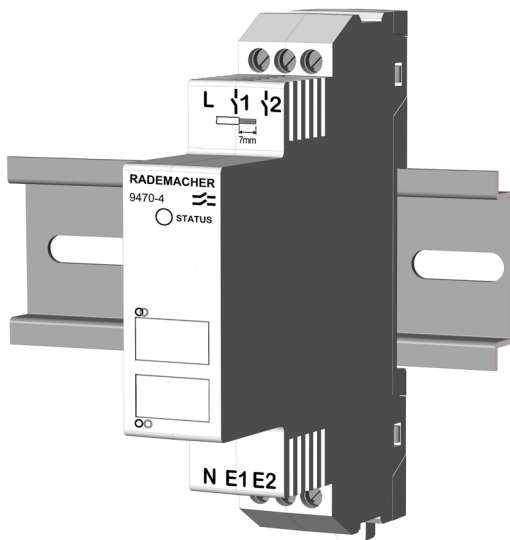


EN**DuoFern DIN Rail 2-channel Switch Actuator 9470-4**

Instruction manual for the electrical connection and for commissioning

Item no. 3520 02 62

Type 9470-4



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...describes how to install, connect and commission the DuoFern DIN Rail 2-channel Switch Actuator 9470-4, hereinafter referred to as the DuoFern Switch Actuator 9470-4.

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 manuals of the accessories, if available, as well as the instructions of the respective connected appliance.
- ◆ This manual is part of the product. Please store it in an easily accessible place.
- ◆ When passing the DuoFern Switch Actuator 9470-4 on to a third party, this manual must be passed on as well.
- ◆ Damage resulting from non-compliance with this manual and the safety instructions will void the warranty. We assume no liability for any consequential damage.

The following hazard symbols are used in this manual:



Risk of fatal electric shock



Danger area / dangerous situation

2.1 Levels of danger and signal words



DANGER!

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



WARNING!

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



CAUTION!

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



ATTENTION!

This hazard may lead to property damage.

Depiction	Description
-----------	-------------

1.	Procedures
----	------------

2.	
----	--

◆	Itemisation
---	-------------

1) or a)	Lists
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Further useful
information



Please read the
respective manual

3. Included in the delivery

Included in the delivery

- ◆ 1 x DuoFern DIN Rail 2-channel Switch Actuator 9470-4
- ◆ 1 x Instruction manual (not illustrated)



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 Switch Actuator 9470-4 is intact.
- ◆ Consult our service department in the event that you discover damage.

4.1 Intended use

Only use the DuoFern Switch Actuator 9470-4 for connecting and controlling electrical appliances (e.g. lighting) within the permissible switching capacity, see “Technical Specifications”. The outputs of the DuoFern Switch Actuator 9470-4 can be used to connect electrical appliances with a 230V/ 50 Hz supply voltage. The relay outputs are not potential-free.

Operating conditions

- ◆ The DuoFern Switch Actuator 9470-4 is designed for installing on a type T35 mounting rail (e.g. in fuse boxes).
- ◆ Only use the DuoFern Switch Actuator 9470-4 in dry rooms.
- ◆ A 230 V / 50 Hz power supply, together with a site-provided disconnecting device (fuse), must be available for the electrical connection on site.

- ◆ The installation and operation of radio systems are 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 that transmit on the same frequency can cause transmission problems.

Using the DuoFern Switch Actuator 9470-4 for any other purpose than previously mentioned is not permissible.



Improper use can lead to personal injury or property damage.

- ◆ The DuoFern Switch Actuator 9470-4 should not be used to disconnect the connected appliances.
- ◆ 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 such systems.



There is a risk to life caused through short circuiting and electric shocks if the DuoFern 2-channel Switch Actuator 9470-4 is used outside or in damp rooms.

- ◆ Do not use the DuoFern Switch Actuator 9470-4 outside or in damp rooms.

4.3 Expert knowledge required by the installer

The electrical connection, installation and commissioning of the DuoFern Switch Actuator 9470-4 must only be carried out by a qualified electrician in accordance with the instructions in this manual.

4.4 Glossary - definition

DuoFern

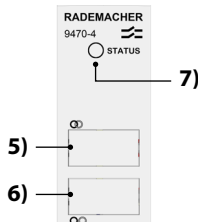
- ◆ RADEMACHER radio technology for controlling compatible products.

SmartHome Box

- ◆ The SmartHome Box is a central control unit for RADEMACHER radio products.



Pos.	Symbol	Description
1) + 2)	L + N	230 V / 50 Hz ~ <i>Connection to the supply voltage</i>
3)	E1 E2	Control inputs 230 V / 50 Hz ~ / (On / Off) <i>Connection of one external switch / button each for manual control on site.</i>
4)	1 2	Relay outputs [1 + 2] <i>Connection of one electrical appliance each.</i>



Pos.	Symbol	Description												
5)		Connect button <i>Logging on to the DuoFern radio network or a DuoFern transmitter.</i>												
6)		Disconnect button <ul style="list-style-type: none"> ◆ <i>Logging off from the DuoFern radio network or a DuoFern transmitter.</i> ◆ <i>Reset to the default factory settings</i> 												
7)	STATUS	Indicator light - status display <table> <tr> <td rowspan="2">green</td><td><i>flashing</i></td><td><i>Connection is active</i></td></tr> <tr> <td><i>constantly lit up</i></td><td><i>Connection or disconnection was successful</i></td></tr> <tr> <td rowspan="3">red</td><td><i>flashing</i></td><td><i>Disconnection is active</i></td></tr> <tr> <td><i>constantly lit up</i></td><td><i>Connection or disconnection was not successful</i></td></tr> <tr> <td><i>brief flashing</i></td><td><i>Control command received</i></td></tr> </table>	green	<i>flashing</i>	<i>Connection is active</i>	<i>constantly lit up</i>	<i>Connection or disconnection was successful</i>	red	<i>flashing</i>	<i>Disconnection is active</i>	<i>constantly lit up</i>	<i>Connection or disconnection was not successful</i>	<i>brief flashing</i>	<i>Control command received</i>
green	<i>flashing</i>	<i>Connection is active</i>												
	<i>constantly lit up</i>	<i>Connection or disconnection was successful</i>												
red	<i>flashing</i>	<i>Disconnection is active</i>												
	<i>constantly lit up</i>	<i>Connection or disconnection was not successful</i>												
	<i>brief flashing</i>	<i>Control command received</i>												

Controlling electrical appliances

With the DuoFern Switch Actuator 9470-4 you can connect and control two electrical appliances (e.g. lighting, etc.) with up to a maximum of 1500 W per appliance.

Use in the DuoFern network

The DuoFern Switch Actuator 9470-4 can be integrated into a DuoFern network to use the range of functions of DuoFern sensors and other DuoFern transmitters such as the SmartHome Box, for example.

Manual operation on site

An additional external switch / button can be connected to enable manual operation on site.

DuoFern SmartHome Box									
DuoFern Environmental Sensor									
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	
1. Manual mode	On / Off	-	●	●		●		●	
2. Device / light mode	Device / light mode	Light mode						●	
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				●		●	

DuoFern SmartHome Box									
DuoFern Environmental Sensor									
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	
12. Connectivity test	-	-					●	●	
13. Connect with radio code	-	-				●		●	
14. Reset via radio (3-stage)	-	-						●	
15. Single-button operation	-	-							
16. Stairwell function	on / off	off						●	
17. Stairway time (pulse duration) *	100 ms - 3276 s	3 minutes						●	

* Advanced switch-off warning for > 60 seconds and with uneven values.

Light / device mode

By switching between the light and the device mode, the behaviour of the DuoFern Switch Actuator 9470-4 can be changed:

The range of functions changes as follows:

Switching commands of an external DuoFern transmitter	Device mode	Light mode
UP	On	Off
STOP	Off	Off
DOWN	Off	On
Dawn function	On	Off
Automatic dusk function	Off	On

Random function (presence simulation)

The DuoFern Switch Actuator 9470-4 can process random function switching commands. If a switching command is received which is to be delayed by the random function, then processing of the switching command is delayed by up to 30 minutes.

During the delay time, the indicator light on the DuoFern Switch Actuator 9470-4 flashes green every second.



- ◆ The random function works independently for each channel.
- ◆ Automatic movement commands of the automatic sun function are **not** delayed.
- ◆ Automatic switching times and dusk commands are delayed.

Stairway function (on / off)

When the stairway function is active, the DuoFern Switch Actuator 9470-4 will switch off the controlled device again after the set "stairway time". An advanced switch-off warning for > 60 seconds and with uneven values can optionally be set.

Mains connection [L / N]

Mains supply voltage:	230 V / 50 Hz ~
Consumption:	Stand-by: < 0.5 W





Control inputs [E1 / E2]

for each external switch / button *

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

* "Button" recommendation

Relay outputs [1 2]

Switching voltage:	230 V / 50 Hz ~	
Maximum switching capacity per channel:	Ohmic load, e.g. bulbs	
		6.5 A / 1500 W
	Inductive loads such as: fluorescent lamps, drives, iron core transformers, e.g. for extra-low voltage bulbs such as halogen bulbs	
		5 A / 1150 W
		
		

Relay outputs [1 2]

Maximum switching capacity per channel:

Capacitive loads such as: electronic transformers, AC/DC transformer, e.g. for extra-low voltage lamps such as halogen lamps, LEDs, etc.



5 A / 1150 W



Improper use can lead to personal injury or property damage.

- ◆ Small contact distance (μ), not suitable for disconnecting the device.
- ◆ The DuoFern Switch Actuator 9470-4 should not be used to disconnect the connected appliances.

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:	-20 °C to + 40 °C
Dimensions (W x H x D):	18 x 91 x 71 mm (1 division unit)
Connecting terminals:	Screw terminals (up to 2.5 mm ²)

The DuoFern Switch Actuator 9470-4 is intended for installing on a type T35 mounting rail, e.g. in fuse boxes.

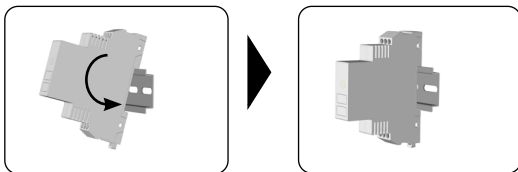
**DANGER!**

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

- ◆ All installation work must only be carried out in a de-energised state.
- ◆ Disconnect the fuse box from the mains power
- ◆ Then check that the system is de-energised.

1. Disconnect the fuse box from the mains power.

2. Press the DuoFern Switch Actuator 9470-4 onto the mounting rail from above until it engages.



9.1 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 work must only be carried out in a de-energised state.
- ◆ Disconnect the fuse box from the mains power.
- ◆ Then check that the system is de-energised.

**WARNING!**

Short-circuiting, caused when the DuoFern Switch Actuator 9470-4 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 16.

Connection instructions for operating with an external switch / button

- ◆ Use buttons in order to avoid increased current consumption and excessive heat build-up.
- ◆ When using the control inputs [**E1 / E2**], you must connect the external switches / buttons and the DuoFern 2-channel Switch Actuator 9470-4 to the same phase [**L**].
- ◆ The maximum length of lead to connect an external button must not exceed 10 m.

Minimum length of insulation stripped



All leads must be stripped to 7 mm.

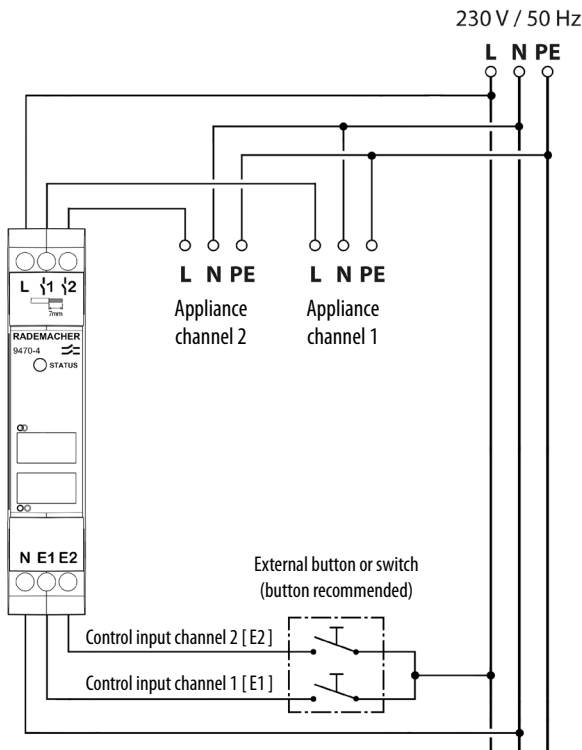


Read the specifications relating to the electrical connection detailed in the instruction manual of the electrical appliance used.

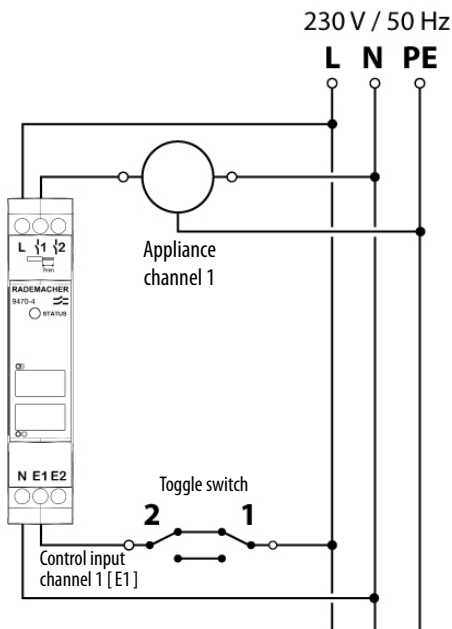
Further installation instructions

- ◆ In order to ensure optimal radio operation, the DuoFern Switch Actuator 9470-4 should wherever possible not be installed on a metallic base or near metal objects.

1. Disconnect the fuse box from the mains power.
2. Securely lay all connecting cables right into the fuse box.
3. Remove the insulation on all leads down to 7 mm.
4. Connect the DuoFern Switch Actuator 9470-4 in accordance with the connection diagram on page 23.
5. Secure the connecting terminals against contact with the corresponding fuse box cover.



The outputs of the DuoFern Switch Actuator 9470-4 can only be used to connect electrical appliances with a 230 V / 50 Hz supply voltage. The relay outputs are not potential-free.





Installation with toggle switches

We recommend replacing the cross connection with several buttons connected in parallel.

The corresponding inputs / outputs must be connected for the second channel as per channel 1.

For the DuoFern Switch Actuator 9470-4 to be operated with a DuoFern transmitter, you must log each desired transmitter onto the DuoFern Switch Actuator 9470-4. You can log on a maximum of 20 DuoFern transmitters (e.g. DuoFern manual transmitter standard).

1. Switch the desired DuoFern transmitter to log-on/log-off mode (please refer to the respective instruction manual).
2. Press the "Connect button" [] or the "Disconnect button" [] of the DuoFern 2-channel Switch Actuator 9470-4.
3. The DuoFern Switch Actuator 9470-4 then transmits either a log-on or log-off signal.
Log-on / log-off mode remains active for 120 seconds.
4. After successfully logging on / off, the STATUS LED lights up green for approx. 4 seconds.
5. Log on / log off 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 a DuoFern transmitter that is not logged on.

Using the radio code, you can log the DuoFern Switch Actuator 9470-4 directly onto the HomePilot or manual control without having to press the button on the device.



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 or the SmartHome Box.



You can find the radio code for the DuoFern Switch Actuator 9470-4 on the type plate mounted on the side (43xxxxxxxx).

A reset can be carried out to reset the DuoFern Switch Actuator 9470-4 to the default factory settings.

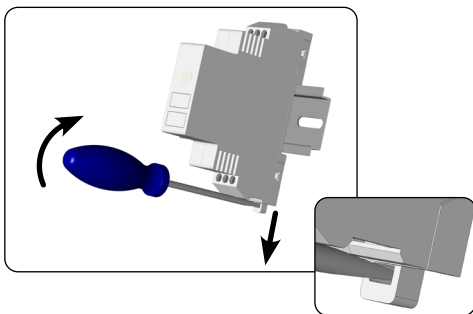
1.  Press and hold the Disconnect button for approx. 5 seconds until the STATUS LED constantly lights up red.
2. All of the settings are deleted and reset to the default factory settings and the logged-on DuoFern transmitters are automatically logged off.
3. The DuoFern Switch Actuator 9470-4 is then reset to the default factory settings.

**DANGER!**

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

- ◆ Disconnect the fuse box from the mains power.
- ◆ Then check that the system is de-energised.

1. Log the DuoFern Switch Actuator 9470-4 off from the DuoFern network.
2. Disconnect the fuse box from the mains power.
3. Disconnect the DuoFern Switch Actuator 9470-4.
4. Insert a suitable screwdriver into the slide on the underside of the device and press until the device is released from the mounting rail. The device can then be removed from the mounting rail.





RADEMACHER Geräte-Elektronik GmbH hereby declares that the DuoFern Switch Actuator 9470-4 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

Warranty terms and conditions

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

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