robbe Modellsport

RO CONTROL PRO

Programming Box

Dear customer, we are pleased that you have chosen the LED Programming Box from our assortment. With this device you have a powerful tool to program your ROCONTROL PRO controllers comfortably.

Despite the relatively simple operation of the programming box, its use requires some knowledge from you. These instructions will enable you to quickly familiarize yourself with the possibilities of the programming box. To achieve this goal safely and quickly, you should read the operating instructions carefully before starting up the device.

SAFETY INSTRUCTIONS

General Hazard Information

Please note for all our deliveries: Please read these safety and hazard notes first, and then read through all operating and assembly instructions completely and carefully before commissioning for the first time. Remote-controlled models are not a toy and must be used by children under the age of 14 years only under the constant supervision of adults who are familiar with construction, operation, materials and potential hazards. The construction, commissioning and operation of remote-controlled models are dangerous and are the operator's responsibility. We expressly point out these dangers and assume no liability. Careful, well-considered handling during operation protects against personal injury and damage to property. Carry out maintenance and inspection of your models and electrical equipment at short, regular intervals. Regularly check the secure fit of all fasteners.
Applies to all remote-controlled models:

- Make sure that nobody else in the environment uses your transmission frequency.
- switch on: Switch on the transmitter first and then switch on the receiver.
- turn off: Turn off the receiver first, then turn off the transmitter.
- Make sure that the transmitter and receiver are fully charged before starting.

In addition, please observe the following instructions:

- Do not use different types of batteries or rechargeable batteries or new and used batteries together. Remove dead batteries from the equipment, especially if they are not used for a long time.
- Never expose electrical equipment to dirt, dust, moisture, cold or heat. Cable damage can lead to short circuit, fire and destruction of the devices!
- Avoid injury through caution in all activities with your models.
- Check with your insurance company whether the risks arising from your models are covered by liability insurance or whether you have to insure them additionally.
- Adhesives and varnishes contain solvents that can be harmful to health. Follow the manufacturer's instructions and warnings.

Hazard warnings Flight models

Please contact experienced model pilots, clubs or flight schools for information on reducing hazards and avoiding damage. Ask all viewers to maintain a safety distance of at least 5 m. Never direct your model airplane towards people, animals or high-voltage lines. Avoid public roads, pathways, squares and places where people may be present. Be considerate about the aircraft noise you're causing.

Hazard information Controller

Make sure that you do not reverse polarity of the battery, that you avoid short-circuits of the cables, that the drive motor is effectively suppressed and that the air can circulate well. Use polarity reversal connector systems. All cables and connections should be well insulated. The regulator must not come into contact with grease or oil. The regulators are only intended for use in battery powered, remote controlled models. No other operation is permitted. Always carry out a range test. Only use the connectors, original parts and accessories recommended by us. Do not make any changes to the controller unless stated in the description. Important: Before plugging in the controller, make sure with the other operators that if you are not using a 2.4 GHz system, your transmitter is the only one that operates on this frequency. Before switching on the transmitter, always set the throttle lever to "Stop".

Hazard notes Motor

Motors are not suitable for persons under 14 years of age. Commissioning may only be carried out under the constant supervision of an adult who is familiar with the hazards. Before every operation, check the seat of the motor and the propeller. Never let a motor start up in the hand. Protect the motor from dirt and moisture. Do not allow foreign bodies to enter the motor. Always keep a safety distance from the rotating propeller (air screws can separate fingers!!!!!). Always maintain the maximum permissible engine and propeller speed.

Disposal of electrical appliances

Please remove all batteries and dispose of them separately. Hand in old electrically operated equipment free of charge at the collection points of the municipalities for electronic scrap. The remaining parts belong to the household waste. Thank you for your cooperation!

Safety information for LiPo cells and batteries

Exact data on load capacity and dimensions can be found on our homepage and in the catalogue. Information on the permanent load-bearing capacity of the cells only applies to optimum cooling. Lithium-polymer batteries (short: LiPo batteries) require particularly careful treatment. This applies to loading and unloading as well as storage and other handling. WICHTIG! Be sure to follow the following special instructions:

- Malpractice can lead to explosion, fire, smoke and poisoning. Failure to observe the instructions and warnings will result in loss of performance and possible further defects. Only with proper storage and charging with an optimal charger can you expect the maximum service

life and with 300 - 600 charging cycles you have to expect a drop in performance of only approx. 20%.

- With a non-optimal charger, the capacity is significantly reduced with every charge/discharge and thus also the service life. Storage at too high or too low temperatures may cause a gradual reduction in capacity.

General warnings - Avoid dangers!

Do not burn batteries. Never immerse the cells in liquids. Keep batteries / cells out of the reach of children. Never disassemble LiPo batteries. Disassembling a battery may cause internal short circuits. Gas generation, fire and explosion or other problems can be the result. The electrolytes and electrolyte vapours contained in the LiPo batteries are harmful to health. Avoid in any case direct contact with electrolytes. If electrolytes come into contact with skin, eyes or other parts of the body, rinse immediately with plenty of fresh water and seek medical advice.

Remove all batteries not required in the model. Always charge batteries in time. Store batteries on a non-flammable, heat-resistant and non-conductive base! Fully discharged Li-Po batteries are defective and must not be used again! If the battery is out of service, disconnect it from all loads such as speed controllers, as they always consume a little power even if they are switched off. Otherwise the battery could be destroyed by deep discharge.

Special instructions for charging LiPo batteries

Since we cannot monitor the correct charging and discharging of the cells, any warranty is excluded due to faulty charging or discharging. Only approved chargers with balancer may be used for charging Li-Po batteries. The maximum charging capacity must be limited to 1.05-times the battery capacity. Example: 700 mAh battery = 735 mAh max. charging capacity. Make sure that the number of cells and the discharge end voltage are set correctly. Observe the operating instructions of your charger/discharger. The battery to be charged must be placed on a non-flammable, heat-resistant and non-conductive base during the charging process! When charging, keep all combustible or highly flammable objects away. Batteries may only be charged and discharged under supervision. In principle, LiPo batteries connected in series may only be charged together in the pack if the voltage of the individual cells does not differ by more than 0.1 V from each other. If the deviation in the voltage of the individual cells is greater than 0.1 V, the cell voltage must be adjusted as precisely as possible by individual cell charging or discharge. Under these conditions, LiPo batteries with max. 1 C charging current may be charged. The indication 1 C charge current in mA corresponds to the capacity in mAh; i. e. 200 mA for a 200 mAh battery. Avoid a voltage of more than 4.2 V per cell in any case, as this will permanently damage the cell and may cause fire. In order to avoid overcharging of individual cells in the pack, the cut-off voltage should be set to values between 3.1 V - 3.15 V per cell for a longer service life. You can also charge batteries with a lower voltage for safety and longer service life. After each charging process, check that one of the cells in the pack has a voltage of more than 4.2V. All cells must have the same voltage. If the voltage of the individual cells deviates from each other by more than 0.1 V, the cell voltage must be equalized by individual cell loading or single cell discharge. In order to avoid overloading the cells after prolonged use in packs, they should be charged individually on a regular basis. Never charge the battery cells with incorrect polarity. If the batteries are charged with reversed polarity, there are abnormal chemical reactions and the battery becomes unusable. This can cause fractures, smoke and flames.

Special instructions for discharging LiPo batteries

A continuous current of approx. 15 C is no major problem for the LiPo batteries. For larger currents, please refer to the information in the respective product data sheets. A discharge to below 2.5 V per cell permanently damages the cells. Avoid this deep discharge unconditionally! It is essential to switch off the motor before you notice any loss of power. Then LiPo batteries would already be damaged. Therefore, leave a remaining capacity of approx. 20 % in the battery for safety reasons. If individual cells were to be fully charged differently, the regulator's low-voltage cut-off might be too late, so that individual cells could be deeply discharged. Avoid short circuits. A short circuit causes a very high current to flow which heats up the cells. This leads to electrolyte loss, gas leakage or even explosions. Due to the danger of a short circuit, avoid the proximity of conductive surfaces or contact with LiPo batteries. Permanent short-circuits lead to destruction of the battery, high temperatures and possible spontaneous ignition can be the result. The batteries must never reach temperatures above 70° C during discharge. Provide cooling or lower discharge. You can easily check the temperature with an infrared thermometer.

Stability of the battery housing foil

The foil of the aluminium housing can easily be damaged by sharp objects such as needles, knives, nails, motor connections, soldering or similar. Damage to the foil renders the battery unusable. The battery must therefore be installed in the model in such a way that the battery cannot be deformed even in the event of a crash. If the battery is short-circuited, it could burn. Temperatures above 70° C can also cause leakage of the housing. Loss of electrolyte renders the battery unusable. Add defective cells individually packed in poly bags or foil to the hazardous waste.

Mechanical shock

The LiPo batteries are not as mechanically stable as batteries in metal cases. Avoid mechanical shocks by dropping, hitting, bending, etc. Therefore, you must never cut, tear, deform or drill the laminate film. Never bend or twist LiPo batteries. Do not apply pressure to the battery or terminals.

Handling of the connections

The LiPo connectors are not as robust as other batteries. The aluminium (+) connection in particular can easily break off. Never use damaged cells: Never use damaged cells. You can identify damaged cells by one of the following methods: Damaged housing packaging, deformation of the battery cells, smell of electrolytes, leaking electrolytes. In these cases, further use of the batteries is no longer permitted. Dispose of them.

1. INSTRUCTIONS FOR USE

Before commissioning the LED programming box, read the operating instructions carefully and follow the instructions exactly. In addition, please observe the following rules when operating the unit:

- Use the LED programming box only within the limits of the technical data, otherwise the device could be destroyed.
- inserts that do not comply with the requirements of this manual can cause problems in operation, destroy the LED programming box and cause injuries. There are considerable dangers, damage to property and personal injury can occur.
- Protect the programming box from vibrations, dust, moisture and mechanical stress!
- Do not expose them to extreme heat or cold!
- Check the device at regular intervals for damage!

2. Technical specifications

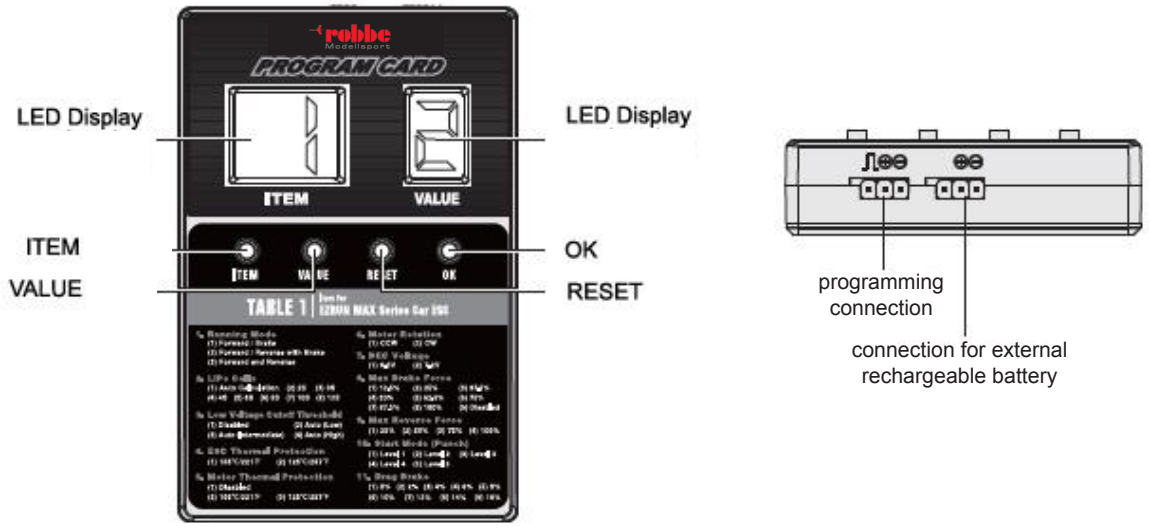
operating voltage: 4,8 – 8,4 V
measurements: 88 x 58 x 14 mm
weight: 40 g

3. Application possibilities

In addition to our ROCONTROL PRO controllers, the LED program box also works with other controller types for brushless motors from the Chinese manufacturer. The box cannot be used for motor controllers from other manufacturers. For the different types of controllers from our manufacturer, there are corresponding labels for the front and rear panel. The possible parameters and their values are listed in a table. Please select the respective valid label.

To find out whether the LED programming box matches your controller, please refer to the respective manual of the controller.

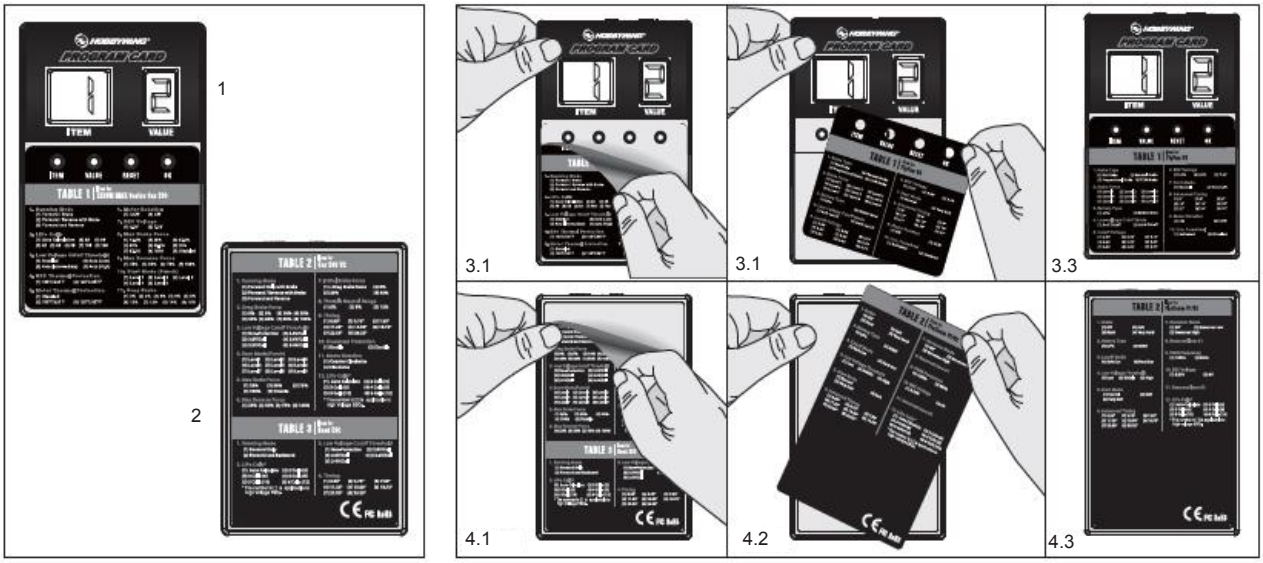
4. Connections and controls



5. programming procedure

1. Apply the corresponding label on the front and rear side (optional)

- The labels for a car or ship controller are attached to the front and rear of the box at the factory. To program such controllers, it is not necessary to re-label the box.
  1) Figure 1 with table 1 shows the factory front side
- 2) Figure 2 with Table 2 shows the factory-made rear panel
- To program a controller that is used for model airplanes, you have to re-label the programming box.
  1) 1) For the front side, the procedure is shown in the picture sequence 3.1 to 3.3.
  2) 2) For the reverse side, the procedure is shown in sequence 4.1 to 4.3.



2. **Connecting the LED Programming Box**

Warning! The drive battery must be disconnected from the controller before connecting the program box. Otherwise, the controller cannot be connected to the program box. Different connections of the individual controllers result in different types of connection between the box and the motor controller. Please refer to the operating instructions for your controller for the correct type of connection.
Basically applies:

1) For controllers with common connection cable for receiver and programming

- For controllers with integrated BEC, connect the three-wire cable to the "- / + +/ pulse" port on the programming box.
- For controllers without BEC (OPTO version) connect the three-wire cable to the connection marked "- / + / pulse" on the programming box. In addition, connect a rechargeable battery (4.8 V - 8.4 V) to the connection marked "- / +" of the programming box for power supply.

2) For controllers with one fan
The connection for the fan is also the programming connection. In this case, disconnect the fan cable from the controller and then insert one end of the enclosed programming cable (included in the scope of delivery) there and the other end into the programming connection of the box, which is marked with "- / +/ impulse".

3) For controllers with a separate programming cable
For controllers with a programming cable with an output voltage of 4.8 V - 8.4 V, plug the enclosed programming cable into the connection marked "- / +/ pulse" on the program box. For controllers with a programming cable without output voltage, plug the enclosed programming cable into the connection marked "- / +/ pulse" on the program box. In addition, connect a rechargeable battery (4.8 V - 8.4 V) to the connection marked "- / +" on the programming box for the power supply.

4) For controllers with a separate programming port
For controllers with a separate programming connection, plug the enclosed programming cable into the connection marked "- / +/ pulse" on the program box.

Hints: In general, the programming cable mentioned above is the "shorter" cable on the controller with a JR connector. The above mentioned additional battery can also be replaced by a BEC circuit.

3. Commissioning the LED Programming Box

After all connections have been made, connect the drive battery to your regulator and turn it on. A few seconds later, the LED Programming Box displays the current settings of your controller. If nothing is displayed, please check that all connections are correctly plugged in. If everything is correct, disconnect and reconnect after 2 seconds. Check if any new information is displayed.
Note: It often takes a few seconds for the LED Programming Box to display information.

4. Regler mit der Box programmieren

ITEM button: By pressing the "ITEM" button, you can select the programmable parameters that you want to adjust or check. The corresponding (position) number of each parameter is displayed in the left LED display.

VALUE button: After selecting a programmable parameter, the corresponding value of the parameter stored in your controller is displayed on the right LED display. Parameter values can be set by pressing the "VALUE" key.

OK button: After setting all parameters, press the "OK" button, a red line will appear on the right LED display for about 1 or 2 seconds (n) to indicate that the settings are being transferred. The new parameter values are saved as soon as the red bar disappears.

RESET button: Press the "RESET" button to reset the programmed values.

WARRANTY

This product comes with a 24 month warranty. Our invoice serves as proof of the commencement and expiry of this warranty. Any repairs will not extend the warranty period. The statutory warranty conditions apply. For example, you may only use the product properly, but not open it. In case of warranty repair, send the product to us with a detailed description of the fault, freight forward. The addresses for an unfree shipment will be enclosed with the shipping package. For countries where freight forward is not possible we will reimburse you the postage costs.

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