

User Manual

# Remote Control R11 Receiver



**Revision history**

*Table of revisions*

<b>Date</b>	<b>Changed</b>	<b>Rev</b>
July 2024	Updated cover manual, safety information, technical description, and pinout information	0201
January 2019	Rebranded to Danfoss Power Solutions	0101

## Contents

### Safety instructions

FCC rules.....	4
General safety.....	4
Safety warnings.....	5

### Technical description

Dimensions and identification.....	6
R11 detailed description.....	7

### Installation

Receiver installation.....	8
R11 Pinout.....	8

### Troubleshooting

2.4GHz Receiver LED troubleshooting.....	10
--	----

## Safety instructions

### FCC rules

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

---

Changes or modifications not expressly approved by the manufacturer can void the user's authority to operate the equipment.

---

To comply with FCC RF exposure compliance requirements, this device and its antenna must not be collocated with, or operating in conjunction with, any other antenna or transmitter, may not cause harmful interference, and must accept any interference received, including interference that may cause undesired operation.

---

The limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

#### **Warning**

---

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
  2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- 

### R11 General Safety

The following safety instructions must be read carefully to install and use the product properly, and to keep it in perfect working condition, and to reduce the risk of miss use.

- **Danfoss recommends the use of ESD PPEs (electrostatic discharge personal protection equipment).**
- Strictly adhere to the installation instructions contained in this document.
- Make sure that professional and competent personnel carry out the installation.
- Ensure that all on site and prevailing safety regulations are fully respected.
- The Electrical Installation where it may be connected, The receiver may be connected through an automatic magneto thermic switch (with omnipolar cut capacitance: F+N) and differential with characteristics according to the Low Voltage Recommendations.
- Make sure that this document is permanently available to the operator and maintenance personnel.
- Keep the transmitter out of reach of non-authorized personnel.
- Remove the transmitter key when the set is not in use.
- Check each working day the STOP button and other safety features. When in doubt, press the STOP button.
- Whenever several sets have been installed, make sure the transmitter is the right one. Identify the machine controlled on the label for this purpose on the transmitter or by using the display (in case it does have one).
- Service the equipment periodically.
- Avoid High Pressure water Spraying to Receivers while cleaning the machine
- When carrying out repairs, use spare parts supplied by Danfoss only.

## Safety instructions

### Warning

**Potential damage to the operator or the product.** Do not use this product on machines in potentially explosive atmospheres unless the model is ATEX/RATEX certified to work in such conditions.

## R11 Safety Warnings

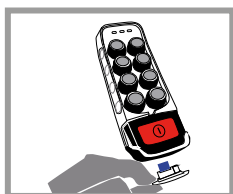
Potential damage to operator and product.

Follow the guidelines below to reduce risk of injury to the operator and the product.

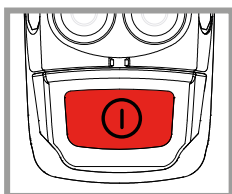
- Use the device with the manufacturer's battery and battery charger (if applicable).
- Only allow qualified personnel to operate the equipment.
- Always set the STOP button in the off position when not in use.
- Always press STOP before plugging in tether cable (if applicable).
- Remove the Tether connection on the transmitter First (if applicable).
- Do not operate product when visibility is limited.
- Make sure product is compatible with the machine.
- Avoid knocking or dropping the product.
- Do not use the product if a failure is detected.

Changes or modifications not approved by Danfoss can void the user's authority to operate this product.

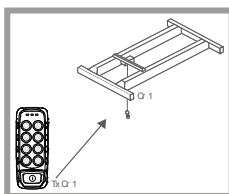
### Quick reference precautions



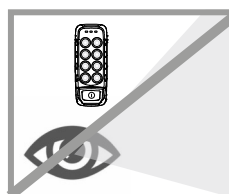
Remove the EEPROM in order to disable the transmitter



When in doubt, press the STOP button



Make sure the transmitter works with the machine to be handled



Do not use the set when visibility is limited

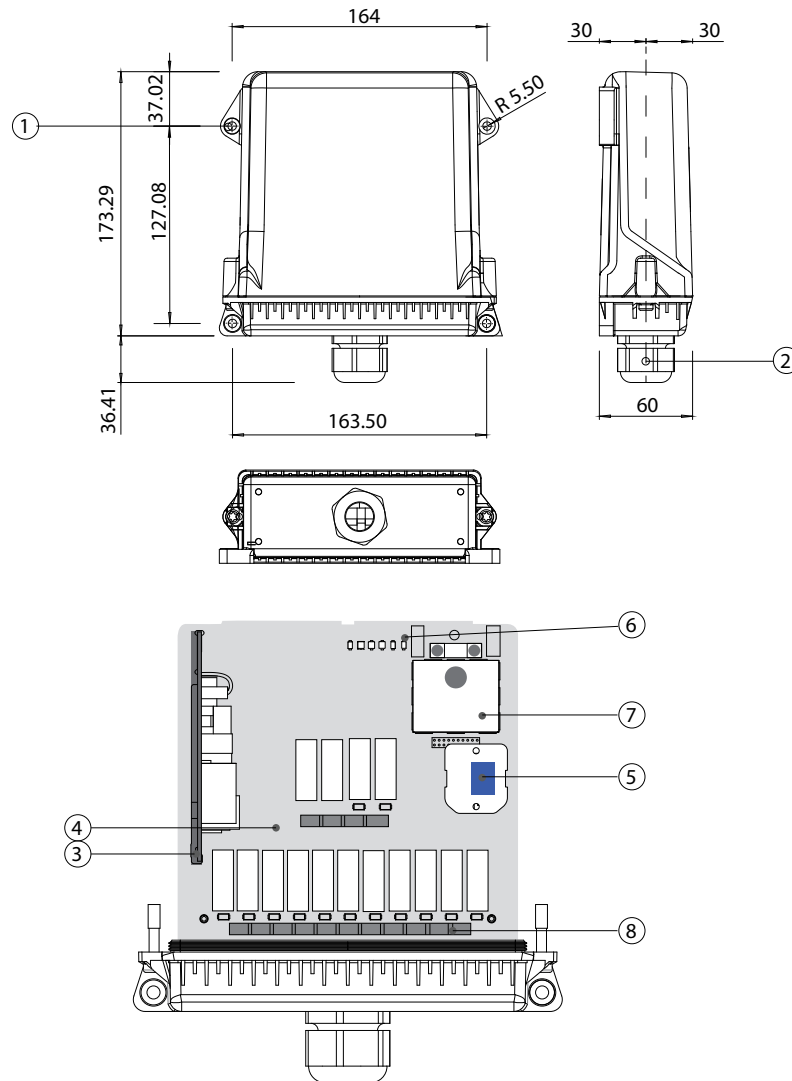


Avoid knocking or dropping the set

**Technical description**

**R11 dimensions and identification**

*Dimensions in mm*



1. Fixing slots (fixed assembly or anti-vibration with magnets\*)
2. M25 cable gland
3. Power supply
4. LR11 logic board
5. Removable EEPROM
6. Signaling LEDs
7. 2.4 GHz radio
8. Wiring connection

\* The use of the anti-vibration kit is recommended in any case

## Technical description

### R11 detailed description

#### Technical data

Specification	Value
Stop function (2.4 GHz)	Cat. 4-PLe
Ingress protection	IP65/NEMA4
Frequency band - ERP	2405MHz to 2475MHz 20dBm/100mW
Range Line of sight (guaranteed)	100m
AC power supply	48 - 240 Vac / 18 - 30 Vac (500mA)
DC power supply	8 - 36 Vdc (2A)
Antenna	Internal
Removable EEPROM	Internal
Signaling	Internal
STOP Outputs (2.4GHz)	2 (6A)
Start Output	1 (8A)
Safety Relay	1 (8A)
ON/OFF outputs	11 (8A)
Proportional Outputs	N/A
CAN Bus Protocols	N/A
ON/OFF inputs	N/A
Proportional inputs	N/A
Maximum Total Output Current	8A
Response Time	100ms
Operating Temperature Range	-20°C to +70°C (-4°F to +158°F)
Storage Temperature Range (24h)	-25°C to 75°C (-13°F to 167°F)
Storage Temperature Range (long periods)	-25°C to 55°C (-13°F to 131°F)
Relative Humidity	max. 95% without condensation
Weight	800 grams
Dimensions LxWxH mm	164x210x60 mm
Tether Connector	N/A
Associated transmitters (2.4 GHz)	Ikore, IkoreB, Icompact, IK2, IK3, IK4

## Installation

### R11 receiver installation

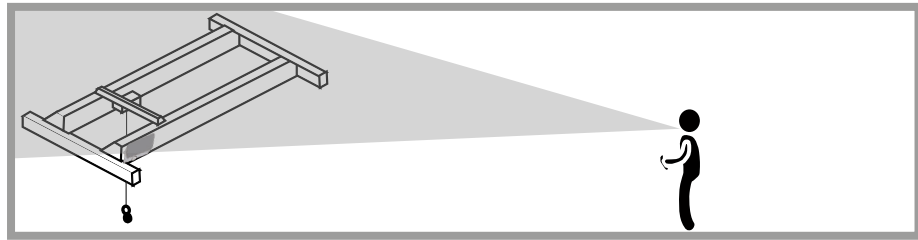
#### Risk of shock

Completely shut down the machine when installing the receiver.

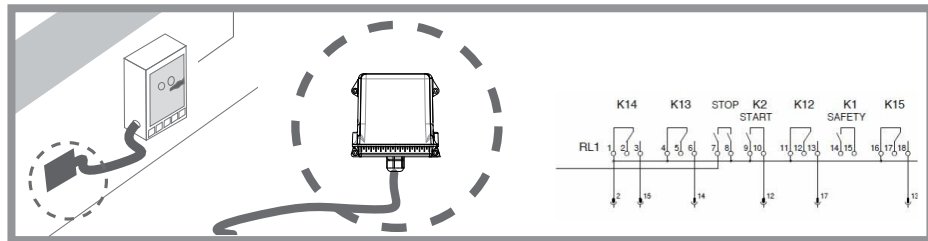
Check the power supply and shut off the main switch to disconnect the interface cable between the receiver and the machine's electrical box.

1. Find an easily accessible and clear location with a direct vision between the receiver's antenna and the transmitter's working area.

It is strongly advised to avoid installing the receiver inside a closed metal enclosure.



2. Optional: If high levels of vibration is expected, ensure shock-absorbers are being used.
3. Connect the power supply and the receiver's outputs using the connection block diagram provided with the system.



4. Check the electrical installation and verify if there is an option to connect the neutral or the ground cable. In that case, be sure to connect the ground cable.

To guarantee a reliable connection, apply a torque between 0.5 and 0.5 Nm to screw the connection terminals.

### R11 Pinout

#### Pin out Description

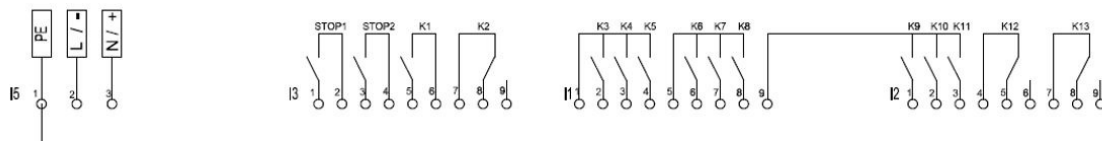
Connector	Pin	Description	Connector	Pin	Description
I5	1	GND	I3	1	STOP1 NO Contact
	2			2	STOP1 Common
	3	VAC		3	STOP2 NO Contact
				4	STOP2 Common
			5	K1 NO Contact	
			6	K1 Common	
			7	K2 Common	
			8	K2 NC Contact	
			9	K2 NO Contact	
I1	1	K3, K4, K5 Common	I2	1	K9 NO Contact



## Installation

### Pin out Description (continued)

Connector	Pin	Description	Connector	Pin	Description
	2	K3 NO Contact		2	K10 NO Contact
	3	K4 NO Contact		3	K11 NO Contact
	4	K5 NO Contact		4	K12 Common
	5	K6, K7, K8 Common		5	K12 NC Contact
	6	K6 NO Contact		6	K12 NO Contact
	7	K7 NO Contact		7	K13 Common
	8	K8 NO Contact		8	K13 NC Contact
	9	K9, K10, K11 Common		9	K13 NO Contact



## Troubleshooting

### 2.4GHz Receiver LED troubleshooting










The troubleshooting LEDs are located on the receiver board or accessible on the outside. Use the following table to identify faults and corrective action.

In order to reach the internal signaling, the receiver must be accessible, connected and the screws located on the receiver lid must be unscrewed using the proper screw driver whenever the LEDs are not externally visible.

The LEDs on the receiver board are POWER, STATUS, DIAG1, DIAG2, ORDER, RELAY, CANERR and CANRUN in that order.

Please do check the following website for further information:

<https://troubleshooting.dps-rct.com/en/customer-service-center>

LED	Color and frequency	Pulse frequency	Description	Action
POWER	Green   continuous		Switched ON if powered	Check power supply if LED is switched off.
STATUS	Blue   fast pulses		System is starting; establishing connection with radio and EEPROM	Wait
	Blue   continuous		Waiting for transmitter communication, coming from ACTIVE STOP	Release STOP button and press START on the transmitter.
	Blue   slow pulses		Waiting for transmitter communication, coming from PASSIVE STOP	Press Start on the Transmitter
	Green   continuous		Working	Operate
	Red   slow pulses		EEPROM module missing or corrupt	Check EEPROM and reprogram if necessary
	Red   double pulses		Radio communication error	Replace receiver
	Red   triple pulses		Secondary micro error or error between micro communication	Replace receiver
	Red   4 pulses		ERROR	Check DIAG1 LED
	Red   5 pulses		After 15 sec Not all expansion boards have been initialized	Check CAN wiring and Configuration(EEP or Expansion ID#), Check Bus Termination.
Red   1 Long + 1 short pulse		CAN Signature ERROR	Check Signature in Compliance Block and EEPROM are the same.	

## Troubleshooting

LED	Color and frequency	Pulse frequency	Description	Action
DIAG1	Orange   slow pulses		Low tension in the receivers power supply	Supply the system with the correct voltage
	Orange   double pulses		Hardware error	Replace receiver
	Orange   triple pulses			
	Orange   4 pulses			
	Green   slow pulses			
	Green   double pulses		Medium link quality	N/A
	Green   triple pulses		High link quality	N/A
DIAG2	NOT USED	NOT USED	NOT USED	N/A
ORDER	Green   continuous		LED ON Whenever any output is ON	N/A
RELAY	Green   continuous		STOP relay activated	N/A
CANERR	Red   slow pulses		CAN Error, physical Layer	Verify Connections
	Red   double pulses		One expansion has Stopped working	Verify Expansion boards
	Red   4 pulses		A Transmitted CAN frame has been lost	N/A
	Red   5 pulses		A Received CAN Frame has been lost	N/A
	Red   continuous		CAN Bus OFF	Verify CAN connections and Status.
CANRUN	Green   fast pulses		Pre operational Status, Receiver waiting for the controller.	Controller must send the Operational code to the Receiver.
	Green   continuous		Receiver connected to the CAN network and operational	N/A

### Products we offer:

- Cartridge valves
- DCV directional control valves
- Electric converters
- Electric machines
- Electric motors
- Gear motors
- Gear pumps
- Hydraulic integrated circuits (HICs)
- Hydrostatic motors
- Hydrostatic pumps
- Orbital motors
- PLUS+1® controllers
- PLUS+1® displays
- PLUS+1® joysticks and pedals
- PLUS+1® operator interfaces
- PLUS+1® sensors
- PLUS+1® software
- PLUS+1® software services, support and training
- Position controls and sensors
- PVG proportional valves
- Steering components and systems
- Telematics

**Danfoss Power Solutions** is a global manufacturer and supplier of high-quality hydraulic and electric components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market as well as the marine sector. Building on our extensive applications expertise, we work closely with you to ensure exceptional performance for a broad range of applications. We help you and other customers around the world speed up system development, reduce costs and bring vehicles and vessels to market faster.

Danfoss Power Solutions – your strongest partner in mobile hydraulics and mobile electrification.

### Go to [www.danfoss.com](http://www.danfoss.com) for further product information.

We offer you expert worldwide support for ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide you with comprehensive global service for all of our components.

Local address:

### Hydro-Gear

[www.hydro-gear.com](http://www.hydro-gear.com)

### Daikin-Sauer-Danfoss

[www.daikin-sauer-danfoss.com](http://www.daikin-sauer-danfoss.com)

**Danfoss  
Power Solutions (US) Company**  
2800 East 13th Street  
Ames, IA 50010, USA  
Phone: +1 515 239 6000

**Danfoss  
Power Solutions GmbH & Co. OHG**  
Krokamp 35  
D-24539 Neumünster, Germany  
Phone: +49 4321 871 0

**Danfoss  
Power Solutions ApS**  
Nordborgvej 81  
DK-6430 Nordborg, Denmark  
Phone: +45 7488 2222

**Danfoss  
Power Solutions Trading  
(Shanghai) Co., Ltd.**  
Building #22, No. 1000 Jin Hai Rd  
Jin Qiao, Pudong New District  
Shanghai, China 201206  
Phone: +86 21 2080 6201

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.