Radio antennas

Omnidirectional antennas with SMA / RP-SMA connector
Mounting, orientation and maintenance manual



Never switch on the radio without an antenna connected. This product is not a toy – it is intended for persons aged 14 and over.

Rotorama, s.r.o. · www.rotorama.cz

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1. Safety instructions

- This product is **not a toy** and is intended for persons aged 14 and over. It contains small parts – keep it out of the reach of small children.
- **Never switch on the radio or the transmitter module without an antenna connected.** Without an antenna the transmitting stage can be permanently damaged. This also applies to switching on briefly and to configuring settings in the menu.
- Always screw the antenna on and off with the **radio switched off** or the module switched off.
- Do not disassemble or shorten the antenna and do not solder anything to it. It is tuned to the operating band and any modification will detune it.
- A damaged, loose or poorly oriented antenna reduces the range of the RC link. This can result in loss of signal (failsafe) and a crash of the model. Therefore check the condition of the antenna before every flight.

2. Product description

2.1 About the product

The omnidirectional antenna is a replacement or upgrade antenna for RC radios and transmitter modules, for example ExpressLRS. It connects to the radio or module with a screw-on **SMA** or **RP-SMA** connector – the connector type is stated in the antenna designation.

The antenna radiates the signal in all directions around its axis, so it does not have to point directly at the model. It is a passive part without electronics – it needs no power supply and no setup.

2.2 Parts description



Illustrative photo – the shape and length of the antenna vary depending on the type.

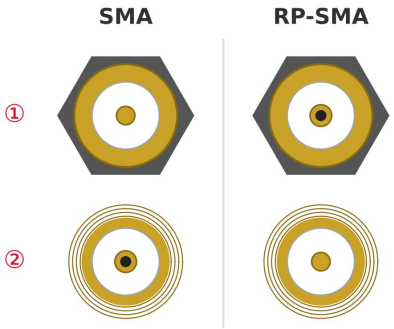
① **SMA or RP-SMA connector** – with a knurled coupling nut used to screw the antenna onto the radio or module.

② **Antenna body** – the radiating part in a protective cover.

③ **Band marking** – on some versions the band is printed directly on the antenna.

2.3 Compatibility

- The band of the antenna must match the band of the transmitter. Antennas are made for the **2.4 GHz** band, for the **868/915 MHz** band, or as multi-band versions.
- The antenna connector must match the connector on the radio or module. **SMA and RP-SMA are not compatible with each other**, even though they have the same thread. The difference is in the centre contact – see the figure.
- If the connectors do not match, use a suitable SMA ↔ RP-SMA adapter. Never force connectors together.
- The antenna is not intended for video transmitters (VTX).



① antenna connector (with coupling nut), ② connector on the radio or module (with external thread). SMA: the antenna has a centre pin, the transmitter a socket. RP-SMA: the antenna has a socket, the transmitter a pin.

3. Mounting

3.1 Screwing on the antenna

① Switch off the radio or module.

② Check that the antenna connector type matches the connector on the radio (Chapter 2.3).

③ Fit the antenna straight in line with the connector, not at an angle.

④ Turn the coupling nut **clockwise** and tighten it **by hand** until the antenna is held firmly. Do not use pliers or a wrench.

⑤ Switch on the radio only with the antenna screwed on.

Do not tighten the nut with force. Overtightening damages the centre contact or loosens the connector in the radio or module.

3.2 Unscrewing the antenna

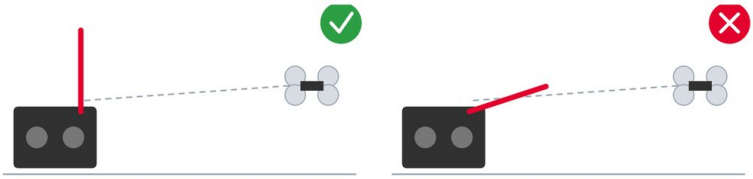
Switch off the radio and turn the coupling nut **anticlockwise**. Do not bend the antenna sideways or pull on it while doing so.

If the antenna comes loose by itself during use, tighten it by hand before every flight.

4. Antenna orientation in flight

- The antenna radiates most strongly sideways, perpendicular to its axis, and the signal is weakest in the direction its tip points. **Therefore do not point the tip of the antenna at the model.**

- During the flight, hold the antenna approximately **vertical** so that the model is to the side of the antenna.
- There should be no obstacles between the antenna and the model. Do not cover the antenna with your hand or body, do not rest it against your body and do not point it at the ground.
- Fly within line of sight. Buildings, trees and terrain between the radio and the model attenuate the signal considerably.



Antenna vertical, model to the side of the antenna ✓, antenna tip pointing at the model ✗.

4.1 Frequency bands and power

- In Europe, RC systems use the **2.4 GHz** band and the **868 MHz** band. The 915 MHz band is intended for other regions – the regulations of the country in which you operate the model apply.
- An antenna with higher gain increases the radiated power. The operator is responsible for complying with the permitted radiated power – if necessary, reduce the output power in the transmitter settings.

5. Function check

- Carry out the check with the propellers removed.
- Switch on the radio with the antenna screwed on, then the model, and check that the link is established.
- In the telemetry of the radio, check the signal strength (RSSI) and link quality (LQ). The values should correspond to the state before the antenna was replaced.
- After replacing the antenna, start flying close by and keep watching the telemetry. Only fly further away once the link is reliable.

6. Maintenance and storage

6.1 Pre-flight inspection

- Check that the antenna is firmly tightened and has no play.
- Check that the antenna cover is not cracked or broken.

- When replacing the antenna, check that the thread and the centre contact are not damaged, bent or dirty.

Replace an antenna with a damaged cover or connector.

6.2 Cleaning, transport and storage

- Clean the antenna with a dry soft cloth. Do not use solvents.
- When transporting the radio in a bag or case, protect the antenna from bending or unscrew it. The leverage of a long antenna can easily damage the connector in the radio.
- Store it in a dry place and do not place other objects on it.

7. Troubleshooting

Problem	Possible cause and solution
Weak signal, short range or failsafe	The antenna is not tightened, is damaged, does not match the band of the transmitter, or its tip is pointing at the model. Check the mounting (Chapter 3.1), orientation (Chapter 4) and condition of the antenna (Chapter 6.1).
The antenna cannot be screwed on	The antenna connector does not match the connector on the radio (SMA × RP-SMA), or you are fitting the antenna at an angle. Check the connector type (Chapter 2.3) or use an adapter.
The antenna screws on but there is no link	Both the antenna and the radio have a socket, or both have a pin (SMA × RP-SMA). The centre contact then does not connect. Use an antenna with the correct connector or an adapter.
The antenna comes loose by itself	The nut is not tightened by hand. Tighten it before every flight (Chapter 3.1).

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.cz

8.2 Product safety and identification

- The product is a passive antenna without electronics. It is not subject to the Radio Equipment Directive (RED) or the Electromagnetic Compatibility Directive (EMC). It is placed on the market in accordance with Regulation (EU) 2023/988 on general product safety (GPSR).
- **Product identification:** the manufacturer and type designation can be found on the product page in the e-shop and, for some versions, also on the packaging.
- This product is **not a toy** and is intended for persons aged 14 and over.

8.3 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

9. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.