



CX-PB001

Program Box for
CopterX Gyro

INSTRUCTION MANUAL



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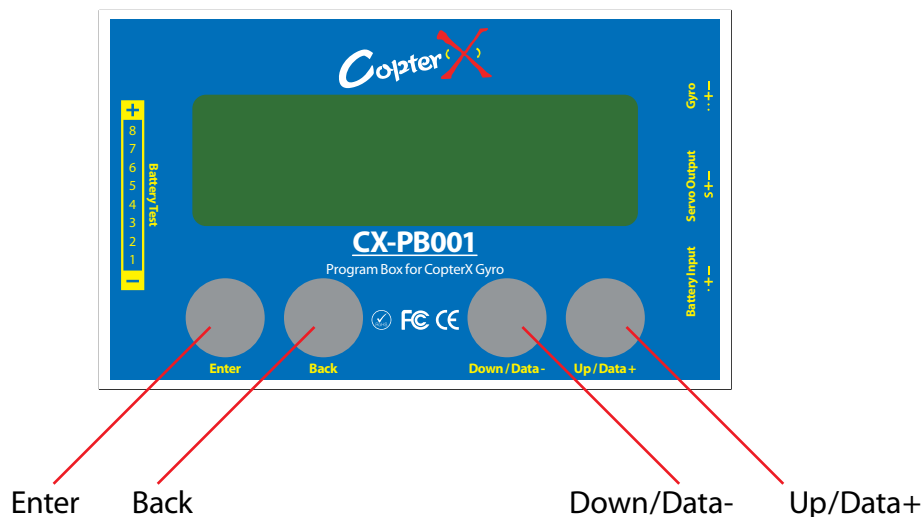
1. Introduction

Thank you for purchasing the CopterX CX-PB001 Program Box for CopterX Gyro. CX-PB001 is a multifunctional programmer. It can fine tune your CopterX CX-1X1000 and CX-3X1000 gyro. It also can be used as a voltmeter and servo tester.

2. Specification

- Operating voltage: Data port: DC 4.8V-12.6V
Servo port: DC 4.8V-12.6V
Servo power: DC 4.8V-12.6V
Battery measure port: 4.8V-33.6V (2-8S Li-Po, Li-Ion, Li-FePO4, Li-Mn)
- Operating current drain: 150mA
- Operating temperature: -20 -70
- Servo compatibility: 1.52ms analog servo, 1.52ms digital servo, 760us digital servo
- Supporting firmware upgrade

3. Buttons and Connections



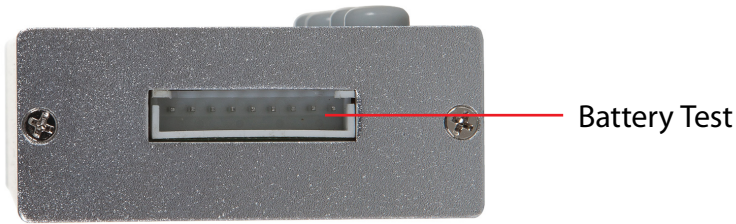
ENTER: Enter the menu or item

BACK: Leave the current item and back to the father menu or item

UP/DATA+: Scroll up the item or increase the value

DOWN/DATA-: Scroll down the item or decrease the value

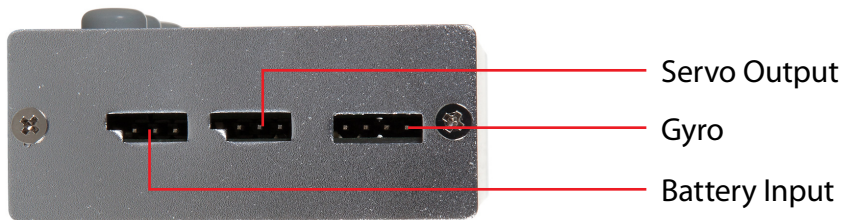
When you want to adjust a parameter, press the **"ENTER"** button, it shows a flashing "**<<<**", then press the **"UP/DATA+"** or **"DOWN/DATA-"** button to change the value.



When measure a battery with balance connector, plug the connector to the "**BATTERY TEST**" port. It shows the total voltage and the voltage of each cell.

When measure a battery with JR or Futaba servo connector, plug the connector to the "**BATTERY INPUT**" port.

Disconnect the gyro and servo, otherwise they may be damaged.

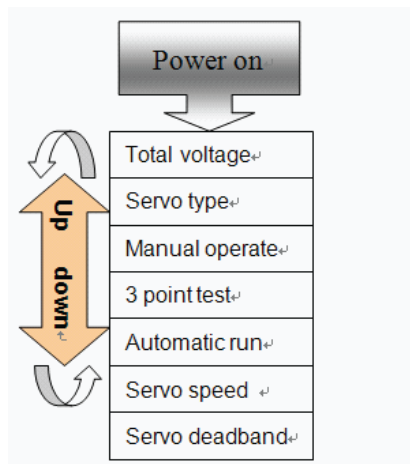


When test a servo, plug the servo connector to the "**SERVO OUTPUT**" port, plug the connector of servo compatible power supply to the "**BATTERY INPUT**" port.

When program a gyro, plug the connector of data cable to the "**GYRO**". Keep the metal reed upwards.

4. Voltmeter and Servo Tester Function

Plug a battery to The **"BATTERY TEST"** port or **"BATTERY INPUT"** port, CX-PB001 will power on and enter the voltmeter and servo tester mode. To test servo, please use battery which match the operating voltage of your servo or damage to servo may occur.



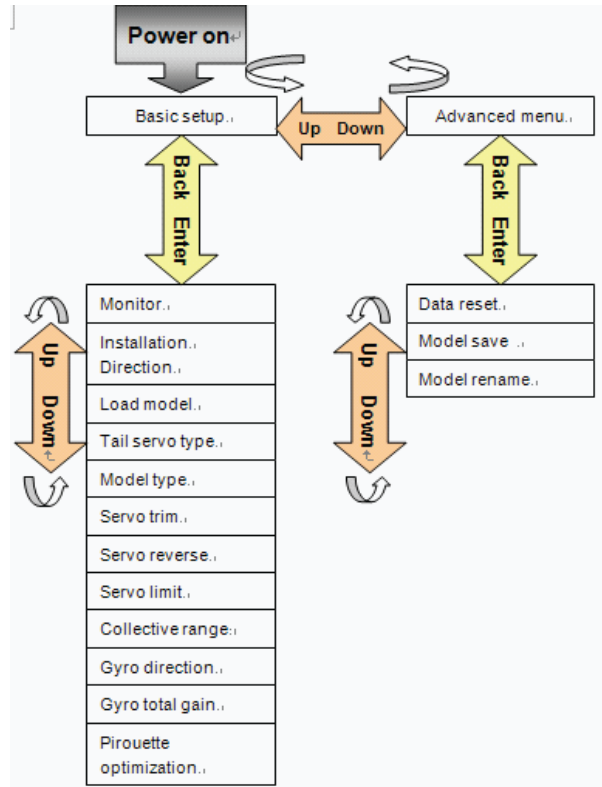
Item	Description
Total voltage	Display the total voltage and the voltage of each cell. They are displayed alternately.
Servo type	Select the servo type for the servo tester: "1520us" : 1520us analog servo and digital servo "760us" : 760us digital servo
Manual operate	Operate the servo manually.
3 point test	Test the servo as three point: "1100us" (Low point), "1520us" (Neutral point), "1940us" (High point)
Automatic run	The servo does a reciprocating motion automatically. Press the "UP/DATA+" or "DOWN/DATA-" to change the motion speed.
Servo speed	The servo move from position 1 to position 2, and the time will be displayed. Position 1 and position 2 can be changed.
Servo deadband	Press the "UP/DATA+" or "DOWN/DATA-" to change the value of deadband until the servo wiggles.

5. Program CX-3X1000 Gyro

5.1 Basic menu

Connect CX-PB001 to CX-3X1000 gyro with data cable, CX-PB001 displays: **“Hello! Loading data!”**, and then **“Load succeed!”**. If it always displays: **“Hello! Loading data!”**, please check the data cable and make sure the gyro is in working mode.

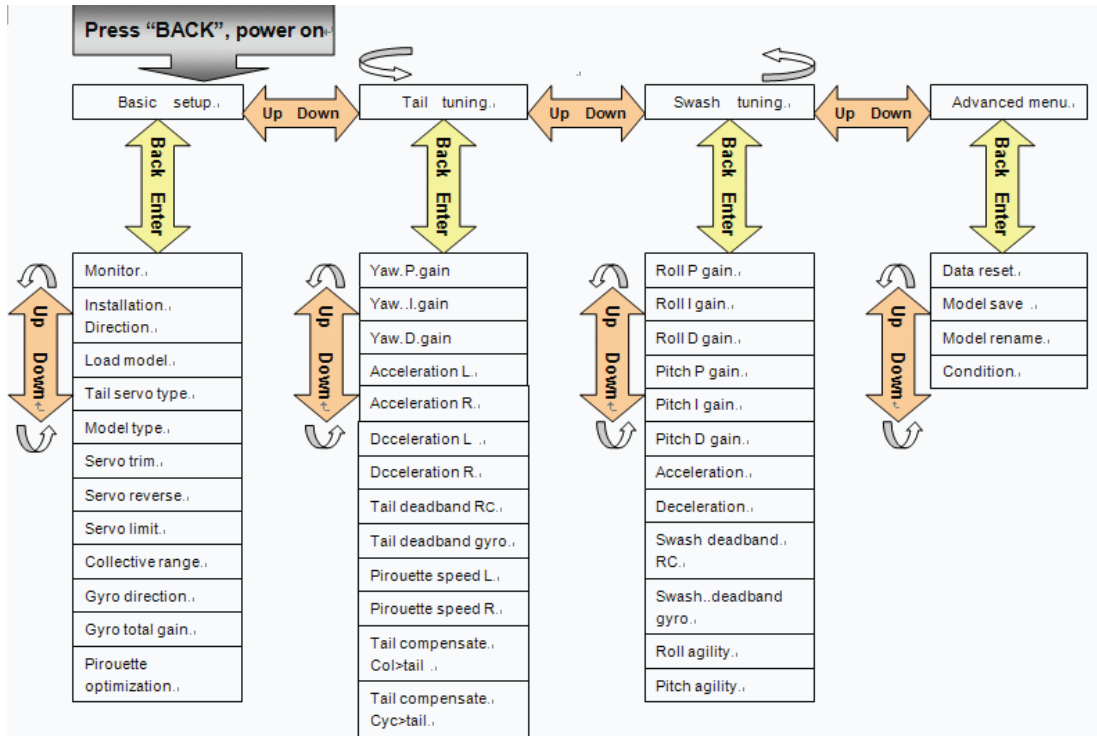
Now, CX-PB001 enters the basic menu.



5.2 Expert menu

Press the **"BACK"** button, Connect CX-PB001 to CX-3X1000 gyro with data cable, CX-PB001 displays: **"Hello! Loading data!"**, and then **"Load succeed!"**. If it always displays: **"Hello! Loading data!"**, please check the data cable and make sure the gyro is in working mode.

Now, CX-PB001 enters the expert menu. Release the **"BACK"** button.



5.3 Item description

Basic setup

Item	Description
monitor	In this item, you can check the transmitter configuration and the gyro connections. Page 1: "A" is Aileron channel, "E" is Elevator channel, "R" is Rudder channel, "C" is Collective pitch channel. Page 2: "G" is the tail gain given by transmitter. "A:" gyro is in AVCS mode. "N:" gyro is in Normal mode. "Condition:" current parameters group in gyro. There are two parameters groups in gyro.
Installation Direction	Select the direction of the gyro mounting. There are three directions: "Direction 1" , "Direction 2" , "Direction 3"
Load model	Download the model data from CX-PB001 to gyro. Model 1-5 are the parameters saved by the factory. Model 6-10 are the parameters saved by user. We recommend to select a model among 1-5 models first. For beginners please select "Beginner" .

Tail servo type	Select the servo type. "1520us 71Hz" : All the tail and swashplate servos are 1520us analog. "1520us 250Hz" : Tail servo is 1520us digital, swashplate servos are 1520us analog. "1520us 333Hz" : Tail servo is 1520us digital, swashplate servos are 1520us digital. "760us 250Hz" : Tail servo is 760us digital, swashplate servos are 1520us analog. "760us 400Hz" : Tail servo is 760us digital, swashplate servos are 1520us digital. "960us 333Hz" : Tail servo is 960us digital, swashplate servos are 1520us digital.
Model type	Select the swashplate type. There are five types: "Heli Normal", "Heli 120", "Heli 135", "Heli 140", "Heli 90" .
Servo trim	Neutral point trim function of the four servos
Servo reverse	Reverse function of the four servos
Servo limit	Limit function of tail servo and swashplate servos
Collective range	It is the collective pitch ratio, it can change the maximum and the minimum collective pitch, and the direction of motion.
Gyro direction	Gyro compensation direction of each axis
Gyro total gain	Gyro total gain of each axis.
Pirouette optimization	Adjust the sign of pirouette optimization

Tail tuning

Item	Description
Yaw P gain	It is equivalent to the rate gain
Yaw I gain	It is equivalent to the heading hold gain
Yaw D gain	It is equivalent to the stop gain
Acceleration L	Acceleration of the left pirouette
Acceleration R	Acceleration of the right pirouette
Deceleration L	Deceleration of the left pirouette
Deceleration R	Deceleration of the right pirouette
Tail deadband RC	The deadband of the tail stick
Tail deadband gyro	The deadband of the yaw gyro
Pirouette speed L	The maximum left pirouette speed

Pirouette speed R	The maximum right pirouette speed
Tail compensate Col>tail	The ratio of collective pitch mixing to tail pitch
Tail compensate Cyc>tail	The ratio of cyclic pitch mixing to tail pitch

Swash tuning

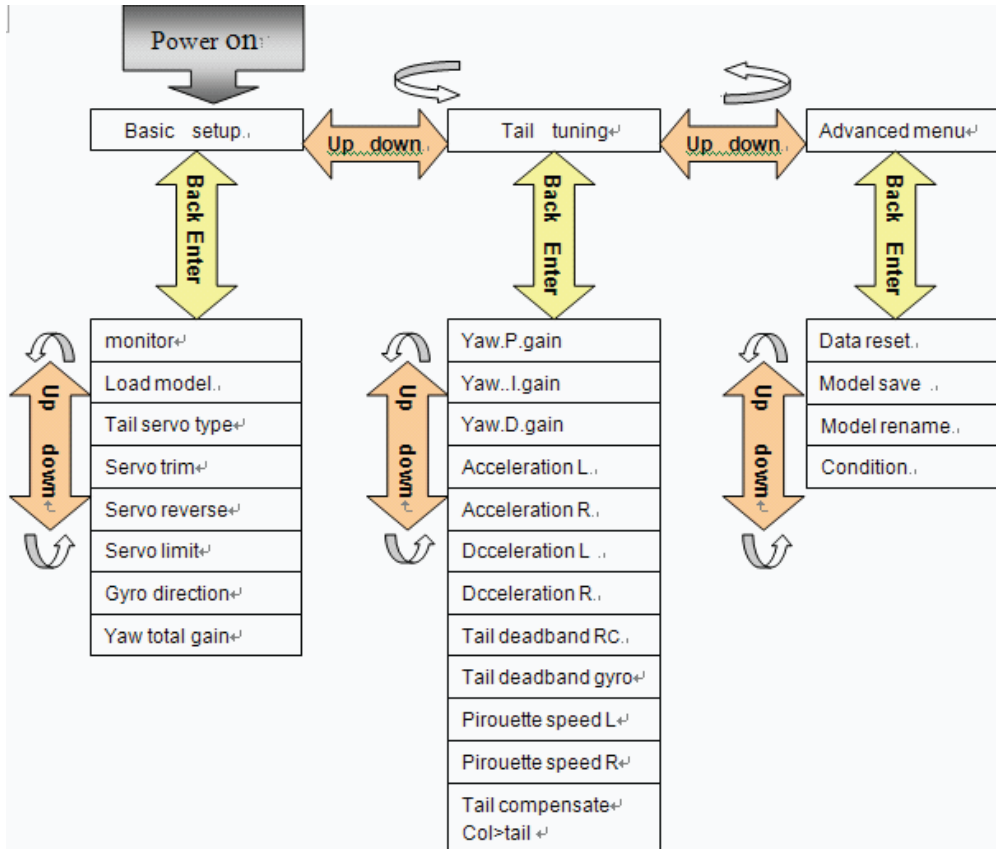
Item	Description
Roll P gain	It is equivalent to the roll rate gain
Roll I gain	It is equivalent to the attitude hold gain of roll axis
Roll D gain	It is equivalent to the stop gain of roll axis
Pitch P gain	It is equivalent to the pitch rate gain
Pitch I gain	It is equivalent to the attitude hold gain of pitch axis
Pitch D gain	It is equivalent to the stop gain of pitch axis
Acceleration	Acceleration of the roll and pitch motion
Deceleration	Deceleration of the roll and pitch motion
Swash deadband RC	The deadband of the aileron and elevator sticks
Swash deadband gyro	The deadband of the roll and pitch gyros
Roll agility	It is equivalent to the maximum roll rate
Pitch agility	It is equivalent to the maximum pitch rate

Advanced menu

Item	Description
Data reset	Reset all the parameters to defaults
Model save	Save the parameters in CX-PB001 as a model
Model rename	Rename a model that you save in CX-PB001
Condition	Select a condition to use. There are two conditions in a gyro: Condition 1 and Condition 2. Each condition can save a parameters group.

6. Program CX-1X1000 Gyro

Connect CX-PB001 to CX-1X1000 gyro with data cable, CX-PB001 displays: **“Hello! Loading data!”**, and then **“Load succeed!”**. If it always displays: **“Hello! Loading data!”**, please check the data cable and make sure the gyro is in working mode.



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