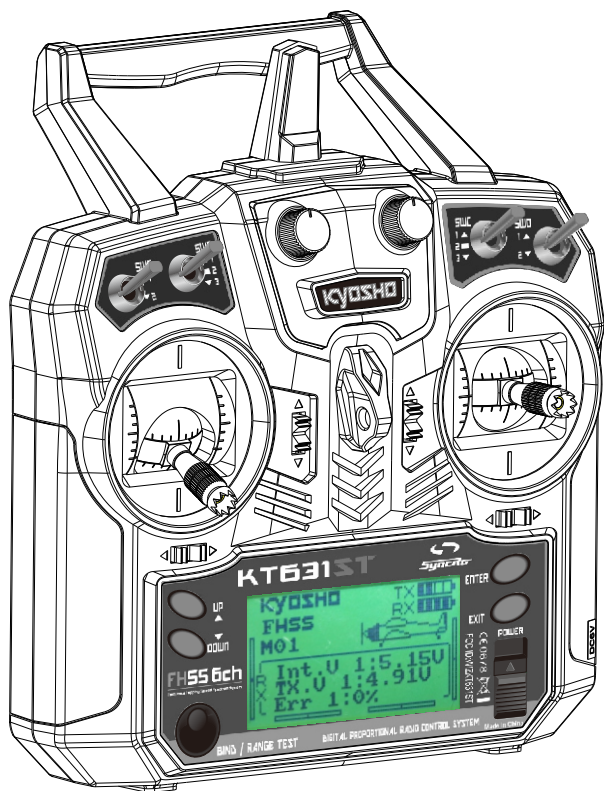


KYOSHO

KT631ST

Digital proportional radio control system

INSTRUCTION MANUAL



FHSS 6ch
Frequency Hopping Spread Spectrum System

[Http : // www.kyosho.com](http://www.kyosho.com)

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1. Introduction

Thank you for choosing the kyosho KT631ST 6 channels 2.4GHz **FHSS** computerized digital proportional RC airplane and helicopter system. If it's your first use of a computerized radio system, this user manual will bring you easily to a new world of fun and sophistication. In all cases, please read carefully and completely this user manual as it contains all information to keep you safe.

2. Services

If you encounter any problem during use, please refer to this manual. If the problem still persists, please contact your local dealer or visit to our service and support website:

<http://www.kyosho.com>

3. Special symbols

Please pay attention to the following symbols when they appear in the manual and read carefully.



Danger: Not following these instructions may expose the user to serious injuries or death.



Warning: Not following these instructions may expose the user to serious injuries.



Attention: Not following these instructions may expose the user to minor injuries and even to serious injuries.



Prohibited



Mandatory

4. Safety guide



Don't fly at night or in bad weather like rain or thunderstorm as this can cause erratic operation or loss of control.



Make sure moving direction of all motors be same with the operating direction. If not, please adjust direction first.



The shutdown sequence must be to first disconnect the receiver battery then to switch off the transmitter, if the transmitter is switched off while the receiver is still powered, it may lead to uncontrolled movement or engine start and may cause an accident.



In particular, the 2.4G RC system will affect the plane or the car nearby after you turn on the transmitter.



Do not operate outdoors on rainy days, run through puddles of water or use when visibility is limited. Should any type of moisture (water or snow) enter any component of the system, erratic operation and loss of control may occur.



Do not operate in the following places:

Near other sites where other radio control activity may occur,
Near people or roads,

On any pond when passenger boats are present,

Near high tension power lines or communication broadcasting antennas,

Interference could cause loss of control,

Improper installation of your Radio Control System in your model could result in serious injury.



Do not operate this R/C system when you are tired, not feeling well or under the influence of alcohol or drugs. Your judgment is impaired and could result in a dangerous situation that may cause serious injury to yourself as well as others.



Do not touch the engine, motor, speed control or any part of the model that will generate heat while the model is operating or immediately after its use. These parts may be very hot and can cause serious burns.



Please have an overall check about the model before any operation.

Any problem in radio control system or improper installation may cause out of control.

Simple distance test methods:

One hold the model, and the other one carry the transmitter to a proper place to check the servo system condition.

Please stop operation if any exceptional case occurs.

Please check the model memory to make sure the matching is right.



Turn on the power, please check if the throttle neutral position is in its lowest position while turning on the transmitter every time. When making adjustments to the model, do so with the engine not running or the motor disconnected, you may unexpectedly lose control and create a dangerous situation.

5. 2.4GHz System

AFHDS2A stands for "Automatic Frequency Hopping Digital System 2A". This highly sophisticated radio transmission system will guarantee you a long range, jamming free and long battery life experience. This is the result of years of research and testing and makes Kyosho one of the world leader in the market.

RF specifications:

RF range: 2.4055-2.475GHz

Channel bandwidth: 500KHz

Number of channels: 140

RF power: less than 20dBm

RF mode: AFHDS 2A(Automatic Frequency Hopping Digital System 2A)

Modulation type: GFSK

Antenna length: 26mm*2(dual antenna)

RX sensitivity: -105dBm

Danger:

Misuse of this radio system can lead to serious injuries or death. Please read completely this manual and only operate your radio system according to it.

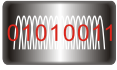
The 2.4GHz radio band has a completely different behavior than previously used lower frequency bands. Keep always your model in sight as a large object can block the RF signal and lead to loss of control and danger. The 2.4GHz RF signal propagates in straight lines and cannot get around objects on its path. Never grip the transmitter antenna when operating a model as it degrades significantly the RF signal quality and strength and may cause loss of control and danger

Danger:

Always turn on the transmitter first then the receiver. When turning off the system, always turn off the receiver first then the transmitter. This is to avoid having the receiver on itself as it may pick a wrong signal and lead to erratic servo movements. This is particularly important for electric powered models as it may unexpectedly turn on the motor and lead to injuries or death.

A separation distance of at least 20 cm from all persons is required during operation.

6. System Characteristic



This radio system works in the frequency range of 2.4055 to 2.475GHz. This band has been divided into 140 independent channels. Each radio system uses 16 different channels and 140 different types of hopping algorithm. By using various switch-on times, hopping scheme and channel frequencies, the system can guarantee a jamming free radio transmission.



This radio system uses a high gain and high quality multi directional antenna. It covers the whole frequency band. Associated with a high sensitivity receiver, this radio system guarantees a jamming free long range radio transmission.



Each transmitter has a unique ID. When binding with a receiver, the receiver saves that unique ID and can accept only data from that unique transmitter. This avoids picking another transmitter signal and dramatically increases interference immunity and safety.



This radio system uses low power electronic components and a very sensitive receiver chip. The RF modulation uses intermittent signal transmission thus reducing even more power consumption. Comparatively, this radio system uses only a tenth of the power of a standard FM system.



AFHDS2A system has the automatic identification function, which can switch automatically current mode between single-way communication mode and two-way communication mode according to customer needs. The two-way communication mode with data return function can help users understand current working status better and make the fight more enjoyable.



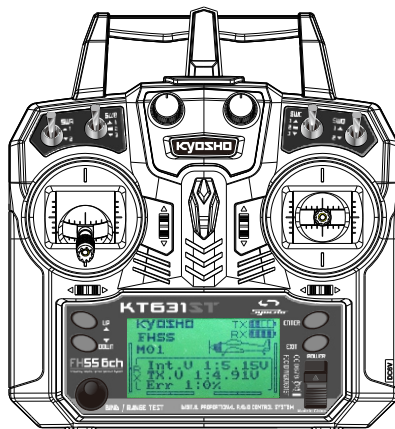
AFHDS2A has built-in multiple channel coding and error-correction, which improve the stability of the communication, reduce the error ratio and extend the reliable transmission distance.

7. Transmitter specifications

Transmitter specifications:

Number of channels: 6
Model type: fixed-wing/glider/ heli
Channel resolution: 1024 steps
Power supply: 6V (1.5V AA x4)
Low voltage warning: Icon blinks and alarm less than 4.2V
Icon blinks and short alarm less than 4.0V
No-operation warning: The transmitter will alarm if there is no operation more than one minute.
Antenna length: 26mm*2 (dual antenna)
Color: Black
Size: 174*89*190mm
Weight: 392g
Certification: CE, FCC

MODELS: KT631ST

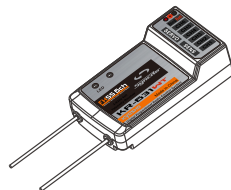


8. Receiver specifications

MODEL: KR-631WT

SPECIFICATIONS :

Number of channels : 6
Model type: fixed-wing/glider/ heli
RF receiver sensitivity: -105dBm;
Modulation : GFSK
2.4G system: AFHDS 2A
Bind port: yes
Power port: yes(VCC)
Power: 4.0-6.5V
Weight: 6.4g
Antenna length: 26mm*2(dual antenna)
Size: 40.4*21.1*7.35mm
Color: black
Certification: CE, FCC.



9. RX setup introduction

Dual antenna notes



In order to make sure maximum distance between the transmitter and receiver please follow the directions below:

1. The two antennas must be kept as straight as possible. Otherwise, control range will be reduced.
2. The two antennas should be placed at a 90 degree angle to each other, as illustrated in the three pictures below.
3. The antennas must be kept away from conductive materials, such as metal and carbon. A distance of at least 1.5cm is required for safe operation. Conductive materials will not affect the coaxial part of the antenna, but it is important that the coaxials are not bent to a severe radius.
4. Keep antennas away from the motor, speed controller and other noise sources as much as possible.

