

**EN DuoFern Tubular Motor Actuator 9471-1**  
Instruction manual for the electrical connection and for commissioning

Item no. 3514 06 62

Type: 9471-1



with your purchase of a **DuoFern Tubular Motor Actuator 9471-1** you have chosen a quality product manufactured by RADEMACHER. Thank you for the trust you have placed in us.

RADEMACHER products have been developed with the greatest possible convenience in mind. 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.



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...describes how to install, connect and commission the DuoFern Tubular Motor Actuator 9471-1.

## **1.1 How to use this manual**

- ◆ Before you begin, please read this manual through completely and follow all the safety instructions.
- ◆ Please also read the instruction manual of the respective connected tubular motor.
- ◆ This manual is part of the product. Please store it in an easily accessible place.
- ◆ When passing the DuoFern Tubular Motor Actuator 9471-1 on to a third party, this manual must be passed on as well.
- ◆ Damage resulting from non-compliance with these instructions and safety instructions will void the guarantee. We assume no liability for any consequential damage.

The following hazard symbols are used in this manual:



**Danger to life resulting from electric shock**



**Danger area / dangerous situation**

### 2.1 Levels of danger and signal words



**DANGER!**

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



**WARNING!**

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





**CAUTION!**

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



**ATTENTION!**

This hazard may lead to property damage.

Depiction	Description
1. 2.	Steps to be taken
◆	Itemisation
1) or a)	Lists
	Further useful information
	Please read the respective manual

**DuoFern**

- ◆ RADEMACHER radio technology for controlling compatible products.

**WR ConfigTool**

- ◆ RADEMACHER software for programming the DuoFern Manual Control incl. automatic software updates for the DuoFern Manual Control.

**HomePilot®**

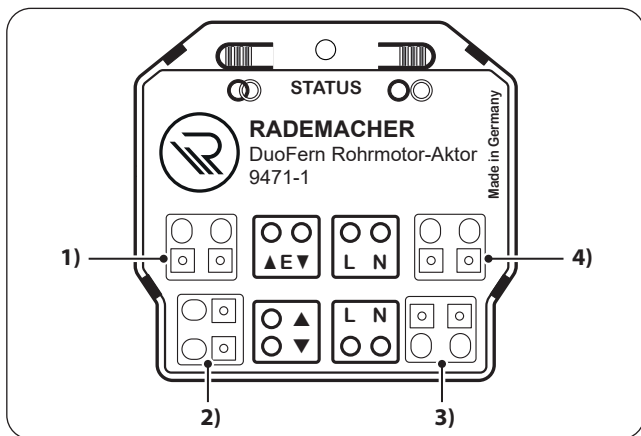
- ◆ The HomePilot® is a central controller unit for RADEMACHER radio products.



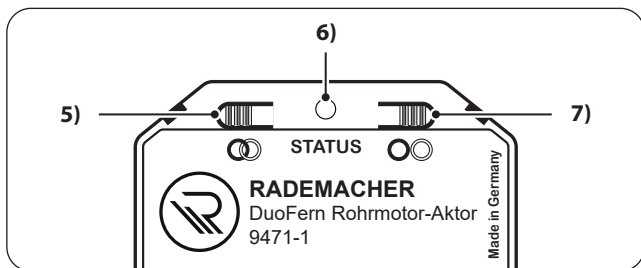
### Included in delivery

- a) 1 x DuoFern Tubular Motor Actuator 9471-1 incl. antenna
- b) 1 x instruction manual (not illustrated)





Pos.	Symbol	Description
1)		<b>Control input (up/down)</b> <i>Connection of an external roller shutter switch / button for manual control on site.</i>
2)		<b>Rotation direction (up / down)</b> <i>Connecting cables to the tubular motor.</i>
3)		<b>230 V / 50 Hz ~</b> <i>Connection of the supply voltage.</i>
4)		<b>230 V / 50 Hz (internally bypassed) *</b> <i>The phase [L] can be forwarded to the external roller shutter switch and the neutral conductor [N] can be forwarded to the tubular motor. * Do not use to forward the mains voltage to the home installation.</i>



Pos.	Symbol	Description
5)		<b>Connect button</b> <i>Logging on to the DuoFern radio network or a DuoFern transmitter.</i>
6)	<b>STATUS</b>	<b>Indicator light - status display</b>
	green	<i>flashing</i> <i>Connection is active</i>
		<i>constantly lit up</i> <i>Connection or disconnection was successful</i>
		<i>brief flashing</i> <i>Control command received</i>
	red	<i>flashing</i> <i>Disconnection is active</i>
		<i>constantly lit up</i> <i>Connection or disconnection was not successful</i>
7)		<b>Disconnect button</b> <ul style="list-style-type: none"> <li>◆ <i>Logging off from the DuoFern radio network or a DuoFern transmitter.</i></li> <li>◆ <i>Reset to the default factory settings</i></li> </ul>

### **Tubular motor controller in a DuoFern network**

The DuoFern Tubular Motor Actuator 9471-1 can be used to integrate conventional tubular motors into a DuoFern network, for example, to use a wide range of the functions of DuoFern sensors and DuoFern transmitters, such as the HomePilot®.

### **Manual operation on site**

An additional external locking roller shutter switch or button can be connected to enable manual operation on site.

### **Installation and electrical connection**

The DuoFern Tubular Motor Actuator 9471-1 is designed for flush mounting. The electrical connection is carried out by means of clamping the connecting cable in the existing spring clip.

DuoFern HomePilot®									
DuoFern Environmental Sensor									
DuoFern Manual Control									
* WR ConfigTool with DuoFern Manual Control									
RolloTron Comfort DuoFern / Troll Comfort DuoFern									
DuoFern Manual Transmitter Standard									
DuoFern Wall Controller									
Function	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. Dawn function	-	-			●		●	●	●
7. Automatic dawn function on / off	on / off	off			●	●	●		●
8. Automatic dusk function	-	-			●		●	●	●
9. Automatic dusk function on / off	on / off	off			●	●	●		●
10. Sun function	-	-			●			●	
11. Automatic sun 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. Wind rotation direction	Up / down	Up				●	●		●
16. Rain function	-	-						●	
17. Automatic rain function on / off	on / off	off				●	●		●
18. Rain rotation direction	Up / down	Up				●	●		●

\* The "WR ConfigTool" software can be downloaded from our website at [www.rademacher.de](http://www.rademacher.de).

DuoFern HomePilot®										
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RolloTron Comfort DuoFern / Troll Comfort DuoFern										
DuoFern Manual Transmitter Standard										
DuoFern Wall Controller										
Function	Value range	Factory setting	A	B	C	D	E	F	G	
19. Running time	2 s - 150 s	150 s				●	●		●	
20. Ventilation position	on / off	off				●	●		●	
21. Ventilation position	1 % - 99 %	80 %				●	●		●	
22. Reversal of rotation direction	on / off	off	●	●		●	●		●	
23. Connectivity test	-	-						●	●	
24. Connect with radio code	-	-				●	●		●	
25. End point setting for RADEMACHER tubular motors via radio	-	-		●			●			
26. Reset via radio (3-stage)	-	-				●			●	
27. Single-button operation	-	-								
28. Jog mode	-	-		●			●			
29. Venetian blind mode	on / off	off				●	●		●	
30. Standard slat position **	0% - 100%	0%				●			●	
31. Automatic tilt after manual stop direction "Down" **	on / off	on				●			●	
32. Automatic tilt to sunshine position **	on / off	off				●			●	
33. Automatic tilt to ventilation position **	on / off	off				●			●	
34. Automatic tilt after moving to a %-position **	on / off	on				●			●	
35. Slat run time **	100 - 5000 ms	900 ms				●			●	
36. Motor dead time	0/160/480 ms	0 ms (off)				●			●	

\* See page 12 / \*\* Only available if "Venetian blind mode" is activated.

**Mains connection [ L / N ]**


Mains supply voltage:	230 V / 50 Hz ~
Consumption:	Standby: < 0.5 W

**Control input [ ▲ E ▼ ]**

for an external roller shutter switch / button on site

Input voltage:	230 V / 50 Hz (Ri = 200 kΩ)
----------------	-----------------------------

**Rotation direction [ ▲ / ▼ ]**

Output voltage:	230 V / 50 Hz	
Maximum switching capacity:		2.5 A / 550 W



**Improper use can lead to serious injuries or property damage.**

- ◆ Small contact distance ( $\mu$ ), not suitable for disconnecting the device.
- ◆ Do not use the DuoFern Tubular Motor Actuator 9471-1 to disconnect the connected appliance.

**DuoFern radio technology**

Transmission frequency:	434.5 MHz
Transmission power:	Max. 10 mW
Range:	Indoors: approx. 30 m * Outdoors: approx. 100 m <i>* Depending on the building structure</i>
Max. number of DuoFern devices:	20

**General information**

Permissible ambient temperature range:	-20 °C to + 55 °C
Dimensions (W x H x D):	48.7 x 45.7 x 19.8 mm
Connecting terminals:	Spring resistance connecting terminals (0.1 mm <sup>2</sup> - 1.5 mm <sup>2</sup> )



**The use of defective devices can lead to personal injury and damage to property (electric shock / short circuit).**

- ◆ Never use defective or damaged devices.
- ◆ Check that the DuoFern Tubular Motor Actuator 9471-1 is intact.
- ◆ Consult our customer service department in the event that you discover damage, see page 28.

### 7.1 Intended use

Only use the DuoFern Tubular Motor Actuator 9471-1 for connecting and controlling tubular motors for roller shutters and Venetian blinds.

#### Operating conditions

- ◆ Only use the DuoFern Tubular Motor Actuator 9471-1 in dry rooms.
- ◆ A 230 V / 50 Hz power supply, together with a site-provided disconnecting device (fuse), must be available at the installation location.
- ◆ The installation and operation of the radio systems is only permitted for systems and devices where a malfunction in the transmitter or receiver would not cause a danger to persons or property or where this risk is already covered by other safety equipment.



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



Using the DuoFern Tubular Motor Actuator 9471-1 for any other purpose than previously mentioned is not permissible.



**Improper use can lead to serious injuries or property damage.**

- ◆ Do not use the DuoFern Tubular Motor Actuator 9471-1 to disconnect the connected appliance.
- ◆ Never use the radio system (e.g. DuoFern radio system) and its components for the remote control of devices and systems with increased safety-relevant requirements or where there is an accident risk. Applications of this kind require additional safety equipment. Observe the respective statutory regulations for the installation of systems of this kind.



**There is a risk to life caused through short circuiting and electric shocks if the DuoFern Tubular Motor Actuator 9471-1 is used outside.**

- ◆ Do not install and use the DuoFern Tubular Motor Actuator 9471-1 in a roller shutter box / outside or in damp rooms.

The electrical connection, installation and commissioning of the DuoFern Tubular Motor Actuator 9471- 1 must only be carried out by a qualified electrician in accordance with the instructions in this manual.

## 8. Safety instructions for the electrical connection

Prior to the electrical connection, check that the voltage / frequency on the type plate corresponds to that of the local mains supply.



**DANGER!**

**There is a risk of fatal electric shock when touching electrical components.**

- ◆ All connection and installation work must only be carried out in a de-energised state.
- ◆ Disconnect all phases of the mains power lead and secure it to prevent any reconnection.
- ◆ Check that the system is de-energised.

**WARNING!**

**Short-circuiting, caused when the DuoFern Tubular Motor Actuator 9471-1 is overloaded, poses a danger to life.**

- ◆ The maximum switching capacity must not be exceeded. Please observe the details in the "Technical Specifications", see page 15.

**ATTENTION!**

**A defective antenna can lead to malfunctions or failure of the DuoFern Tubular Motor Actuator 9471- 1.**

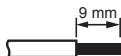
- ◆ The antenna lead must not be shortened and damaged.

## 8.1 Important information regarding the electrical connection

### **Connection instructions for operating with an external roller shutter switch / button on site**

- ◆ It is imperative that a locking roller shutter switch / button is used in order to avoid increased current consumption and excessive heat build-up.
- ◆ When using the control input [▲ E ▼], you must connect the external roller shutter switch / button and the DuoFern Tubular Motor Actuator 9471-1 to the same phase [ L ].
- ◆ The maximum length of lead to connect an external roller shutter switch / button must not exceed 10 m.

### Minimum length of insulation stripped:



All leads must be stripped to 9 mm.

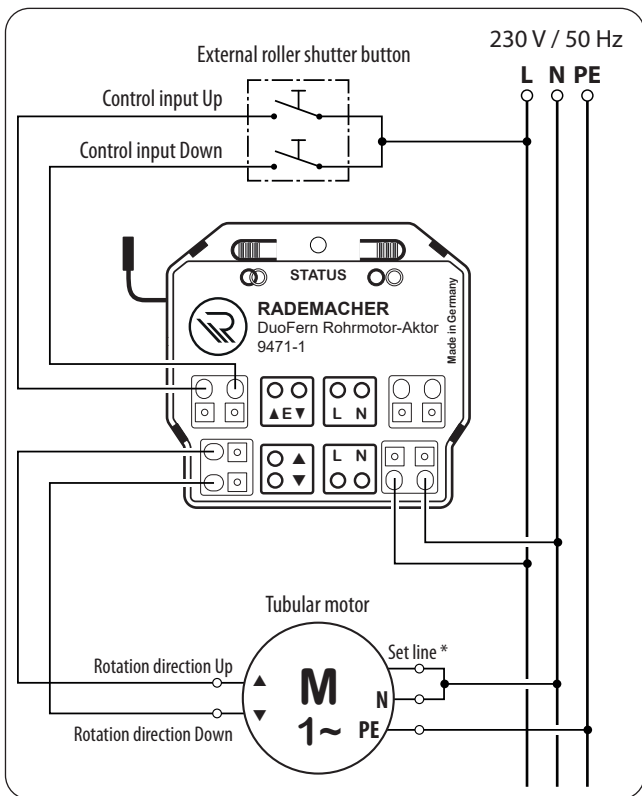


Please read the specifications relating to the electrical connection detailed in the instruction manual for the tubular motor.

### Further installation instructions



- ◆ In order to ensure optimal operation, the DuoFern Tubular Motor Actuator 9471-1 should not be installed on a metallic base or near metal objects.
- ◆ The DuoFern Tubular Motor Actuator 9471-1 is intended for flush mounting. We recommend installation in a deep 58 mm flush-mounted box or in an electronic socket.

1. Ensure the mains are current-free and check whether the inlet leads are current-free.
2. Securely lay all connecting cables right into the flush-mounted box.
3. Remove the insulation on all leads down to 9 mm as specified above and connect them according to the following connection diagram.
4. Insert the DuoFern Tubular Motor Actuator 9471-1 into the flush-mounted box and lay the connecting cables as well as the antenna in the box.
5. Finally, install the cover of the flush-mounted box and switch on the mains power supply again.



\* The set line must be connected to the neutral conductor [N] on RADEMACHER electronic tubular motors.

For the DuoFern Tubular Motor Actuator 9471-1 to be operated with a DuoFern transmitter, you must log each desired transmitter onto the DuoFern Tubular Motor Actuator 9471-1. You can log on a maximum of 20 DuoFern transmitters (e.g. DuoFern Manual Transmitter Standard, etc.).

1. Switch the desired DuoFern transmitter to log-on/log-off mode (please refer to the respective instruction manual).
2. Press the "Connect (log-on )" button or the "Disconnect (log-off )" button of the DuoFern Tubular Motor Actuator 9471-1.
3. The actuator then transmits either a log-on or log-off signal. Log-on / log-off mode remains active for 120 seconds.
4. If the log-on/log-off process is successful, the STATUS LED will light up green constantly.
5. Log on / log off from the next DuoFern transmitter. To do so, repeat steps 1 to 3 or else terminate the log-on / log-off process.

### Observe the STATUS LED

The STATUS LED lights up red if the log-on / log-off process fails, for example if:

- ◆ 20 DuoFern transmitters have already been logged on
- ◆ An unsuitable device (e.g. other DuoFern Actuator) is logged on.
- ◆ An attempt was made to log off from a DuoFern transmitter that is not logged on.

You can control the DuoFern Tubular Motor Actuator 9471-1 directly using the radio code in order, for example, to be able to connect further DuoFern transmitters to the actuator after installation. You will find the radio code on the enclosed label and on the rear side of the DuoFern Tubular Motor Actuator 9471-1.




Please note that the use of the radio code is limited to 120 minutes after switching on the power supply



A detailed description on activating the radio code function can be found in the instruction manual of the DuoFern Manual Control and the HomePilot®.



A reset can be carried out to reset the DuoFern Tubular Motor Actuator 9471-1 to the default factory settings.

1.  Press and hold the disconnect button for approx. 5 seconds until the STATUS LED constantly lights up red.
2. All of the settings are deleted and reset to the default factory settings and the logged-on DuoFern transmitters are automatically logged off.
3. The DuoFern Tubular Motor Actuator 9471-1 is then reset to the default factory settings.

## 11. Dismantling



**DANGER!**

**There is a risk of fatal electric shock when touching electrical components.**

- ◆ Disconnect all phases of the mains power lead and secure it to prevent any reconnection. Check that the system is de-energised.
1. Log the DuoFern Tubular Motor Actuator 9471-1 off from the DuoFern network.
  2. Ensure the mains power is current-free and open the flush-mounted box.
  3. Disconnect the DuoFern Tubular Motor Actuator 9471-1 and completely remove it from the flush-mounted box.



RADEMACHER Geräte-Elektronik GmbH hereby declares that the DuoFern Tubular Motor Actuator 9471-1 complies with the Directive **2014/53/EU (Radio Equipment Directive)**.

The full text of the declaration of conformity is available at the following website:

[www.rademacher.de/ce](http://www.rademacher.de/ce)

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.

Your statutory warranty claims remain unaffected by this warranty.

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

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

A prerequisite for the warranty is that the new device must have been purchased from one of our approved specialist retailers. Proof of this must be provided by presenting a copy of the invoice.

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

## **RADEMACHER**

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