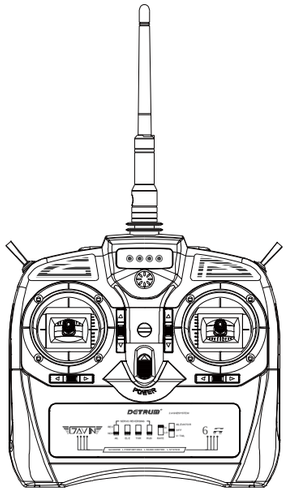
GAVIN-6A

6-Channel 2.4GHz Digital Proportional R/C System
6通道2.4GHz遥控设备



INSTRUCTION MANUAL
使用说明书

Introduction

Disclaimer

Thank you for purchasing this DETRUM product. This is a 2.4GHz digital proportional R/C system with high performance. In order to make full use of the features of this product and to safely enjoy your R/C activities, please read this manual carefully before using. Please install and use this product in strict accordance with the manual. The company assumes no liability or loss incurred directly or indirectly from improper use, installation, or any modification of this product.

Products shall be subject to any changes without additional notices.

This product is suitable for users experienced in operating model aircraft and aged 14 years or older.

Please fly at a locally recognized model aircraft flying field.

Indications and Symbols for Safe Use

The following symbols used in this manual indicate the precautions regarding possible danger which may occur following improper operation.

⚠ **DANGER**: Procedures, which if not properly followed, may lead to a dangerous condition of death or serious injury.

⚠ **WARNING**: Procedures, which if not properly followed, may lead to a possibility of death or serious injury.

⚠ **CAUTION**: Procedures, which if not properly followed, may lead to a possibility of property damage, or a danger of injury.

⃠ Prohibited ❗ Mandatory

Installation Precautions

It is very important to properly install the R/C system on the model aircraft. Please refer to the following instructions:

- In order to protect the receiver, wrap the receiver with 10mm foam rubber, and then fasten it with a rubber band or a Velcro strap.
- The servos should be installed with rubber gaskets and brass eyelets to isolate the vibration from the fuselage. Do not lock the screws too tight, otherwise the rubber gasket will become distort and reduce the vibration-proof performance.
- When mounting a servo, make sure that the servo can rotate over its full travel and check that the push-rods and servo arms do not bind or contact each other.
- When mounting a power switch, keep away from the engine's exhaust pipe and any places with high vibration. And ensure that you can turn the switch on/off without binding.
- The two antennas of the receiver should be placed at 90 degrees to each other. Do not place the two antennas twisted together or in parallel.

Flying Precautions

⚠ **WARNING**: Personal injury and property loss may be caused by improper aircraft handling. Please operate strictly according to the following safety instructions.

Flying Field and Conditions:

⃠ In order to protect the personal safety and their property, please do not fly at the following places:

Near another radio control flying field

Near or above people

Near residential areas, schools, hospitals or other places where people congregate

Near high-voltage lines, tall buildings, or communication facilities

⃠ Never fly on rainy day, thunder storm, when the wind is strong, and at night.

⃠ Always keep away from humidity environment.

The R/C system is composed of precision electronic components and mechanical parts. Please keep away from humidity environment to prevent the components damage from vapor and cause a failure which would lead to a crash.

⃠ Always keep away from heat sources.

The R/C system is composed of precision electronic components and mechanical parts. Please keep it away from heat sources and sunshine to avoid distortion, or even damage caused by high temperature.

Precautions before Flight:

⃠ Always make sure that all servos in the model work properly following the transmitter stick movements prior to flight. And make sure that all switches work properly as well.

❗ Always check the remaining capacity of both the transmitter and receiver batteries before each flying session prior to flight. Low battery capacity will cause loss of control and a crash.

❗ Always perform a range test before each flying session.

❗ Always check the operation of each control surface before each flying session.

Precautions during Flight:

⃠ Never grasp the transmitter antenna during flight. Otherwise, the transmitter output power will reduce drastically.

⃠ Do not point the antenna directly toward the aircraft during flight. When pointing the antenna directly, the transmitter output is the weakest. The strong radio wave radiate from the side of the transmitter antenna.

⃠ Never turn on and off the power switch of transmitter during flight or while the engine or motor is running.

⃠ Do not touch the engine, motor, or other heating device during and immediately after use. These devices or components may become hot during use.

❗ For safety, always fly the aircraft in visible range. Flying behind tall buildings will not only lose sight of the aircraft, but also degrade the RF signal performance.

Precautions in Other Conditions

⃠ When setting the transmitter during flight preparations, do not set it upright on the ground. The transmitter may fall to the ground, the sticks may move and the servos may rotate unexpectedly and cause injury.

⃠ Do not touch the receiver antenna directly by hands. Otherwise, the components may be damaged by static, and this may cause a reduction in transmission distance of the receiver.

❗ Before turning on the transmitter, always make sure the transmitter throttle stick and throttle trim are in the lowest position.

❗ Always turn on the R/C system in proper sequence: turn on the transmitter first, then turn on the receiver, and then turn on the engine or motor. Incorrect sequence may cause loss of control and personal injury.

❗ Always turn off the R/C system in proper sequence: turn off the engine or motor first, then turn off the receiver, and then turn off the transmitter. Incorrect sequence may cause loss of control and personal injury.

Product Description

Box Contents

The box includes the following components.

- GAVIN-6A Transmitter
- DETRUM RXC7 Receiver
- Bind Plug
- Instruction Manual
- Simulator Converter (optional)
- 9g Servo *4pcs (optional)

📖 **NOTE**: The set contents depend on the type of set.

Specifications

Transmitter: GAVIN-6A	
Channel	6-channel
Transmitting frequency	2.4GHz
Power supply	1.5V AA batteries *4pcs
Consuming current	less than or equal to 200mA
Output power	100mW
Output pulse	1000ms~2000ms (neutral 1500ms)
Receiver: DETRUM RXC7	
Type	2.4GHz 7-channel
Sensitivity	-95dBm
Frequency interval	larger than or equal to 4MHz
Power supply	4V~6.5V
Size	39mm * 28.5mm * 14.5mm
Weight	10g

Features

GAVIN-6A is a 2.4GHz 6-channel transmitter, applicable for airplanes. It is designed with the following features:

- Wireless IC

  Adopting wireless chips, with extended power amplifier (PA) and low noise amplifier (LNA), can extremely improve the system output power and receiving sensitivity, thereby improving the signal coverage.

- All-angle antenna

  By using all-band gain antenna on the transmitter, the transmitting efficiency is greatly improved. By using diversity antenna on the receiver, combined with the signal detection and switching algorithm, the receiving signal is stable and reliable.

- Long distance stable operating

  Adopting 2.4GHz direct sequence spread spectrum (DSSS) and multiple frequency-hopping spread spectrum (FHSS) technology, the R/C system has high receiving sensitivity and strong anti-interference capability, can support a stable operating for more than 1,000 meters on the ground and more than 1,600 meters in the air.

- Unique ID code

  Each transmitter has an individually assigned, unique ID code. Once the binding is made, the ID code is stored in the receiver and no further binding is necessary after restarting the receiver. When the receiver is working, it will verify whether the ID code of the transmitter is being paired, to enhance the stability of the R/C system.

- Mixing function

  Support V-tail mixing and Elevon mixing, one button togglable.

- High section precision

  By using the 4096 section precision sticks, you can experience a smooth flight operation.

- Low power consumption

  Using low power devices and transmitting the signals at intervals, this will reduce the transmitting power, also lead to low battery power consumption and longer battery life.

- Low voltage alarm

  Have battery level LED indicators and low battery alarm function, the flight is safer.

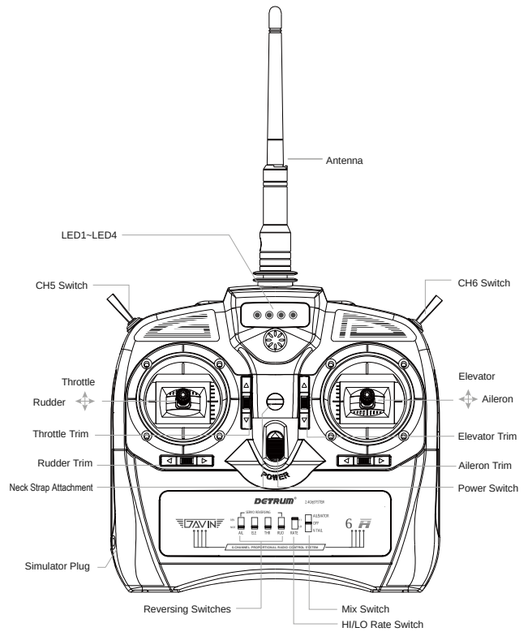
- Double bearing structure

  Double bearing assembly sticks provide precise control and excellent operating experience and won't come loose even working for a long time.

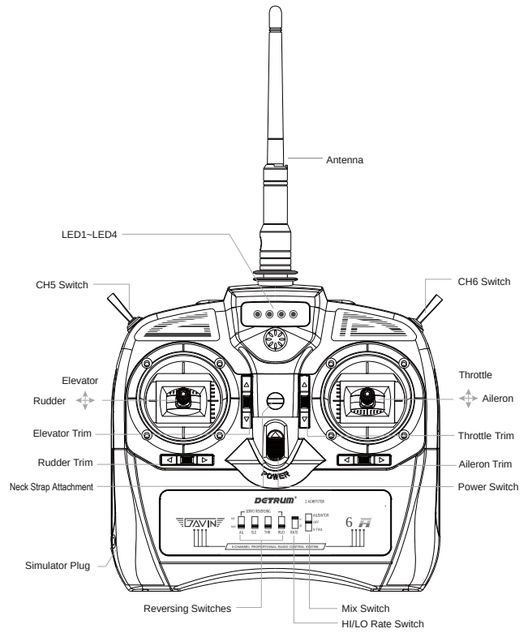
- One-click rescue

  Combined with optional SR86A receiver (with gyro integrated) or ISTONE-A PRO flight controller for airplane, you can use one-click rescue function, which is designed for new beginners.

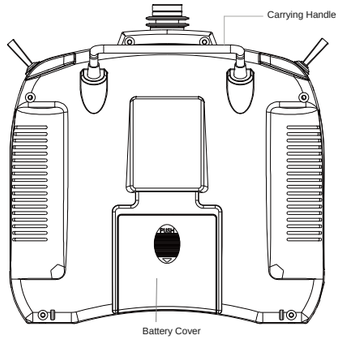
Transmitter Controls



MODE 2



MODE 1



- Antenna

  The strong radio wave radiate from the side of the transmitter antenna. Do not point the antenna directly toward the aircraft during flight.
- LED indicators

  There are four LED indicators, which are used to display the current status and battery level of the transmitter.
- Power Switch

  It is used to turn on/off the power of the transmitter.
- Neck Strap Attachment

  For a long flight you can choose to use a neck strap for easy handing. The neck strap attachment is on the neutral position, in order to get the best balance for transmitter.
- Switch
  - CH5: 2 positions, alternate, short lever
  - CH6: 3 positions, alternate, short lever
- Sticks

  The positions of the sticks on MODE 1 and MODE 2 are shown in the figure above.
- Digital Trims

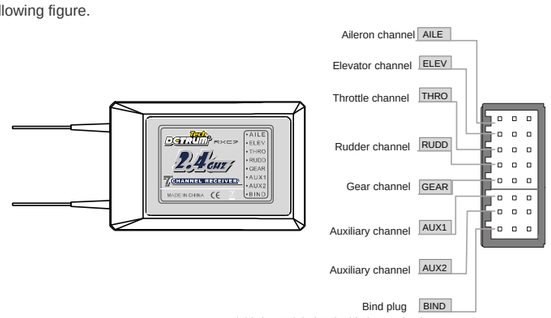
  GAVIN-6A features four digital trims. Each time you press a trim button, the servo output will move one step and a tone will emit. If you press and hold it, the output will scroll in that direction until the trim button is released or the output reaches its ends. In additon, when the trim position returns to the center, the tone will change and the output will pause a second.

  ⚠ **CAUTION**: The trim positions you have set will be stored in memory and will remain there even the transmitter powered off.
- Simulator port

  Connect the transmitter and the computer with a simulator converter, and then perform a simulating flight on computer. In order to activate this function, you need to purchase an optional simulator converter (with a dongle) and install the flight simulator software on the computer.

Receiver Connections

The channels of DETRUM RXC7 receiver are labeled with names, as shown in the following figure.



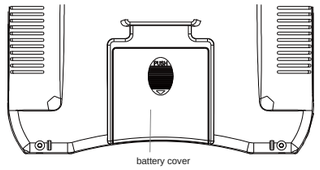
When connecting the servo to the port on receiver, please note the line sequence. For each channel, signal wires are close to the top of the receiver, middle is VDD and bottom is GND.

- If the ports become detached while flying, there will be a risk of uncontrolled operation. Please securely insert all of the connectors as far as they will go.
- The two antennas of the receiver should be placed at 90 degrees to each other. Do not place the two antennas twisted together or in parallel.

Functions and Operations

Installing the Transmitter Batteries

The GAVIN-6A requires four heavy-duty or alkaline AA batteries.

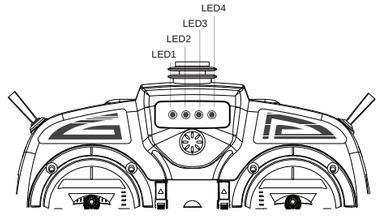


Remove the battery cover and install four AA batteries according to the polarity mark in the battery box. Replace the battery cover.

🕮 **Note**: NiCd or NiMH rechargeable AA batteries can also be used.

Low Battery Alarm

In normal operation, the LED indicators located at the upper front of the transmitter show the current battery level.



For details about the LED indicators status, please see the table below.

LED1	LED2	LED3	LED4	Battery Level
◉	◉	◉	◉	75%~100%
◉	◉	◉	◎	50%~75%
◉	◉	◎	◎	25%~50%
◉	◎	◎	◎	10%~25%
☼	◎	◎	◎	5%~10%
☼	◎	◎	◎	0~5%

◉: LED is on. ◎: LED is off.
☼: LED is slow flashing. ☼: LED is fast flashing.

When the battery level is low, the transmitter will alarm.

- Low Battery Alarm: When the battery level drops below 10%, a slow alarm will sound and LED1 will start slow flashing.
- Critical Low Battery Alarm: When the battery level drops below 5%, a fast alarm will sound and LED1 will start fast flashing.

⚠ **CAUTION**: When the battery is low, please return immediately, to avoid loss of control or crash.

Binding

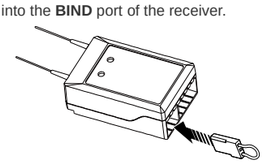
In order for the transmitter and receiver to communicate, it is essential to pair or bind them together. When you use the R/C system first time or change a transmitter/receiver, this procedure is necessary. Each transmitter has an individually assigned, unique ID code. Once the binding is made, the ID code is stored in the receiver and no further binding is necessary after restarting the receiver.

Preconditions:

- Move the throttle stick to the lowest position and make sure the transmitter is powered off.
- Place the transmitter and the receiver close to each other within a distance of about one meter.

Steps:

1. Insert the bind plug into the **BIND** port of the receiver.



2. Power on the receiver. The LED on the receiver will start red slow flashing, indicating that the receiver is in bind mode and ready to be bound to the transmitter.
3. Turn on the power switch of the transmitter, the system begins to bind.
4. Once the LED on the receiver stays green, indicating the receiver is bound to the transmitter.
5. Turn off the transmitter and receiver. Remove the bind plug from the receiver.

Calibrating the sticks

This function calibrates the neutral position and travel of the sticks. Stick calibration is required in the following conditions:

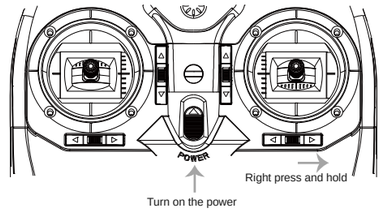
- Use the transmitter first time.
- The positions of the sticks are inconsistent with the expected results.

Preconditions:

Move the throttle stick to the lowest position and make sure the transmitter is powered off.

Steps:

1. Right press and hold the digital trim below the right-hand stick, while turning on the power switch, the transmitter will enter stick calibration mode.



On stick calibration mode, the four LED indicators will flash green in sequence.

2. Move both right and left sticks up and down and right to left, next set both right and left sticks to their center position.
3. Left press the digital trim below the right-hand stick to confirm the calibration.

- If the LED indicators display constant green, it means the calibration is successful.
- If the LED indicators still flash green in sequence, it means the calibration is failed, please retry.

HI/LO Rate

The GAVIN-6A offers a dual (high/low) rate function on aileron, elevator, and rudder. The HI/LO rate switch are located at the lower front of the transmitter and are used to switch aileron, elevator, and rudder control surfaces. Status of the switch:

- **HI**: High rate, 100% rate on aileron, elevator and rudder
- **LO**: Low rate, 70% rate on aileron, elevator and rudder

The default is **HI**.

Generally, different rates are required for different types of flying. For example, low rate (smaller control surface angles) is required for flying at high speeds whereby the model's response becomes more sensitive. On the other hand, high rate might be required for flying slower aggressive acrobatic maneuvers such as hovering thereby the model may not be as sensitive.

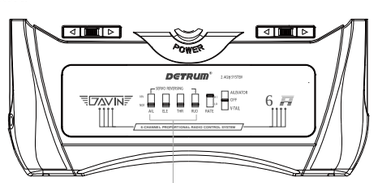
To change the rate on aileron, elevator and rudder, use a small screwdriver to move the switch to **HI** or **LO**.

Servo Reversing

GAVIN-6A features servo reversing on channel 1 to channel 4. The servo reversing switches (**AIL**, **ELE**, **THR**, and **RUD**) are located at the lower front of the transmitter and are used to change the direction of each channel (aileron, elevator, throttle, and rudder channel). Status of each switch:

- **REV**: It means the servo direction of the channel is the normal.
- **NOR**: It means the servo direction of the channel is the reverse.

The default is **NOR**.



To change the switch position to normal or reverse, use a small screwdriver to move the switch to **REV** or **NOR**.

Mixing

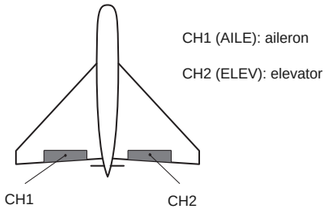
GAVIN-6A offers Elevon (Ailevator) mixing and V-tail mixing. The mix switch is located at the lower front of the transmitter and is used to activate the corresponding mixing function. Status of the switch:

- **AILEVATOR**: Activate the Elevon mixing.
- **OFF**: Disable the mixing function.
- **V-TAIL**: Activate the V-tail mixing.

The default is **OFF**.

Elevon Mixing

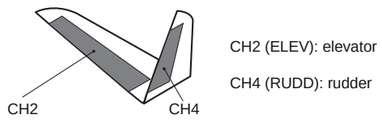
Corresponding model type: airplane, delta wing.



Elevon (also called delta wing) mixing mixes channel 1 (aileron) to channel 2 (elevator) allowing the elevons to operate in unison (as elevators) or in opposition (as ailerons). To activate the Elevon mixing, use a small screwdriver to move the mix switch to the upper (**AILEVATOR**) position.

V-tail Mixing

Corresponding model type: airplane, V-tail.



V-tail mixing mixes channel 2 (elevator) to channel 4 (rudder) allowing the ruddervators to operate both as rudders and elevators. To activate the V-tail mixing, use a small screwdriver to move the mix switch to the lower (**V-TAIL**) position.