REELY

GB Operating Instructions

Electric Quadrocopter
“TQ Performance Drone” RtF

Item No. 1934146 / 2269650

CE

Table of Contents

GB

1. Introduction

Dear customer,

Thank you for purchasing this product.

This product meets the requirements of current European and national guidelines.

To ensure that the product remains in this state and to guarantee safe operation, always follow the instructions in this manual.

These operating instructions are part of this product. They contain important notes on commissioning and handling. Do not give this product to a third party without the operating instructions. Therefore, retain these operating instructions for reference!

All company and product names are trademarks of their respective owners. All rights reserved.

If there are any technical questions, please contact: www.conrad.com/contact

2. Explanation of symbols

The symbol with an exclamation mark in a triangle is used to highlight important information in these operating instructions. Always read this information carefully.

The arrow symbol indicates special information and tips on how to use the product.

3. Intended use

The “TQ Performance Drone” IR electric quadrocopter is an electrically driven helicopter-like model that is wirelessly controlled via infrared signals using the included remote control. The quadrocopter is designed solely for private use within the domain of model construction with the associated operating times.

The model is intended for indoor use.

It is not suitable for other purposes. Using this product for any purposes other than those described above may damage the product and result in a short circuit, fire, electric shock or other hazards.

The product must not become damp or wet.

This product is not suitable for children under 14 years of age.

Always follow the safety information in these operating instructions. It contains important information on how to use the product safely.

You are responsible for the safe operation of this model!

4. Delivery content

- Ready-to-fly quadrocopter
- Rechargeable flight battery
- Infrared remote control transmitter
- USB charging cable
- Operating instructions

Up-to-date operating instructions

To download the latest operating instructions, visit www.conrad.com/downloads or scan the QR code on this page. Follow the instructions on the website.

5. Product description

The ready-to-fly “TQ Performance Drone” IR quadrocopter features 4 separately controlled motors, each of which drives its own propeller. Using the simultaneous acceleration of all propellers, the quadrocopter can lift off from the ground and, at appropriate propeller speeds, hover steadily in the air.

For in-flight stabilisation, the quadrocopter has sophisticated electronics with position and acceleration sensors (6-axle gyro) allowing uncontrolled movements of the model to be detected and compensated for immediately. The quadrocopter is equipped with an air pressure sensor so that it can stabilise its flight altitude itself.

For flight in a given direction, the electronics in the model detect the control impulses of the transmitter and alter the speeds of the individual motors accordingly. The quadrocopter thus tilts in the desired direction and the lift thereby also acts as thrust. The quadrocopter flies in the respective direction.

On the model, two propellers turn clockwise and two turn anti-clockwise. Through a targeted change of speed of the two propeller groups relative to each other (propellers turning to the right turn somewhat faster and propellers turning to the left turn somewhat slower or vice versa), it is possible to turn (yaw) the quadrocopter around the vertical axis while keeping the altitude the same and keeping the quadrocopter in the same spot.

The quadrocopter has a green LED at the rear (at the IR receiver) and a white LED at the front to better recognise its orientation in flight.

For beginners, the transmitter may be operated in beginner mode. In beginner mode, the control reactions of the model are significantly reduced (dual rate function). In sports mode, the quadrocopter reacts with much greater agility. The quadrocopter has maximum control sensitivity when in expert mode.

If necessary, the quadrocopter can perform roll-overs (flips) in any direction.

To operate the transmitter, 3 AAA/Micro batteries are required (not included and must be ordered separately).

⟶ Please use batteries only instead of rechargeable batteries for operating the IR transmitter.

6. Safety instructions

Damage caused due to failure to observe these instructions will void the warranty. We do not assume any liability for any resulting damage!

We shall not be liable for damage to property or personal injury caused by incorrect handling or failure to observe the safety information! Such cases will void the warranty/guarantee.

The guarantee and warranty also exclude normal wear and tear during operation (such as worn motor shaft bearings) and accident damage (such as broken chassis parts or propellers).

Dear customer, these safety instructions are designed to ensure the safe operation of the product and your personal safety. Read this section very carefully before using the product.

a) General information

Caution, safety hazard!

This model has the potential to cause damage to property and/or individuals. Ensure that you are sufficiently insured, e.g. by taking out private liability insurance.

If you already have a policy, check with your insurance company that use of this model is covered by the policy.

Important: In some EU countries, you are required to have insurance when using a model aircraft.

Familiarise yourself with the local statutory regulations for using model aircraft. In Germany, for example, the regulations for model aircraft are stipulated in the German Air Traffic Act. Any breaches of the statutory regulations could lead to severe penalties as well as restrictions to your insurance cover.

- The unauthorised conversion and/or modification of the product is prohibited for safety and approval reasons.
- This product is not a toy and is not suitable for children under 14 years of age.
- The product must not get damp or wet.
- If you do not have sufficient knowledge of how to operate remote-controlled models, contact an experienced model user or a model club.
- Do not leave packaging material carelessly lying around, because it could become a dangerous toy for children.
- If you have any questions that are not answered by these operating instructions, contact us (see section 1 for contact information) or an experienced technician.
- The operation and handling of remote controlled quadcopters must be learned! If you have never operated a model of this kind, start with particular care and get used to the reactions of the model to the remote control commands first. Be patient!

b) Before first use

- Select a suitable location to fly the quadrocopter.
- When switching on the quadrocopter, follow the procedure described below in a separate chapter. This ensures that the transmitter and receiver connect properly and that your model responds reliably to remote control commands from your transmitter.

- Make sure there are no other operational infrared transmitters such as wireless headphones within the range of the remote control. Always check if simultaneously operated IR transmitters do not interfere with your model.
- Conduct regular checks to verify that the model and remote control are safe to use. Inspect the parts for any signs of damage, such as broken connectors or damaged cables. All moving parts on the model should move freely, but there must not be any slackness in the bearing.
- Check that the rotors are secure and in the correct position before each use.
- The quadrocopter rechargeable battery required for operation must be charged before use.
- Always ensure that the non-rechargeable batteries in the transmitter have enough remaining capacity (see transmitter LED). If the batteries are empty, replace all of them at the same time. Never replace individual batteries.

c) During use

- Do not take any risks when using the product! Always use the model responsibly, otherwise you may endanger yourself and your surroundings.
- Improper use can cause serious injury and damage to property! Ensure that you maintain a sufficient distance from people, animals and objects.
- Only fly the model when you are fully alert and able to respond. Fatigue, alcohol and medication can affect your ability to respond.
- Artificial light sources or strong sunlight can interfere with the transmission of IR control signals and significantly reduce the remote control range (normally approx. 10 m).
- Keep objects and body parts away from the rotors when the rotors are moving.
- Do not fly the model towards spectators or towards yourself.
- Never try to grab hold of the flying quadrocopter with your hands.
- Motors, motor controllers and the quadrocopter rechargeable battery can become hot during operation. For this reason, take a 5 to 10 minute break before recharging the quadrocopter rechargeable battery or restarting the quadrocopter with a spare rechargeable battery.
- Always leave the remote control (transmitter) switched on when the model is in use. After landing, always switch off the quadrocopter before you switch off the remote control.
- Never switch the transmitter off during operation while the quadrocopter is still running.
- Do not expose the model or the remote control to direct sunlight or excessive heat for prolonged periods.
- In the event of a severe crash (e.g. from a high altitude), the electronic gyro sensors may be damaged. Always check that the model is functioning properly before flying it again!
- In the event of a crash, switch off the rotor motors immediately. Rotating rotors may be damaged if they come into contact with obstacles or in the event of an impact. Check the rotors for any signs of cracks or damage before flying the model again!
- To avoid damaging the model due to a crash caused by an undervoltage/total discharging of the rechargeable battery, monitor the undervoltage indicators during the flight.

7. Battery information

Batteries present numerous safety hazards.

Therefore, always observe the following general information and safety instructions when handling non-rechargeable and rechargeable batteries.

- Keep batteries out of reach of children.
- Do not leave batteries lying around, as they present a choking hazard for children and pets. Seek immediate medical advice if a battery is swallowed.
- Batteries/rechargeable batteries must never be short-circuited, taken apart or thrown into fire. This may cause an explosion!
- When handling leaking or damaged batteries, always use suitable protective gloves to avoid burning your skin.
- Do not recharge normal batteries. This may cause a fire or explosion! Only charge rechargeable batteries which are intended for this purpose (1.2 V); use suitable battery chargers. Non-rechargeable batteries (1.5 V) are designed to be used once and must be disposed of properly when they are empty.
- Always ensure that the batteries are inserted and connected to the charger in the correct polarity (observe the plus/+ and minus/- symbols). Inserting the batteries in the wrong polarity may damage the remote control, the helicopter and the batteries. It may also cause a fire or explosion.
- Always exchange the entire set of batteries. Do not mix full batteries with half-full batteries. Always use batteries of the same type and from the same manufacturer.
- Never mix non-rechargeable batteries with rechargeable batteries. Always use disposable batteries to power the remote control.
- If you do not plan to use the model for an extended period (e.g. during storage), remove the batteries from the remote control to prevent them from leaking and causing damage.
- Switch off the quadrocopter after the flight and remove the flight battery from the quadrocopter. Do not leave the flight battery in the quadrocopter when you are not using the model (e.g. during transport or storage). Otherwise, this may cause deep discharge or permanent damage to the quadrocopter rechargeable battery.
- Never charge the quadrocopter rechargeable battery immediately after use. Always allow the quadrocopter rechargeable battery to cool down until it has reached room or ambient temperature again.
- Charge intact and undamaged quadrocopter rechargeable batteries only. Do not charge the rechargeable battery if the external insulation of the rechargeable battery is damaged, or if the rechargeable battery is deformed or swollen. In this case there is serious danger of fire and explosion!
- Never damage the external casing of the quadrocopter rechargeable battery. Do not tear the film cover or prick the quadrocopter rechargeable battery with sharp objects. This may cause a fire or explosion!
- Never charge the quadrocopter rechargeable battery when the product is unattended.
- Disconnect the quadrocopter rechargeable battery from the charging cable when the battery is fully charged.

8. Remote control buttons

1. IR transmitter diodes
2. On/off button
3. Joystick for the bob and roll function
4. Trim button for the bob function (forwards)
5. Trim button for the roll function (right)
6. Trim button for the bob function (backwards)
7. Push button for the flip function
8. Trim button for the roll function (left)
9. Joystick for the pitch and yaw function
10. LED Indicator Light

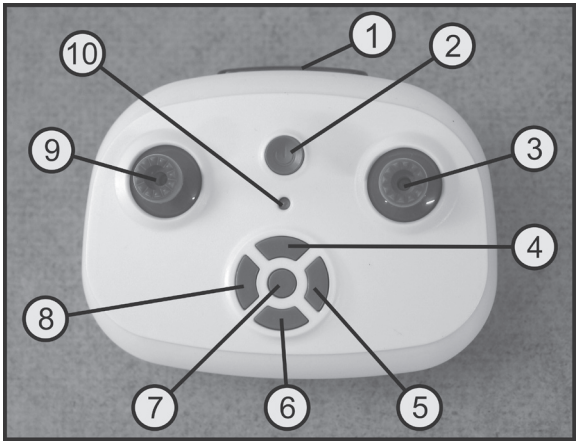

Figure 1

9. Using the transmitter

→ The numbers used in these instructions refer to the figure alongside the text or the figures within the respective section. Cross-references to other figures are indicated with the corresponding figure number.

a) Inserting the batteries

Three AAA/Micro batteries are required to power the transmitter (not included and must be ordered separately).

Important!

Use only standard batteries (1.5 V/cell) and not rechargeable batteries (1.2 V/cell) as the power supply for the transmitter.

To insert the batteries, proceed as follows:

Press the grooved surface (1) of the battery compartment cover (2) and slide the cover downwards.

Insert 3 AAA/Micro type batteries with correct polarity following the instructions on the bottom of the battery compartment (3).

The tongue-shaped spring contact (4) must always be connected to the minus pole of the battery.

Replace the battery compartment cover (2) and push it upwards until it clicks into place.

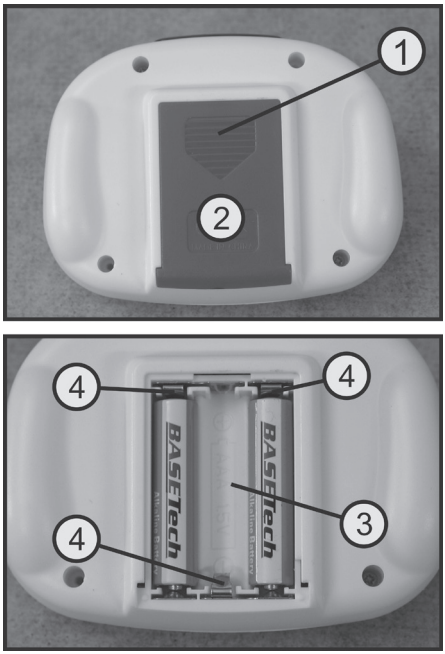

Figure 2

b) Switching on the transmitter

After inserting the batteries, check the correct function of the transmitter:

To do this, briefly press the on/off button (2).

The transmitter will emit a beep and the LED indicator light (10) will flash faster.

Now move the joystick for the pitch function (9) to the highest position and then immediately to the lowest position.

The transmitter will emit a long beep and the LED indicator light (10) will glow steadily.

Then move the joystick back to the middle position. The transmitter is now ready for use.

To turn off the transmitter, press and hold down the ON/OFF button (2) until the transmitter emits a buzzing sound. Then release the button.

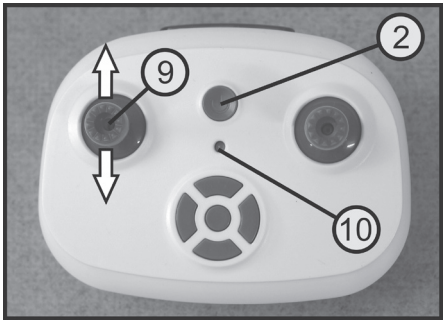

Figure 3

→ If the power supply is no longer sufficient for the proper operation of the transmitter, the LED indicator light (see Figure 3, no. 10) will flash. In that case, stop flying the quadrocopter immediately and insert a set of new batteries into the transmitter.

10. Operating the quadrocopter

a) Charging the quadrocopter rechargeable battery

The quadrocopter rechargeable battery can be charged using the included USB charging cable.

⟶ The charging cable in Figure 4 is wound up for photo-technical reasons. Before first use, remove the cable tie and fully unwind the charging cable.

Charging:

Connect the USB plug of the charging cable (1) to a USB port of a computer/laptop or a USB charger plug.

Connect the reverse polarity protected micro plug (2) of the charging cable to the connection plug (3) of the quadrocopter rechargeable battery.

Charging starts automatically and the charging control LED on the USB plug (4) goes on.

When charging is complete and the flight battery is fully charged, the red LED of the USB plug goes out.

Disconnect the charging cable from the quadrocopter rechargeable battery immediately after charging and unplug the USB plug of the charging cable from the computer/laptop or charger plug.

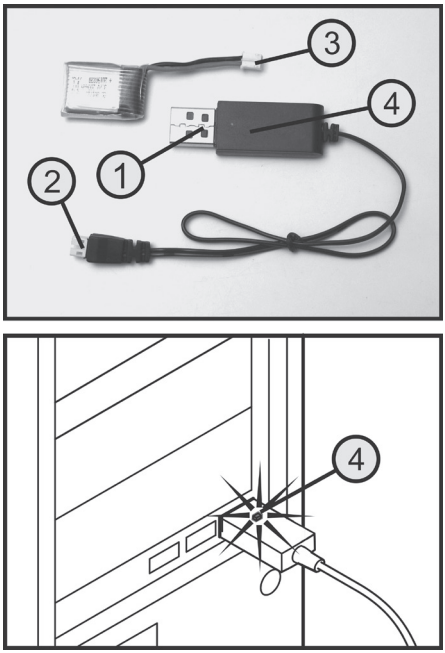

Figure 4

Attention!

Do not connect the USB cable to a USB hub without its own power supply (e.g. a USB port on a keyboard), as the current is not sufficient to charge the quadrocopter rechargeable battery. The USB port output current must be at least 500 mA.

The operating system will not recognise any new hardware when the charging cable is connected, as the USB port is only used to charge the rechargeable quadrocopter battery.

Please note that the USB ports on computers/laptops are normally only active when the computer/laptop is turned on. We therefore recommend that you only connect the charging cable to a computer/laptop that is switched on.

Important!

Only charge the quadrocopter rechargeable battery in the quadrocopter using the included charging cable. Never attempt to charge the rechargeable battery in the quadrocopter with a different or unsuitable charger! Never recharge the rechargeable battery unattended!

b) Checking the drive

Before starting the quadrocopter, test the drive. Only when all four propellers run smoothly and in a perfect circle can the model be flown with the minimum energy consumption. For this reason, you should check the function of the drive propellers quickly before each flight.

To do this, rotate each individual propeller carefully with your finger and check the concentricity and the ease of movement.

When doing this, pay attention to the rotational directions of the various propellers. Two propellers turn clockwise when seen from above (A) and two propellers turn anti-clockwise (B).

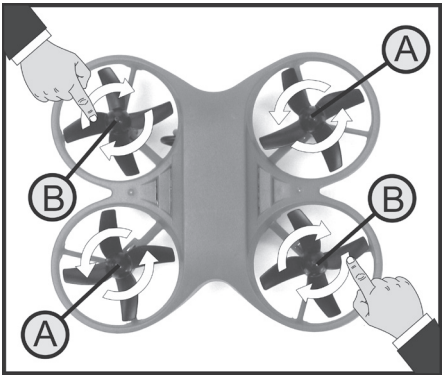

Figure 5

c) Inserting the quadrocopter rechargeable battery

The compartment for the flight battery is on the base of the quadrocopter. Insert the quadrocopter rechargeable battery (1) from the front into the battery compartment as far as it will go as shown in the adjacent figure.

The connection cable of the quadrocopter rechargeable battery (2) must be aligned to the front so that it can later be connected to the connection socket of the quadrocopter (3).

The IR receiver (4) must later be aligned in flight to the pilot using the IR transmitter.

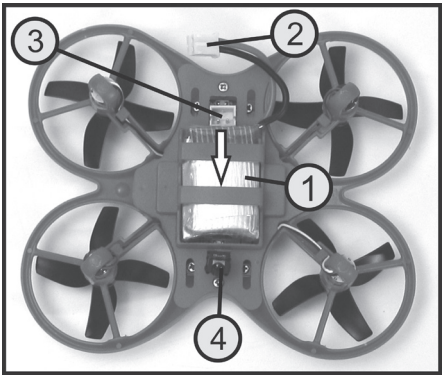

Figure 6

Important!

If you do not use the quadrocopter, e.g. during transport and storage, always remove the rechargeable battery from the battery compartment.

Remove the battery from the quadrocopter to recharge it. Do not pull on the battery cable, instead, carefully push the battery out of the compartment from the other side.

Never charge the battery while it is still in the quadrocopter.

d) Switching on the quadrocopter

The receiver in the quadrocopter must learn the digital coding of the transmitter to be able to respond to the transmitter signals. For this reason, it is important that you switch the quadrocopter on as described below.

First, slide the charged quadrocopter rechargeable battery (1) into the quadrocopter according to the previous description. But do not insert the connection plug of the quadrocopter rechargeable battery yet.

Press the on/off button on the transmitter so that the transmitter LED flashes quickly.

Then insert the connection plug of the quadrocopter rechargeable battery (see also Figure 6, no. 2) into the battery connection socket of the quadrocopter (see also Figure 6, no. 3).

The two quadrocopter LEDs will flicker at a fast rate. Immediately place the quadrocopter in front of the transmitter on a level surface. The IR receiver of the quadrocopter (see Figure 6, no. 4) must be aligned to the transmitter.

As long as the quadrocopter LEDs are still flashing, push the joystick for the pitch and yaw function (see also Figure 1, no. 9) all the way up and then immediately to the lowest position.

The transmitter will emit a beep and the transmitter LED (see also Figure 1, no. 10) will glow steadily. Shortly thereafter, the two quadrocopter LEDs will also glow steadily.

Then move the joystick for the pitch and yaw function to the middle position.

The quadrocopter is now ready to start.

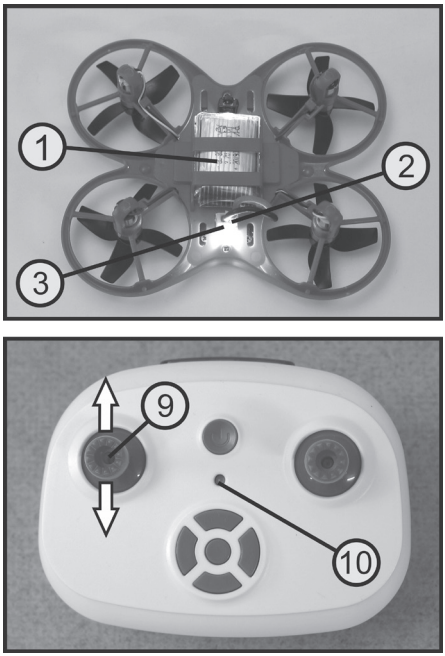

Figure 7

To check if the switch-on process has been successful, briefly move the joystick for the pitch and yaw function to the highest position. The rotors must now start and rotate at low speed.

If the rotors do not rotate, repeat the switch-on process. Observe the correct chronological sequence of the individual steps.

To stop the rotors, move the joystick for the pitch and yaw function to the lowest position and then back to the middle position.

Important!

There should be no other IR transmitter in the immediate vicinity during the switch-on process. If two “TQ Performance Drone” quadrocopters are operated in one room, the digital coding of the transmitter pulses must be switched on one IR transmitter. The required procedure is described in detail in the following chapter.

→ If the quadrocopter LEDs do not glow steadily after the switch-on process, but go out or flash instead, the switch-on process has failed and must be repeated from the very beginning.

e) Basic information on controlling quadrocopters

Before you fly your model, you should first familiarise yourself with the control possibilities in order to operate it safely.

The quadrocopter is controlled via the two joysticks on the remote control transmitter. The following functions are available:

Pitch function

With the pitch function you can control the flying height of the helicopter (see Figure 8). Steering is done with the left joystick (see also Figure 1, no. 9).

When the motors are started by remote control, they run at idle speed. If you now push the joystick slightly forward from its middle position, the quadrocopter will take off and hover over the launch point at a height of approx. 1 m.

If you now push the joystick further forward from its middle position, the quadrocopter will move upwards. If the joystick is pulled back, the quadrocopter descends (see arrows in Figure 8).

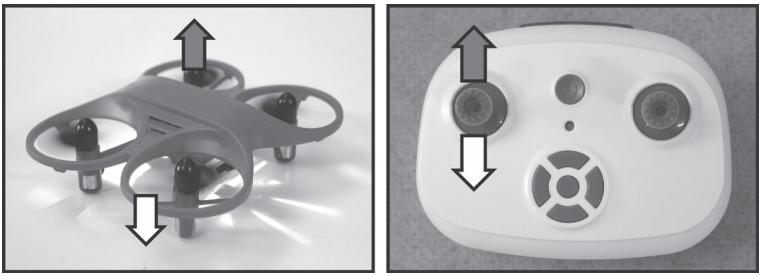

Figure 8

Yaw function

The torques that act on the model are balanced by the two right-turning and the two left-turning propellers, and the quadrocopter hovers steadily in the air.

If you move the left joystick (see Figure 1, no. 9) to the left, the electronics in the model increase the speed of the propellers that turn to the right (clockwise, as seen from above) and at the same time reduce the speed of the propellers turning to the left (anti-clockwise). Thus, the total lift remains the same, but now a torque acts on the model that turns the quadrocopter about the vertical axis to the left (as seen from above).

If the joystick is moved to the right, the speed changes of the propellers come out exactly the opposite and the model turns to the right (see arrow in Figure 9).

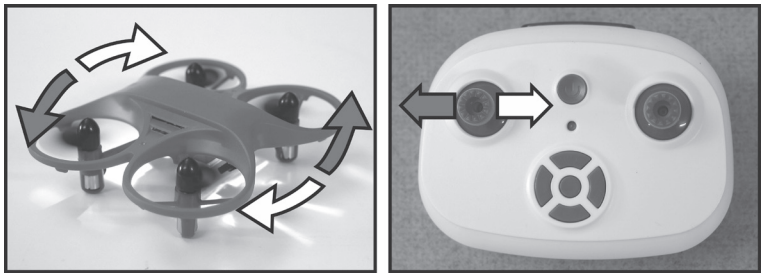

Figure 9

Roll function

The roll function allows you to move the quadrocopter sideways to the right and to the left (see Figure 10). The right joystick (see also Figure 1, no. 3) is used for steering.

If you move the joystick to the left slightly, the electronics in the quadrocopter change the propeller speeds so that the model tilts sideways slightly to the left and thus also flies to the left.

If you steer to the right on the transmitter, the opposite propeller speed changes occur and the model flies sideways to the right (see arrows in Figure 10).

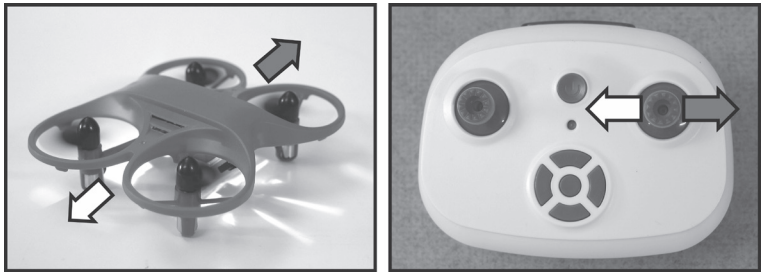

Figure 10

Bob function

The bob function allows you to move your model helicopter forward and backward (see Figure 11). This steering is also done with the right joystick (see also Figure 1, no. 3).

If you push the stick forwards slightly, the electronics in the quadrocopter change the propeller speeds so that the model tilts slightly forwards and thus also flies forwards.

If you steer backwards on the transmitter, the opposite propeller speed changes occur and the model flies backwards (see arrows in Figure 11).

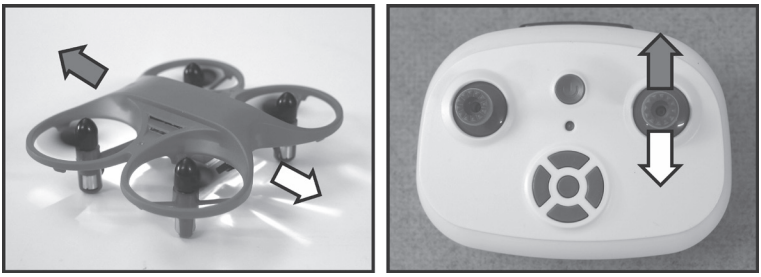

Figure 11

f) Practical flight tips for the first start

Although the model can be flown in a very confined space, we recommend using an unobstructed space of approx. 3 x 3 m for the first flight attempts.

Place yourself directly behind your quadrocopter. For as long as the tail with the green LED is pointing towards you, and you see your model from behind, it will respond from your perspective to the right, left, forward and backward control commands just as you see it. However, if your model has its front towards you, it will react in the opposite way to the steering commands on the transmitter from your perspective.

Caution, important!

Never try to grab hold of the flying quadrocopter with your hands. There is an increased risk of injury!

When the two quadrocopter LEDs start to flash, the quadrocopter rechargeable battery has reached its lower voltage limit. In this case, stop the flight operation immediately and recharge the quadrocopter rechargeable battery in order to avoid deep discharge that can damage the quadrocopter rechargeable battery.

Never switch the transmitter off while the quadrocopter is flying. If the quadrocopter moves too far from the transmitter and receives no more IR control signals, it will land automatically.

g) Quadrocopter take-off

To start the quadrocopter, proceed as follows:

Switch on the transmitter and the quadrocopter as described above. The transmitter LED and the two quadrocopter LEDs must glow steadily.

If you now move the joystick for the pitch and yaw function (see Figure 1, no. 9) slightly forward and then back to the middle position, the rotors will start and rotate at idle speed.

If you now move the joystick for the pitch and yaw function again slightly forward and then back to the middle position, the quadrocopter will start and move upwards approx. 1 m. The reachable flight altitude during the start depends on the current charge level of the quadrocopter rechargeable battery.

The quadrocopter can automatically maintain the flight altitude due to its barometer function.

You can now further control the quadrocopter using to the control commands described above.

h) Landing the quadrocopter

To land the quadrocopter, first steer it over the planned landing site. Then reduce the flight altitude until the quadrocopter comes into contact with the landing site.

Then move the joystick for the pitch and yaw function to the lowest position until the rotors power off.

Then disconnect the quadrocopter rechargeable battery and only then switch off the transmitter.

i) Trimming the quadrocopter

If, after starting, you quickly notice that the quadrocopter is moving in a certain direction without a control command from the transmitter, you can minimise the movement with the aid of the trimming function.

⟶ Every time a trim button is pushed, the trim is adjusted by one step and the adjustment confirmed by a short beep.

When the button is pressed and held, the transmitter emits a continuous sequence of beeps to indicate the step-by-step adjustment of the trim.

Once the trim's end position is reached, no more beeps are emitted by the transmitter.

The middle position of the trim is indicated with a longer beep.

Roll trimming:

If the quadrocopter tends to drift sideways to the right or tilt, repeatedly press the left trim button for the roll function (see also Figure 1, no. 8) until the model no longer has a tendency to drift to the right.

If the quadrocopter wants to drift sideways to the left, press the right trim button for the roll function (see also Figure 1, no. 5).

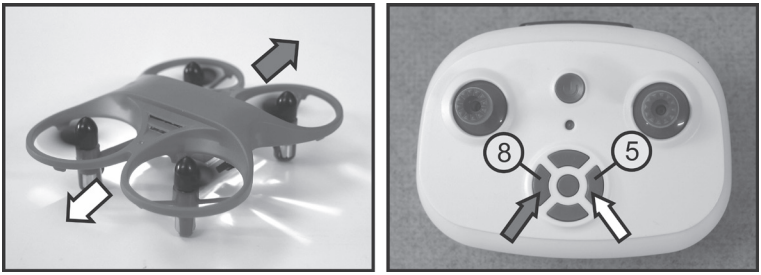

Figure 12

Bob trimming:

If the quadrocopter tends to drift forward, repeatedly press the lower trim button for the pitch function (see also Figure 1, no. 6) until the model no longer has a tendency to drift forward.

If the quadrocopter tends to drift backwards, press the upper trim button for the pitch function (see also Figure 1, no. 4).

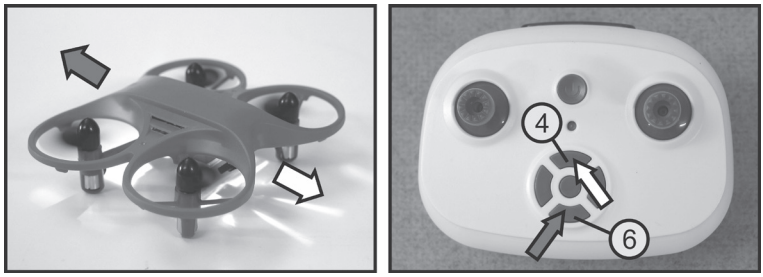

Figure 13

→ The trim for the bob and roll functions is not saved. After you switch the transmitter on and off, the trim returns to the centre position.

Caution!

If the trim is to be adjusted very far, a calibration of the position sensors is required. This procedure is described in a separate section of these instructions.

11. Switching between beginner/sport/expert mode

With beginner/sport/expert mode switching, the remote control allows you to individually adjust the control sensitivity of the quadrocopter (dual rate function). The following modes are available:

Beginner mode:

Beginner mode is automatically activated when the remote control transmitter is switched on. In this flight mode, the quadrocopter responds less sensitively to the control commands from the transmitter and can therefore be controlled very delicately. This mode is ideal for beginners flying the quadrocopter for the first time.

Sport mode:

In sport mode, the quadrocopter responds much more agilely to the transmitter control commands. For this reason, this mode is ideal for advanced users.

Expert mode:

Expert mode gives you maximum control sensitivity. This setting is intended for experienced users.

Enabling the different flight modes:

When it is switched on, the transmitter is automatically in beginner mode.

To switch from beginner mode to sport mode, briefly press the joystick for the pitch and yaw function from above (see also Figure 1, no. 9).

The transmitter emits two short beeps to indicate that sport mode has been activated.

If you press the joystick again, the transmitter will emit three beeps and thus signalise switching to expert mode.

If you press the joystick again, the transmitter will return to beginner mode.

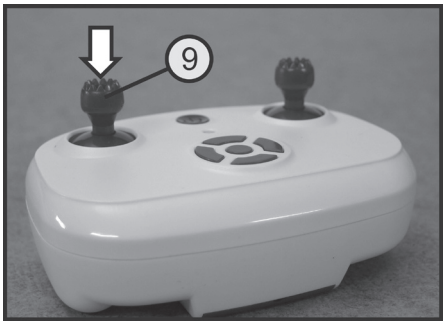

Figure 14

12. Flip function

The quadrocopter is also designed to do flips, if desired. For this purpose, allow the quadrocopter to ascend to a safe altitude of approx. 1.5 – 2 m and then hover at one spot.

To switch the transmitter to flip mode, press the push button for the flip function (see also Figure 1, no. 7).

Once the transmitter has switched to flip mode, it will continuously emit short beeps for approx. 3 seconds.

Now quickly move the joystick for the pitch and roll function (see also Figure 1, no. 3) as far as it will go in the direction in which the quadrocopter should flip and then immediately pull the joystick back to the middle position.

The quadrocopter executes the roll-over in the desired direction. The transmitter then deactivates flip mode.

To be able to fly another roll-over, press the push button for the flip function again.

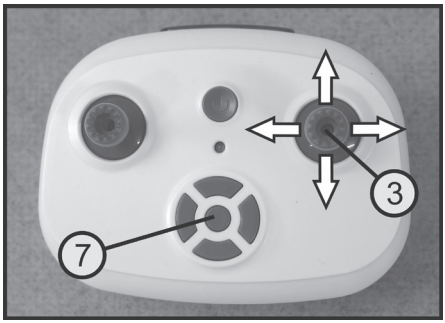

Figure 15

13. Flying in headless mode

The quadrocopter's direction of movement is always dependent on the direction in which the model is oriented with respect to the pilot or the side from which the pilot is looking at the quadrocopter. Therefore, it can be confusing to see the model from the side or the front, not from behind. For this reason, the quadrocopter has been equipped with headless mode.

To effectively use headless mode, however, the quadrocopter should necessarily be oriented in the desired forward direction (see white arrow in Figure 16 A) with the front side (with the white LED) before moving the pitch joystick back and forth.

As long as the model pilot is directly behind the quadrocopter and looking in the desired forwards direction, the quadrocopter will react as the pilot commands it to on the transmitter. When steered forward, the quadrocopter also flies forward from the pilot's perspective (see dark arrow in Figure 16 B).

If the quadrocopter has turned 90 degrees to the left in flight and now has its left side oriented to the pilot, it will fly to the left from the pilot's perspective when the transmitter is steered forward (see dark arrow in Figure 16 C).

When headless mode is activated, it does not matter which direction the front of the quadrocopter is facing. When the transmitter is steered forward, the quadrocopter always flies in the direction that is set as forward when switching on (see dark arrow in Figure 16 D).

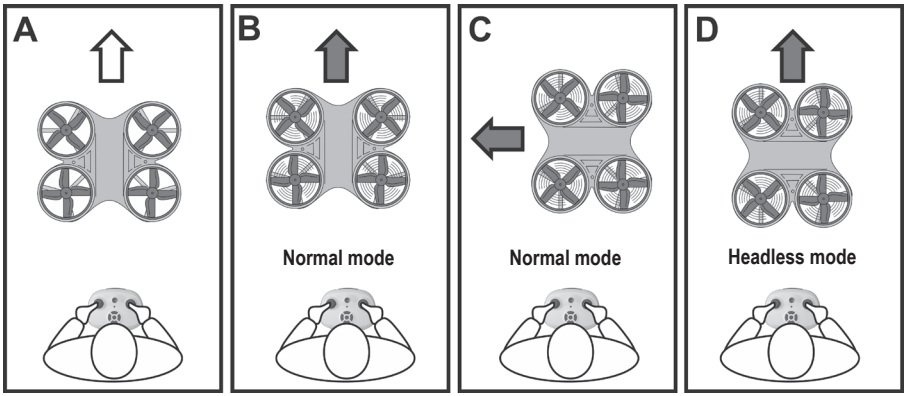

Figure 16

To switch on headless mode, press the joystick for the pitch and roll function from above (see also Figure 1, no. 3).

To indicate that headless mode has been activated, the transmitter emits a short beep. The quadrocopter LEDs will flash slowly, signalling that the quadrocopter is flying in headless mode.

To switch off headless mode again, press the joystick for the pitch and roll function from above again.

The transmitter emits another short beep and the LED on the quadrocopter lights up continuously.

The quadrocopter is flying in normal mode again.

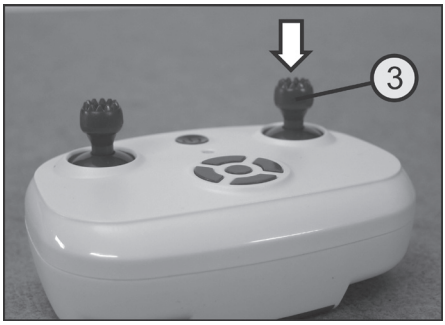

Figure 17

14. Calibrating the position sensors

If the quadrocopter does not hover steadily in one spot but is always flying in one direction, the trim may need correcting. If the trim is to be adjusted very far for this purpose, it may be necessary to recalibrate the position sensors in the model.

Proceed as follows:

Place the ready-to-fly quadrocopter on a flat, level horizontal surface. The rotors must not rotate, and the trim for the pitch and roll function must be set in the middle position.

Now move the joystick for the pitch and roll function (see also Figure 1, no. 3) to the lowest position.

Once the calibration has been completed, the quadrocopter LEDs will start to flicker.

You can now move the joystick to the middle position.

After approx. 2 seconds, once the calibration has been successfully completed, the quadrocopter LEDs will glow steadily again.

Check with a test flight whether the quadrocopter is still showing a strong tendency to fly in a particular direction. Small tendencies can be offset by trimming.

Calibration of the position sensors can be repeated if necessary.

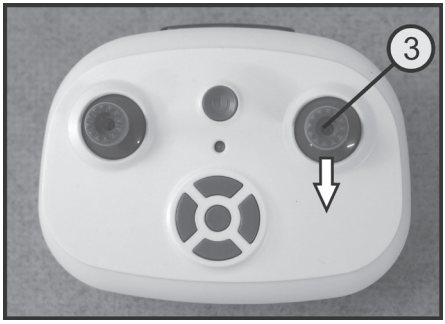

Figure 18

15. Switching the digital transmitter coding

If two “TQ Performance Drone” IR quadrocopters are to be operated in one room, the IR remote controls will interfere with each other. For this reason, it is possible to switch the digital coding of the control impulses on one of the two transmitters.

If you carry out the switch-on process of the transmitter as described above, the coding “A” will be enabled in the transmitter.

To operate the transmitter with the digital coding “B”, press and hold down the button for the flip function (see also Figure 1, no. 7) when the transmitter is switched off.

Then use the on/off button to switch on the transmitter (see also Fig. 1, no. 2).

Then release the button for the flip function.

When the quadrocopter is switched on, it learns the digital coding of the transmitter signal and can respond to it.

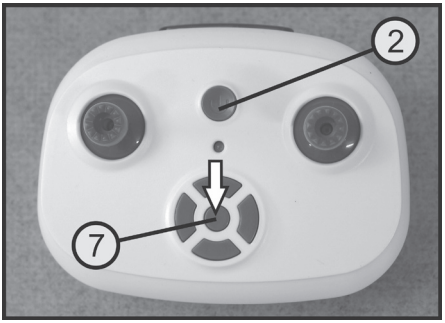

Figure 19

Important!

When switching on the quadrocopter, make sure that the corresponding transmitter is close to the IR receiver so that the receiver can clearly identify signals.

16. Maintenance and cleaning

Clean the exterior of the model and the remote control with a soft, dry cloth or brush. Never use abrasive cleaning agents or chemical solutions, as these may damage the surface of the case.

The propellers must move smoothly and motor shafts should not be bent or have any play in the bearing. Propellers that are cracked or bent or from which small pieces have broken off must always be replaced.

Replacing the propellers

The propellers (1) are simply mounted on the motor shafts (2) of the drive motors and can be levered off the shaft carefully using a flat screwdriver.

When doing so, be careful not to deform the motor shaft.

When selecting the new propeller, always pay attention to the direction of rotation (see also Figure 5).

The new propeller should be positioned on the motor shaft straight from above and pushed carefully down as far as it will go.

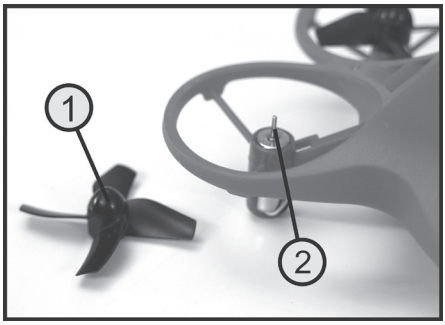

Figure 20

Important!

Do not use any unnecessary force or unsuitable tools.

When replacing mechanical parts, only use original spare parts from the manufacturer. The spare parts list can be found on our website in the download area for the respective product.

17. Disposal

a) Product

Electronic devices are recyclable waste and must not be disposed of in the household waste. At the end of its service life, dispose of the product according to the relevant statutory regulations. Remove any inserted batteries or rechargeable batteries and dispose of them separately from the product.

b) (Rechargeable) batteries

You as the end user are required by law (Battery Ordinance) to return all used batteries/rechargeable batteries. Disposing of them in the household waste is prohibited.

Contaminated (rechargeable) batteries are labelled with this symbol to indicate that disposal in the domestic waste is forbidden. The abbreviations for heavy metals in batteries are: Cd = Cadmium, Hg = Mercury, Pb = Lead (name on (rechargeable) batteries, e.g. below the trash icon on the left).

Used (rechargeable) batteries can be returned to collection points in your municipality, our stores or wherever (rechargeable) batteries are sold.

You thus fulfil your statutory obligations and contribute to environmental protection.

18. Troubleshooting

This model and the remote control were built using the latest technology. However, faults and malfunctions may still occur. We would, therefore, like to show you how to correct potential faults.

Problem	Remedy
The remote control doesn't respond. LED on the transmitter does not light up.	• Check the non-rechargeable batteries in the transmitter. • Check the polarity of the batteries in the remote control.
The transmitter LED flashes	• Check or replace the batteries in the transmitter.
The model does not respond, the quadrocopter LEDs flash fast.	• Check the function of the remote control transmitter. • Perform the quadrocopter switch-on process again.
Propellers do not start.	• Check the quadrocopter rechargeable battery charge level. • Recharge the quadrocopter rechargeable battery for testing purposes. • Repeat the power on procedure.
The quadrocopter tilts to the side on start-up.	• Repeat the switch on sequence of the quadrocopter and do not move the model while doing so. • Check the ease of movement of the drive motor. • Calibrate the position sensors.
The quadrocopter has too little power or short flight times.	• Check the helicopter rechargeable battery charge level. • Recharge the quadrocopter rechargeable battery for testing purposes. • Replace the flight battery with a new one.
The quadrocopter always flies in one direction.	• Adjust the trim on the transmitter. • Unfavourable flight conditions (draught). • Calibrate the position sensors.
Quadrocopter responds very sluggishly to the control commands.	• Switch to sport or expert mode.

19. Technical Data

a) Transmitter

Transmission type.....infrared (IR)

Number of channels 4

Operating voltage .....4.5 V/DC via 3 batteries of type AAA/Micro

Transmitter range .....10 m

Dimensions (W x H x D) .....110 x 83 x 55 mm

Weight without batteries .....80 g

b) Quadrocopter

Power supply.....3.7 V/200 mAh, 15 C (1S LiPo)

Dimensions (L x W x H).....90 x 77 x 30 mm

Rotor shaft spacing (diagonal).....66 mm

Propeller diameter .....30 mm

Take-off weight .....22 g incl. rechargeable battery

(GB) This is a publication by Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau (www.conrad.com).

All rights including translation reserved. Reproduction by any method, e.g. photocopy, microfilming, or the capture in electronic data processing systems require the prior written approval by the editor. Reprinting, also in part, is prohibited. This publication represent the technical status at the time of printing.

Copyright 2020 by Conrad Electronic SE.

2269650_1934146_V1_0920_02_jh_m_EN