sun sensor)

Solar mode, see page 48

Continue at point 4

Continue at points 4 and 5

Continue at point 5



4. Customisation of the **local solar set limit**.

ACTUAL value [IST]

Currently measured brightness (e.g. 31).


"- -" = too dark


SET value [SOLL]

Configurable set limit

- 31 = minimal sun, approx. 2000 Lux
- 45 = bright sunlight approx. 20000 Lux

a) Return to main menu or continue with point 5.







18.7.1 Menu 4 - Configuring the automated solar function [☀].

The local sunshine position

You can set an arbitrary sunshine position for your Troll Comfort DuoFern which your roller shutters will lower to when the automated solar function is activated.

The **running time** must be configured prior to setting the sunshine position (see page 87).

Note regarding sunshine position in solar mode [2]

- ◆ The locally mounted light sensor may not be covered by the roller shutters when they are moving downwards.
- ◆ Set the sunshine position in a way that the roller shutters remain above the light sensor. Otherwise the light sensor cannot correctly measure the brightness level.

Sunshine position for activated slat adjustment.

If the automatic slat adjustment function is activated (see page 97), then the sunshine position must also be configured.

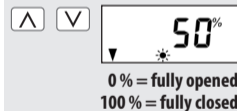
5. Setting the **local sunshine position**.

- a) Move the roller shutters to the desired position.

or

- a) Enter the desired sunshine position.

- b) Confirm the sunshine position and return to the main menu.



OK



18.8 Automatic dawn function [☀]; brief description

EN

The automatic dawn function causes the roller shutters to open automatically to the upper end point.

When configuring opening times [▲] it is possible to link them to a switch time mode, see page 58. The calculated dawn time can be customised by linking the opening times with the [ASTRO] switch time mode. This means that it is not necessary to continuously readjust the closing time throughout the year.

Link to the opening time [▲]

The previously configured **opening time** is interpreted as “**earliest at xx:xx hours**”.

Configure a custom offset period

The calculated dawn time can be customised to personal preferences by means of an offset between **-60 and +60 minutes**. An application example for the [ASTRO] switch time mode is included on page 58.

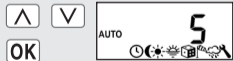


18.8.1 Menu 5 - Customising the automatic dawn time [☀].

1. Call up the main menu.



2. Select and open menu 5 [☀] dawn function.





18.8.1 Menu 5 - Customising the automatic dawn time [☀].

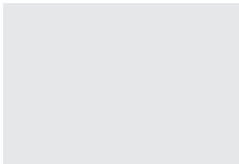
EN

3. Customise the automatic dawn function in accordance with the selected switching time mode.

3.1. [NORMAL]

No customisation is possible in [NORMAL] switch time mode.

- a) Return to main menu.



OK

3.2. [ASTRO]

Setting an offset.

The offset function can be used to modify the calculated Astro time by +/- 60 minutes.

- a) Subsequently, the resulting opening time is displayed.
- b) Return to main menu.



OK



18.9 Menu 6 - Configuring the random function

EN

The random function enables a random delay of the set timer periods ranging between 0 and 30 minutes.

The random function is executed for:

- ◆ all automatic opening and closing times.

NOTE



The corresponding icon flashes in the standard display when the random function is activated, during the period that the movement command is being delayed.

1. Call up the main menu.

M

2. Select and open menu 6  **Random function.**

▲

▼

OK



3. Select and confirm the desired setting.

▲

▼

OK



- On** = random function on
OFF = random function off

Subsequently the main menu will be displayed again.



18.10 Automatic wind function []; brief description

This function enables you to use the Troll Comfort DuoFern to operate, for example, connected Venetian blinds in relation to the weather conditions.

As soon as an external “**wind**” signal transducer, the control signal can be transferred to the Troll Comfort DuoFern in the **DuoFern network** or via one of the correspondingly configured inputs (**E1 or E2**).


Configuration of inputs E1 / E2

see page 104, menu 9.8.6

The direction of rotation in the event of wind can be configured.

The wind can be used to retract the Venetian blinds or close them as a draught stop.

If the automatic wind function is active ...

- ◆ the [] icon flashes.
- ◆ Manual operation is no longer possible.
- ◆ Automatic movement commands are no longer carried out but will be resumed as soon as the wind subsides. In each case, only the last automatic movement command is subsequently executed.

NOTE

- ◆ In manual mode, the automatic wind function remains active, for example, in order to keep an awning protected from wind at all times.
- ◆ If the direction of rotation for wind is set to **DOWN** and wind is detected when the drive is at the upper end position, then the drive moves back to the upper end position as soon as no more wind is detected.



CAUTION

The following settings may only be undertaken when the wind is still in order to prevent damage to the awnings / Venetian blinds.

1. Call up the main menu.



2. Select and open Menu 7 [🌬] **automatic wind function.**



3. Select and confirm the desired setting.

On = Function on

OFF = Function off



4. Configure the **direction of rotation in the event of wind.**

1 = Up

2 = Down

Subsequently the main menu will be displayed again.



> Factory setting



18.11 Rain function []; brief description

This function enables you to use the Troll Comfort DuoFern to operate, for example, a connected awning in relation to the weather conditions.

As soon as an external “rain” signal transducer, the control signal can be transferred to the Troll Comfort DuoFern **in the DuoFern network** or via one of the correspondingly configured inputs (**E1 or E2**).


Configuration of inputs E1 / E2

see page 104, menu 9.8.6

The direction of rotation in the event of rain can be configured.

The awning can be retracted (**up**) or used as a rain cover (**down**) in the event of rain.

Once the automatic rain function is active ...

- ◆ the [] icon flashes.
- ◆ Manual operation is still possible.
- ◆ Automatic movement commands are no longer carried out but will be resumed as soon as the rain subsides. In each case, only the last automatic movement command is subsequently executed.

NOTE

- ◆ The automatic rain function is switched off in manual mode.
 - ◆ If the direction of rotation for rain is set to **DOWN** and rain is detected when the drive is at the upper end position, then the drive moves back to the upper end position as soon as no more rain is detected.
-



18.11.1 Menu 8 - Configuring the automatic rain function [☁].

EN



CAUTION

The following settings may only be undertaken in dry weather in order to prevent damage to the awnings / Venetian blinds.

1. Call up the main menu.

M

2. Select and open menu 8 [☁] automatic rain function.

▲

▼

OK



3. Select and confirm the desired setting.

On = Function on

OFF = Function off

▲

▼

OK



4. Configure and confirm the **direction of rotation in the event of rain.**

1 = Up

2 = Down

Subsequently the main menu will be displayed again.

▲

▼

OK



> Factory setting








19. Menu 9 - System settings []; brief description

This menu enables you to configure additional devices and system settings to customise your Troll Comfort DuoFern to your individual preferences.

The DuoFern settings are introduced and described from page 40 onwards. The DuoFern settings are shown in menu order in menu 9.9 as shown on the right.



Menu 9 - System settings

Icon	Menu	Page
	<i>9.1</i> Time and date.....	86
-	<i>9.2</i> Motor running time.....	87
	<i>9.3</i> Ventilation position.....	89
[PLZ]	<i>9.4</i> Postcode.....	91
	<i>9.5</i> Switching time program	92
	<i>9.6</i> Blockage detection	94
≠ [T]	<i>9.7</i> Venetian blinds mode.....	97
-	<i>9.8</i> Device settings	99
	<i>9.9</i> DuoFern settings.....	40



19.1 Menu 9.1 - Set time and date [🕒]

EN

1. Select and open menu
9.1 Time and date.



Setting order

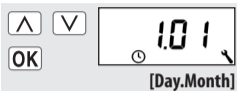
2. Time



NOTE

Pressing the setting key for an extended period causes the numbers to progress more quickly.

3. Date



4. Year





19.2 Menu 9.2 - Configure motor running time

EN

Configuring the running time allows specific targeted positions to be assumed based on the running time and roller shutter position.

The run time setting must be configured if:

- ◆ you intend to use the ventilation position function, see page 89.
- ◆ you intend to use the sunshine position function (only if automatic slat function is activated, see page 97).
- ◆ you intend to configure and have the system move to an arbitrary position, see page 37.

The running time can be detected directly by the Troll Comfort DuoFern or you may, for example, measure and configure it with the help of a stopwatch.



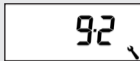



NOTE

- ◆ Tubular motor running times can vary depending on temperature. For this reason, targeted movement to a specific position is subject to certain tolerances.
- ◆ The running time must be configured as precisely as possible in order for the desired position to be reliably assumed.
- ◆ The running time must be reconfigured if the end points are changed.
- ◆ If the running time is configured, for example, with the help of a stopwatch, then the speed should be measured in the up direction and approx. 10% should be added.



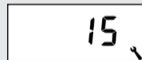
19.2 Menu 9.2 - Configure motor running time

EN

- | | |
|---|---|
| 1. Select and open menu 9.2 motor running time . |    |
| 2. Press and hold the [Down]-button... |  ...until the roller shutters stop at the lower end point. |
| 3. Press and hold the [Up]-button... |  ...until the roller shutters stop at the upper end point. |
| 4. Release the [Up]-key. | The running time will be timed and stored during the up cycle. |
| 5. Back to system menu. |  |

Manually setting the running time

- Fully close the roller shutters.
- Subsequently move the roller shutters to the upper end point and make a note of the time required.
- Enter and confirm the measured running time in menu **9.2**.



e.g. 15 sec.



19.3 Menu 9.3 - Configure ventilation position [▼]

EN

If you do not want the roller shutters to close fully to the lower end point, you can use this function to configure an arbitrary position (**e.g. as ventilation position**).

When closing automatically, the roller shutters will stop at the ventilation position, however, they can subsequently be closed completely via manual operation.

NOTE

The running time must be configured prior to setting the ventilation position, see page 87.

1. Select and open menu **9.3 - Ventilation position**.



2. Activate or deactivate the ventilation position.



On = Ventilation position on

> continue at b)

OFF = Ventilation position off

> Return to menu System settings

3. First fully open the roller shutters.





19.3 Menu 9.3 - Configure ventilation position [▼]

EN

4. Subsequently move the roller shutters to the desired position.



or

4. Enter the desired ventilation position by modifying the percentage value.



Example

0 % = the roller shutters are fully opened.

100 % = the roller shutters are fully closed.

5. Confirm the ventilation position and return to the system settings menu.

OK

NOTE

If the position in point 4 is set to 0% or 100%, then the ventilation position will be deactivated.



19.4 Menu 9.4 - Set postcode

EN

1. Select and open menu **9.4 - postcode.**



2. Set and confirm the **postcode.**



NOTE:

- ◆ Only the first two digits of the code are entered for German cities.
- ◆ Please refer to the time zone table on page 120 for various European cities.
- ◆ If the Troll Comfort DuoFern is not being used in Germany, it may be necessary to switch off the automatic summer/winter changeover function. In order to do so, please refer to page 100 **“Activate/deactivate automatic summer/winter changeover”**.



19.5 Select Menu 9.5 - Switching time programme []

EN

The number of opening and closing times that can be configured depends on the desired **switching programme** selected in this menu.

There are three switching time programs available:

[1] Weekly switching times (factory setting)

- ◆ One switching time pair [▲ / ▼] for (MON...SUN) [**MO...SO**]

[2] Working day and weekend switching times

- ◆ One switching time pair [▲ / ▼] for (MON...FRI) [**MO...FR**]
- ◆ One switching time pair [▲ / ▼] for (SAT + SUN) [**SA + SO**]

[3] Individual day switching times

- ◆ One switching time pair [▲ / ▼] for every day of the week (MO/TU/WE/TH/FR/SA/SU) [**MO/DI/MI/DO/FR/SA/SO**]

Double the amount of switching times by activating a second switching time block:

If you want to double the number of configurable opening and closing times, then you must activate a second **switch time block (n=2)** here.

After this has been activated, you can configure opening and closing times for both switch time blocks, see page 57.



19.5 Select Menu 9.5 - Switching time programme [07]

EN

1. Select and open menu **9.5 Switching time programme**.



2. Select and confirm the desired **switching time programme**.



1 = Weekly switching times



2 = Weekend switching times



3 = Individual day switching times

3. Configure and confirm the number of **switching time blocks**.

n 1 = one switching time block is active.

n 2 = two switching time blocks are active.



> **Recommended setting**

NOTE

The switching times are configured in menu [2], see page 61.



19.6 Menu 9.6 - Configuration of blockage detection [BLOCK]

EN

The Troll Comfort DuoFern is able to monitor the torque of motors equipped with a mechanical end point setting. This enables the controller to switch off the motor in the event of overloading or blockage. As a result, the roller shutters are protected from damage.

NOTE

Blockage detection can only be used in combination with a tubular motor which has **mechanical end point setting**.

1. Select and open menu **9.6 Blockage detection**.



2. Activate/deactivate and confirm **blockage detection**.



On = blockage detection on

> **Continue at point 3**

OFF = blockage detection off

> **Back to system menu**



19.6 Menu 9.6 - Configuration of blockage detection [BLOCK]

EN

3. Select and confirm the suitable **motor type**.



In order to do so, please refer to the operating manual for the respective tubular motor.

Motor types

Diameter/ Power

1:06	35 mm	/ 6 Nm
1:10	35 mm	/ up to 10 Nm
2:10	45 mm	/ up to 10 Nm
2:20	45 mm	/ up to 20 Nm
2:30	45 mm	/ up to 30 Nm
2:40	45 mm	/ up to 40 Nm
2:50	45 mm	/ up to 50 Nm



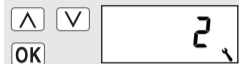
If the installed motor type is unknown, please select:

- 1:06** for roller shutters with an area up to 1.5 m²
2:30 for larger roller shutters

4. Set and confirm the **sensitivity level**.

Sensitivity:

- 1** = low
6 = high



NOTE

- ◆ Test runs should be made to ascertain the highest possible level of sensitivity, in order to protect the roller shutters in the event of blockage.
- ◆ It may be necessary to customise the **cut-off sensitivity** depending on the properties of the roller shutters (weight, running characteristics, etc.).

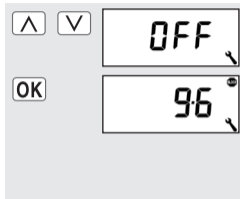


19.6 Menu 9.6 - Configuration of blockage detection [BLOCK]

EN

5. Activate/deactivate **reversing** after **blockage detection**.

On = reversing on
OFF = reversing off



Automatic reversing in the event of meeting an obstacle.

In the event of blockage, the motor runs in the opposite direction for approx. 2 seconds to relieve the roller shutters.

More information about blockage detection:

- ◆ if excessively long connecting leads are used (>5 m), it is possible that the blockage detection system will fail to work correctly due to external interference.

- ◆ It is possible that the motor will be switched off by the blockage detection system when moving out of the end points when using mechanical motors with high switching hysteresis. Blockage detection must be deactivated for this type of motor.

NOTE:

- ◆ Some motors can trigger undesired reversing when reaching the end positions (e.g. atypical internal motor wiring, long cables, etc.) In such cases it is recommended to deactivate the reversing function.
 - ◆ If the motor type cannot be precisely determined, then a suitable setting for motor type and sensitivity must be determined by trial and error.
-

This function enables you to use the Troll Comfort DuoFern to control Venetian blinds.

The following configurations are possible:

- ◆ Jog mode
- ◆ Automatic slat adjustment
- ◆ Tilting time

Additional Venetian blinds functions can be configured, for example, with a HomePilot®.

- ◆ Standard slat position
- ◆ Automatic tilt after manual stop in direction “Down”
- ◆ Auto tilt to sunshine position
- ◆ Auto tilt to ventilation position
- ◆ Automatic tilt after moving to a target position
- ◆ Slat runtime and motor dead time

Brief description of jog mode

Briefly tapping the operating buttons enables Venetian blinds slats to be conveniently configured.

In order to conveniently move the Venetian blinds to the end points, actuate the control key for 1 second longer than the configured tilting time. Once the key is released, the Venetian blinds will move to the end point without stopping.

Brief description of automatic slat adjustment function

If the Troll Comfort DuoFern controls the motor in the **down-direction** until the total running time has elapsed or the Venetian blinds motor is stopped manually, then the motor reverses automatically for a brief period (automatic slat adjustment). This serves to position the slats to the desired angle, in order to provide sun shading to the room.



19.7 Menu 9.7 - Venetian blinds mode [# / T]

EN

1. Select and open menu **9.7 - Venetian blinds mode**.



2. Activate or deactivate **jog mode** and confirm.



On = on

OFF = off

3. Activate/deactivate and confirm automatic slat adjustment.



On = on

OFF = off

> Continue at point 4

> Back to system menu

4. Set and confirm the **tilt-
ing time**.



Setting range:

OFF or




0.1 to 5.00 seconds

5. Confirm the previous setting and return to the "System settings" menu.





Menu 9.8 - Device settings

Icon	Menu	Page
	<i>9.8.1</i> Automatic summer / winter changeover	100
	<i>9.8.2</i> Display contrast	101
	<i>9.8.3</i> Display backlighting	101
	<i>9.8.4</i> Clock mode	102
	<i>9.8.5</i> Key lock	103
	<i>9.8.6</i> Inputs E1/E2	104
	<i>9.8.7</i> Reversal of rotation direction...	106
[L]	<i>9.8.8</i> Light function	107
	<i>9.8.9</i> End points	110
i	<i>9.8.0</i> Software version	113

19.8.1 Menu 9.8.1 - Automatic summer/winter changeover on/off

The Troll Comfort DuoFern features an automatic summer/winter changeover function.

NOTE

If the controller is not being used in Germany, it may be necessary to switch off the automatic summer / winter clock change function.

1. Select and open Menu **9.8.1 Summer/winter changeover**.



2. Activate/deactivate summer/winter changeover and confirm.



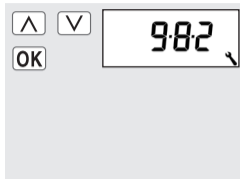
- On** = Function on
OFF = Function off



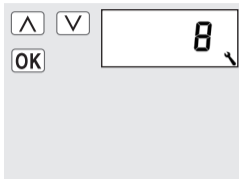
19.8.2 Menu 9.8.2 - Set display contrast

EN

1. Select and open Menu **9.8.2 - Display contrast**.



2. Set and confirm the desired display contrast.
1 = low contrast
10 = high contrast

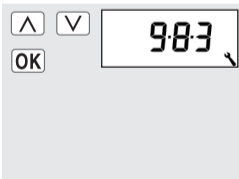


19.8.3 Menu 9.8.3 - Configure continuous display backlighting

Pressing one of the operating keys causes the backlighting in the standard display to switch on at full intensity.

Subsequently the brightness gradually fades down to the configured value.

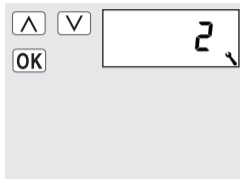
1. Select and open menu **9.8.3 - Display backlighting**



19.8.3 Menu 9.8.3 - Configure continuous display backlighting

EN

2. Configure and confirm the desired brightness.



The display backlighting remains permanently switched on at the configured setting.

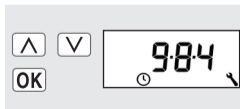
0 = off

1-3 = brightness levels

19.8.4 Menu 9.8.4 - Set clock mode

This menu enables you to configure the time base for the internal clock (depending on the local power supply).

1. Select and open menu **9.8.4 - Clock mode.**

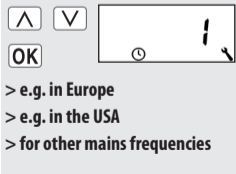


2. Set and confirm the clock mode.

1 = 50 Hz mode

2 = 60 Hz mode

3 = quartz mode





19.8.5 Menu 9.8.5 - Switch key lock on/off

EN

You can activate the key lock to protect against unintentional input.

Automatic activation after approx. two minutes.

If the key lock is activated and no keys are pressed within a period of two minutes, the key lock is activated automatically.

1. Select and open Menu **9.8.5 - Key lock.**



2. Activate or deactivate the key lock.



On = on

OFF = off

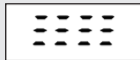
Press and hold the [**SET/ Stop**] key for four seconds in order to remove or activate the key lock in the standard display.

NOTE

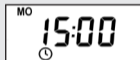
The roller shutters can be moved manually, even with the key lock activated.



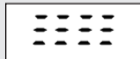
approx.
4 sec.



Display:



Display for
active key lock.



When pressing
the menu key.



External controller via the two inputs E1 and E2.

The Troll Comfort DuoFern features two configurable inputs **E1** and **E2** (230V / 50 Hz) for connecting external signal transducers (e.g. Venetian blinds switch / environmental sensor, etc.).

The following configurations are possible:

- [0] Off
- [1] UP (roller shutter mode)
- [2] DOWN (roller shutter mode)
- [3] UP (Venetian blinds mode)
- [4] DOWN (Venetian blinds mode)
- [5] UP / Stop / Down
- [6] Automatic mode on/off (closer, NO)
- [7] Automatic mode on/off (opener, NC)
- [8] External wind signal, NO
- [9] External rain signal, NO

NOTE

- ◆ If manual mode is active, the inputs are not taken into consideration by the controller (except in the case of the wind function).
 - ◆ Both inputs can be configured independently of each other.
-



19.8.6 Menu 9.8.6 - Configuration of inputs E1 / E2

EN

1. Select and open menu **9.8.6 - Inputs.**



2. Enter and confirm the function for input 1 (**E1**).



3. Enter and confirm the function for input 2 (**E2**).



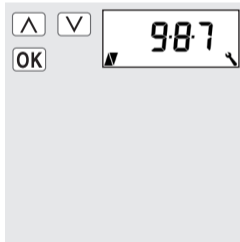
4. Subsequently the system menu will be displayed again.

NOTE

You can obtain application examples for inputs E1 / E2 from our website at www.rademacher.de

It is not necessary to re-wire the motor if the direction of rotation for the connected motor is wrong [**Up**] key moves the roller shutters downwards and [**Down**] key moves the roller shutters upwards). The direction of the motor can be easily changed using the **reversal of rotation direction** function.

1. Select and open menu **9.8.7 - Reversal of rotation direction**



2. Activate or deactivate reversal of rotation direction.

On = on

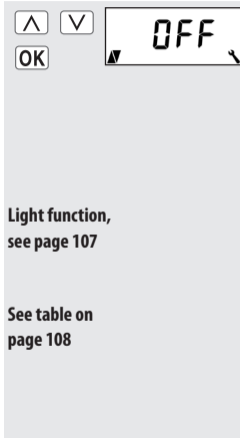
OFF = off

NOTE

The following settings apply to the activated light function.

On = Appliance mode

OFF = Light mode



Light function,
see page 107

See table on
page 108



19.8.8 Menu 9.8.8 - Light function; brief description

EN

The light function makes it possible to control a connected light (or other electrical appliance) instead of a roller shutter motor with the help of the automated functions.

In addition, it is also possible to manually control the light with the buttons [**up / down and SET/stop**].

The underlying functions of the Troll Comfort DuoFern change when lamp mode is activated.

When a lamp (or other electrical appliance) is controlled instead of a motor, the motor-related functions on the Troll Comfort DuoFern are meaningless and no longer function:




- ◆ Running time
- ◆ End point setting
- ◆ Jog mode
- ◆ All Venetian blinds functions
- ◆ Automatic wind and rain functions
- ◆ Position of the sun and ventilation position



19.8.8 Menu 9.8.8 - Light function; brief description

EN

Switch over between lighting function and appliance modes

Command and signal	Light function off	Light function on	
	Tubular motor mode	Light mode Reversal of rotation direction [OFF]	Appliance mode Reversal of rotation direction [On]
	Up	Off	On
	Stop	Off	Off
	Down	On	Off
Dusk	Down	On	Off
Dawn	Up	Off	Off
Sun	Down	Off	No function



19.8.8 Menu 9.8.8 - Configure light function

EN

1. Select and open menu
9.8.8 - light function



2. Activate or deactivate
the light function.



- On** = on
OFF = off

3. Return to
main menu.



Select between lighting function and device function

If the lamp function is activated, menu **9.8.7 - reversal of rotation direction** (see page 106) can be used to select between [**lamp mode**] and [**appliance mode**].

IMPORTANT

If the lamp function is changed, all of the assigned DuoFern devices must be re-assigned, as in this case, the device type of the Troll Comfort DuoFern will change.

You can use your Troll Comfort DuoFern to configure the end points for an electronic RADEMACHER tubular motor.

NOTE

- ◆ **[SET]** is additionally displayed during the end point setting configuration process.
- ◆ The end point setting function is only available for RADEMACHER electronic tubular motors from 2000 onwards.
- ◆ The end point setting cannot be adjusted for tubular motors connected in parallel.
- ◆ The end point function is not available when the light function is activated.

19.8.9 Menu 9.8.9 - Configuration of end points for the tubular motor

EN

1. Select and open menu 9.8.9 - End points.

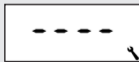


2. Allow the motor to run for at least two seconds to enable the motor type to be detected.



3. Pay attention to the display:

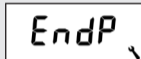
The tubular motor type has not been detected, proceed to point 6.



The tubular motor type has been detected, proceed to point 4.

4. Set the **upper end point**.

- a) Press and hold the set button. The roller shutters travel upwards.
- b) Release the button as soon as the desired end point is reached.

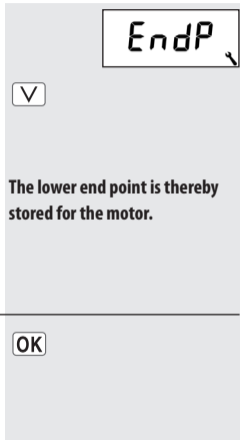


The upper end point is thereby stored for the motor.

5. Set the **lower end point**.

a) Press and hold the set button. The roller shutters travel downwards.

b) Release the button as soon as the desired end point is reached.



6. Back to system menu.

NOTE

The end points will only be stored if:

- ◆ The tubular motor is allowed to run for at least four seconds before an end point is reached.
- ◆ The configuration process is undertaken starting from the end point that is to be changed.
- ◆ Check the correct setting of the end points directly after completing the configuration process with the help of the operating keys.





19.8.10 Menu 9.8.0 - Display software version

EN

This menu enables the current Troll Comfort DuoFern software version to be displayed.

1. Select and open Menu **9.8.0 - Software version**.



2. Subsequently the **current software version** will be displayed.



3. Pressing once more causes the **device type** to be displayed.



4. Pressing once more causes a **display test** to be carried out.



5. Back to system menu.



R 20. Software reset (restore factory settings).

EN

If necessary, you can erase all of your settings and return the Troll Comfort DuoFern system to its original factory settings.

1. Simultaneously press and hold all four keys for 5 seconds, until all of the icons are shown on the display.

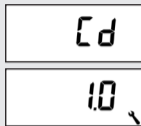


approx.
5 sec.

2. Next, the device type (**Cd = Comfort DuoFern**) and software version will be displayed for a few seconds.

All settings will be erased and reset to the default factory settings.

Carry out the settings again as specified from page 32 onwards (installation wizard).

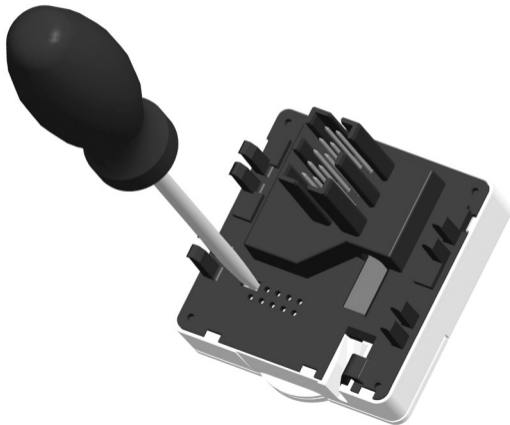


A hardware reset can be carried out in the event that the Troll Comfort DuoFern fails to react to commands. To do so, pull the control unit [1] out of the installation housing [3].

The centre section on rear of the control unit [1] contains **two contacts** which should be carefully **bridged** for a few seconds, for example, with the help of a flat-head screwdriver.

The control unit [1] can be replaced into the installation housing [3] as soon as the screwdriver has been removed from the contacts.

The time and date will be lost during a hardware reset. All other settings are retained.





There is also a risk of fatal electric shocks when dismantling the Troll Comfort DuoFern.

Follow the safety instructions for electrical connection on page 26.

Procedure for dismantling:

1. Switch off the mains.
2. Secure the connector against reconnection and check that the system is de-energised.
3. Carefully remove the operating unit [1] from the installation housing [3].
4. Remove the frame [2].
5. Release the installation housing [3] from the flush-mounted box and disconnect from the mains lead.
6. Leave the connector so that it is secured against reconnection or fit with a new unit if required.

The **Troll Comfort DuoFern** (item no. 3650 05 72 / 3650 05 82) complies with the requirements of the following European and national directives:



**1999/5/EC
R&TTE directive**

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

RADEMACHER Geräte-Elektronik GmbH

Buschkamp 7

46414 Rhede (Germany)

i 24. Technical Specifications

External dimensions control unit [1]:	50 x 50 mm x 12 (according to DIN 49075)
Colour:	ultra-white / aluminium
Nominal voltage:	230 V / 50 Hz
Max. switching capacity:	8 (4) A μ (Type 1B)
Standby consumption:	<0.4 W
Extension inputs:	2 (E1 and E2), configurable
Connection diameter:	1.5 mm ²
Installation depth:	32 mm
Permissible ambient temperature range:	0 to 40°C
Power reserve for clock in the event of power failure:	max. 8 hours
Protection class:	II (only for use in dry areas)

i 25. Factory settings

EN

Automatic:	On
Timer periods:	On
Up-time and mode:	7:00 hours / NORMAL
Down-time and mode:	20:00 hours / NORMAL
Random function:	OFF
Automated solar function:	OFF
Motor running time:	150 seconds
Ventilating position:	OFF / 80 %
Postcode:	46
DuoFern mode:	3 (Local operation)
DuoFern solar mode:	1 (local light sensor)
Switching programme:	1
Blockage detection:	OFF
- Motor type:	2 (45 mm / 30 Nm)
- Sensitivity:	2:30
- Reversing:	OFF

i 25. Factory settings

Jog mode:	OFF
Automatic slat adjustment:	OFF
Tilting time / slat runtime:	1.5 seconds
Standard slat position:	0%
Automatic tilt after manual stop in direction "Down"	On
Auto tilt to sunshine position:	OFF
Auto tilt to ventilation position:	OFF
Automatic tilt after moving to a target position	On
Motor dead time:	OFF

Automatic summer / winter changeover:	On
Display contrast:	8
Display backlighting:	0
Clock mode:	1 (50 Hz)
Key lock:	OFF
Inputs E1 / E2:	OFF / OFF
Reversal of direction of rotation:	OFF
Light function:	OFF

Belgium

- 101 Antwerp
- 102 Bruges
- 103 Brussels
- 104 Liege
- 105 Mechelen
- 106 Mons
- 107 Ostend

Denmark

- 108 Aalborg
- 109 Ringsted
- 110 Esbjerg
- 111 Horsens
- 112 Kolding
- 113 Copenhagen
- 114 Svendborg
- 115 Randers

England

- 116 Aberdeen
- 117 Birmingham
- 118 Bristol
- 119 Glasgow
- 120 London
- 121 Manchester
- 122 Newcastle

Estonia

- 123 Tallinn

Finland

- 124 Helsinki
- 125 Jyväskylä
- 126 Oulu
- 127 Tampere
- 128 Turku
- 129 Vasa

France

- 130 Bordeaux
- 131 Brest
- 132 Dijon
- 133 Le Havre
- 134 Lyon
- 135 Montpellier
- 136 Nantes
- 137 Nice
- 138 Paris
- 139 Reims
- 140 Strasbourg
- 141 Toulon

Italy

- 142 Bologna
- 143 Bolzano
- 144 Florence
- 145 Genoa

- 146 Milan
- 147 Naples
- 148 Palermo
- 149 Rome
- 150 Turin
- 151 Venice

Ireland

- 152 Cork
- 153 Dublin
- 154 Belfast

Latvia

- 155 Riga

Liechtenstein

- 156 Vaduz

Lithuania

- 157 Vilnius

Luxembourg

- 158 Luxembourg

The Netherlands

- 159 Amsterdam
- 160 Eindhoven
- 161 Enschede
- 162 Groningen
- 163 Maastricht
- 164 Rotterdam
- 165 Utrecht

Norway

- 166 Oslo
- 167 Stavanger
- 168 Bergen
- 169 Trondheim

Austria

- 170 Amstetten

- 171 Baden

- 172 Braunau

- 173 Brixen

- 174 Bruck/Mur

- 175 Eisenstadt

- 176 Graz

- 177 Innsbruck

- 178 Klagenfurt

- 179 Landeck

- 180 Linz

- 181 Nenzing

- 182 Salzburg

- 183 Vienna

Poland

- 184 Wroclaw

- 185 Bromberg

- 186 Gdansk

- 187 Kattowitz

i 26. Time zone table

EN

188 Cracow
189 Lodz
190 Lublin
191 Posen
192 Stettin
193 Warsaw

Portugal

194 Faro
195 Lisbon
196 Porto

Switzerland

197 Basel
198 Bern
199 Andermatt
200 Chur
201 Lausanne
202 Lucerne
203 Zurich

Sweden

204 Boras
205 Gavle
206 Göteborg
207 Helsingborg
208 Jönköping
209 Östersund
210 Malmö
211 Stockholm
212 Sundsvall
213 Umea

Spain

214 Almería
215 Alicante
216 Barcelona
217 Bilbao
218 Badajoz
219 Burgos

220 Cáceres
221 Castellón
222 Granada
223 Guadalajara
224 La Coruña
225 Lérida
226 León
227 Madrid
228 Murcia
229 Oviedo
230 Palma
231 Pamplona
232 San Sebastián
233 Seville
234 Santander
235 Valencia
236 Valladolid

237 Vitoria
238 Saragossa
239 La Palma
240 Tenerife
241 Grand Canaria
242 Fuerteventura

South-east Europe

243 Athens
244 Belgrade
245 Bratislava
246 Bucharest
247 Budapest
248 Istanbul
249 Maribor
250 Prague
251 Sarajevo
252 Sofia

253 Skopje
254 Thessaloniki
255 Zagreb

Information about our accessories is available at the following website:

www.rademacher.de/zubehoer

Light sensor:

Item no.	Cable length
7000 00 88	0.75 m
7000 00 89	1.5 m
7000 00 90	3 m
7000 00 91	5 m
7000 00 92	10 m



RADEMACHER Geräte-Elektronik GmbH provides a 24-month warranty for new systems that have been installed in compliance 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:

- ◆ Incorrect fitting or installation
- ◆ Non-observance of the installation and operating instructions
- ◆ Improper operation or wear and tear
- ◆ External influences, such as impacts, knocks or weathering
- ◆ Repairs and modifications by third-party, unauthorised persons
- ◆ Use of unsuitable accessories
- ◆ Damage caused by unacceptable excess voltage (e.g. lightning)
- ◆ Operational malfunctions caused by radio frequency overlapping and other such radio interference

RADEMACHER shall remedy any defects that fall under the warranty period free of charge, either by repairing or replacing the affected parts, or by supplying a new replacement unit or one of equivalent 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.

RADEMACHER

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Fax +49 2872 933-253

service@rademacher.de

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