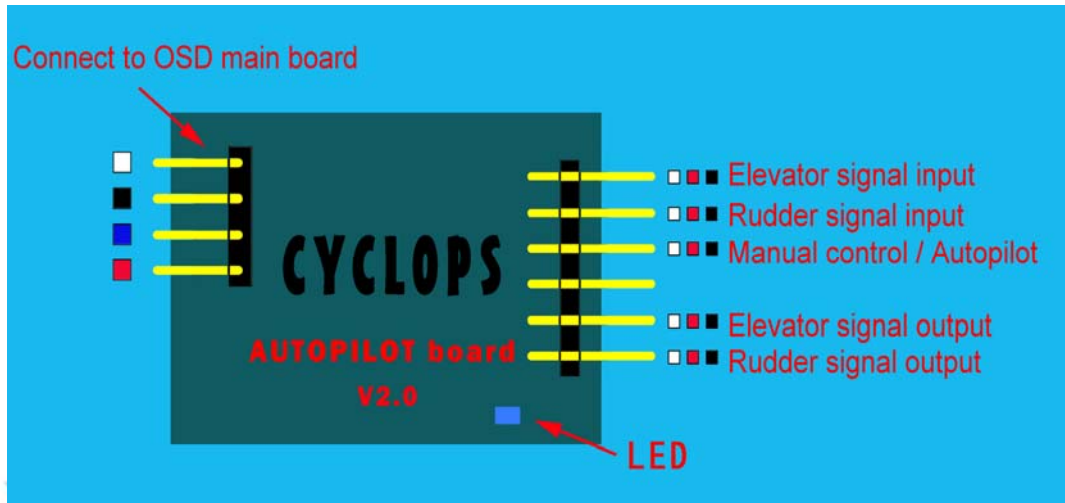
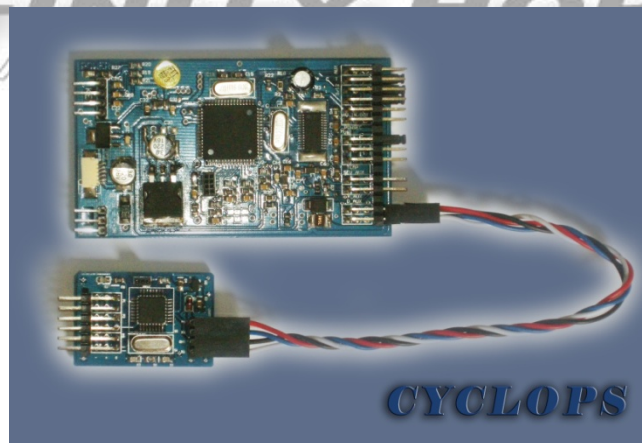


CYCLOPS OSD Autopilot Module Manual

Connection Diagram



1. Connect to OSD Main board
2. Elevator input from receiver
3. Rudder input from receiver
4. Manual / Autopilot selection control (to receiver)
5. Elevator output
6. Rudder output

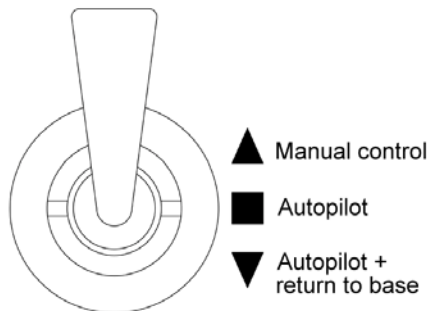


Autopilot module & main board connection

Precautions before use

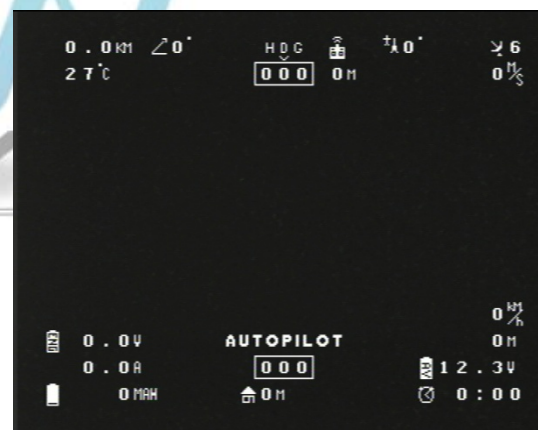
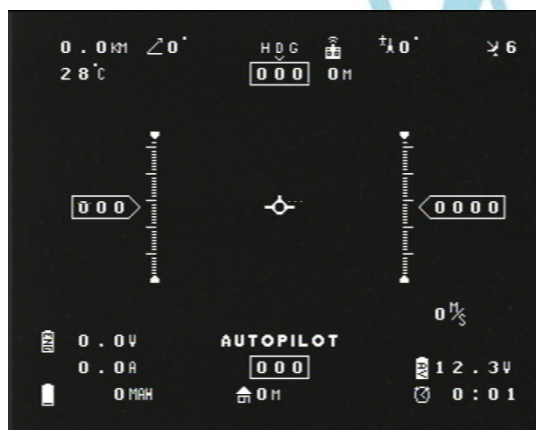
1. Plane with certain dihedral angle and good stability is preferred.
2. Manual and autopilot is switched by a 3-stage switch or an analog switch on the radio (e.g. CH5). After the autopilot module is connected to the main board, the LED remains light. In autopilot mode, the LED will flash. Switch between the way

point autopilot mode and manual mode once will manually skip current waypoint and go to next waypoint. When the switch is at home-return autopilot position, the plane will unconditionally return home.



1. Manual control
2. Waypoint autopilot
3. Home return autopilot

3. It's suggested to use radio control system with F/S (failsafe), use F/S function to set the manual/autopilot channel to home-return autopilot position to enable the plane fly back home whenever losing control.
4. During autopilot, the OSD will display AUTOPILOT on the screen and the radio icon on the screen will flash. If GPS signal lost during flight, the system would automatically switch to manual control mode and the icon AUTOPILOT will disappear. In this case, it's important to set the F/S function correctly on the receiver.



Parameters setup

Double check the wire connection and power on the OSD. Press “up” and “down” button to enter the setup menu, use “up” and “down” button to go up and down in the menu and switch the following setup menus.

```

                MENU

AUTO MAX           >Y N
Trip              >Y N
Temp             >Y N
Main Bat         >Y N
Aux Bat         >Y N
Units           >M E
Num Eric       >Y N
Rezero Amp      OK
Bat Scale      0mAh
>Return

```

OSD parameter setup menu

```

                AUTOPILOT

>SERVO DIR        OK
ALT MOD          >G E
T or V Tail     >T V
MAXHDGCHG       0
APROTGAIN       0
ROTLIMIT        0
ROTSTEPGAIN     0

                1/2

```

Autopilot parameter setup menu 1

```

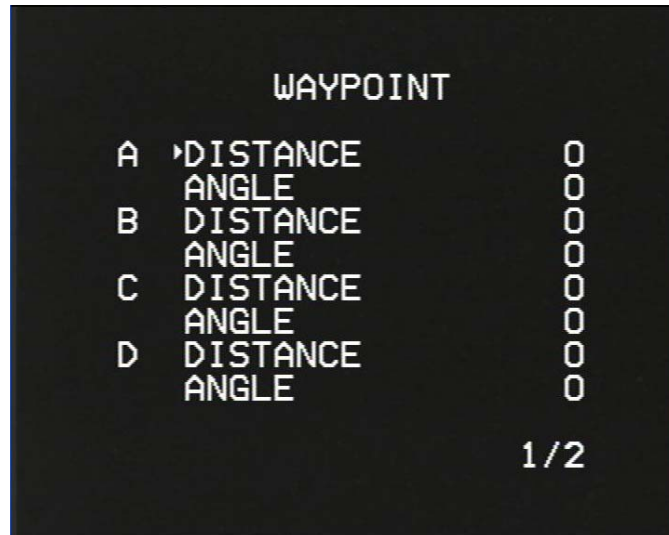
                AUTOPILOT

>CRUISEALT       0
MAXALTCHG       0
APROCGAIN       0
ROCLIMIT        0
ROCSTEPGAIN     0
SPEEDLOWLIM     1
SAVE            OK

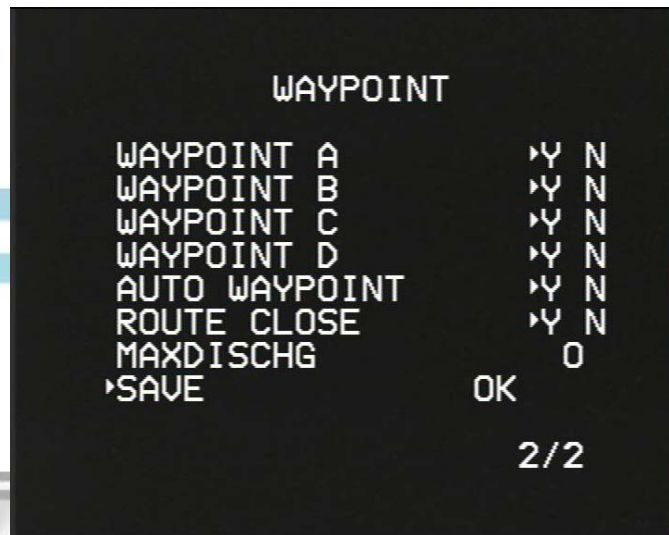
                2/2

```

Autopilot parameter setup menu 2



Waypoint setup menu1



Waypoint setup menu1

Autopilot setup

Page 1

SERVO DIR (set correct autopilot direction) : determine the correct servo direction during autopilot. Connect all wires, power on radio and OSD, enter setup menu, set the elevator stick to lowest position and rudder stick to the very right position, then press the set button, the "OK" will begin to flash, after the flash finishes, the servo direction then is set. During servo direction determination period, the LED on autopilot board will flash until the direction is set.



确认正方向示意图

Determine the right servo direction

ALT MOD(Altitude control method): G: minimum safe altitude E: altitude hold(see CRUISEALT) suggested mode: G

V or T Tail(Tail Control method): Select between V or T tail. When the plane has V tail, turn off V-tail mix on the radio, then select V tail control mode.

MAXHDGCHG (heading correction limit) determine how aggressive the autopilot will correct the heading(unit: degree) adjustment:0-180 degree. This parameter means: when the plane needs to turn, autopilot system will allow more aggressive heading correction to bigger heading error, but this parameter will still control the maximum heading correction. For example, the MAXHDGCHG is set to 10 degree, even the heading error is 100 degree, and the autopilot system would still correction the heading with maximum 10 degree. Suggested value: 15 degree.

APROTGAIN (turning angle gain): determines how sensitive the autopilot acts to heading error, parameter range:0-50. adjust according the plane performance and with care, too low value will lead to big turning radius, and too high will lead to snake move. Suggested value: 10. Set this parameter to 0 to turn off heading auto control.

ROTLIMIT (Maximum turning velocity) : Maximum turning velocity(Unit: degree/sec), range:0-90degree/sec, suggested value: 15degree /sec.

ROTSTEPGAIN(Turning velocity gain): determine how sensitive the autopilot acts to turning velocity error. Range 0-50 degree, suggested value: 10

Page 2

CRUISEALT(Cruise altitude): determine the autopilot altitude (Unit: meter). Range:0-2000m. In G mode, the plane will return home not lower than set altitude. In E mode, the plane will return home while trying to maintain the set altitude.

MAXALTCHG (Altitude correction limit): determine how aggressive the autopilot will act the altitude error. (Unit: meter) Range:0-50 m. This parameter means: When the plane is under altitude auto control, more altitude deviation would lead to more aggressive auto altitude correction. But this parameter determines the maximum correction value. For example ,when this parameter is set to 30m, even the altitude

deviation is 100m, the autopilot would still correct altitude error with the same servo movement of 30m deviation. Suggested value:10m.

APROCGAIN (altitude error gain): Determine how sensitive the autopilot acts to altitude error. Range:0-50, suggested value:10. set this parameter to 0 to turn off autopilot's altitude control.

ROCLIMIT(Climb rate limit): determine the maximum velocity the autopilot would use to try to climb to the set cruise altitude(Unit: m/sec), Range:0-10m/sec. adjust this value with care, too big value will lead to undulance fly or even stall. Suggested value: 2m/sec.

ROCSTEPGAIN(climb rate gain): determine how sensitive the autopilot acts to climb rate error. Range:0-50. Suggested value:10

SPEELDOWLIM(slowest cruise speed): if the velocity is lower than this value, then autopilot will not try to reach the set cruise altitude but maintain the current altitude to prevent plane from stall(Unit:km/h), Range:0-50km/h.

Attention: always avoid bad weather to fly even with perfect autopilot setup.

Waypoint setup

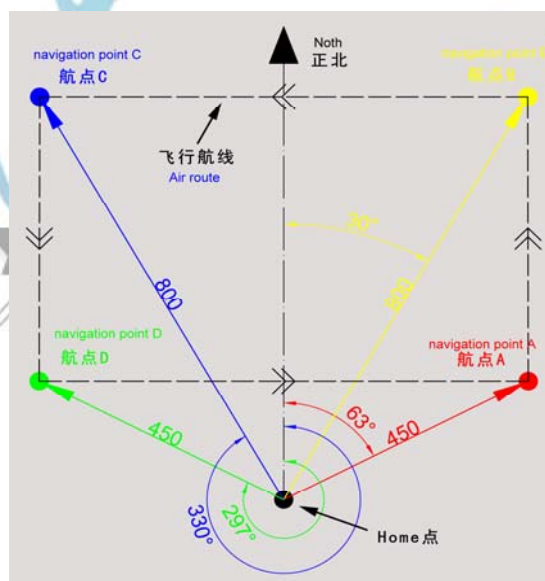
Page one

DISTANCE: distance between waypoint and home(unit: meter). Range:0-20,000m

Angle: determine the angel between due north and waypoint. (Unit: degree). Range:0-359 degree.

WAYPOINT		
A	DISTANCE	450
	ANGLE	63
B	DISTANCE	800
	ANGLE	30
C	DISTANCE	800
	ANGLE	330
D	DISTANCE	450
	ANGLE	297
1/2		

Waypoint coordinate demo



Actual fly track

Page two

WAYPOINT A—WAYPOINT D: whether to use such waypoint.

AUTO WAYPOINT: auto waypoint switch function. Choose “Y”, the plane will automatically go to the next waypoint; Choose “N” the plane will fly around the current waypoint until ordered to go to next waypoint by the 3-stage switch on the radio.

ROUTE CLOSE: determine whether to have closed fly rout. Choose “Y”, the plane will go from waypoint A-D repeatedly. Choose “N”, the plane will fly from waypoint A-D

and return to home.

MAXDISCHG: Maximum waypoint deviation (Unit: meter), Range:0-100m, this parameter determine how close the plane is to the waypoint till autopilot determine the current waypoint is reached. This parameter is greatly determined by weather and plane's performance. Too low value will make the plane fail to reach the set waypoint. Suggested value:30m

Save: save the waypoint setup parameters.

