

This documentation is current for all Observer models after and including first build Norut Observer

Model Name

Cryowing Observer RC Trainer

Payload and avionics mounting structure

Parts needed

Procedure

Leveling

Avionics plate

Payload ears

Avionics mounting and setup

Parts needed

Pixhawk
FRsky or EZuhf receiver
I2C hub
I2C air speed sensor with X cm long I2C cable
Pitot tube with hoses
GPS with X cm long cable
Magnetometer with X cm long I2C cable
Push button
Buzzer
Microhard 433MHz modem
TTL-RS232 converter
Pharad 433MHz patch antenna
Wiring loom
ESC: jeti model spin 44

wing connectors

Parts needed

Procedure

Avionics

Pixhawk

Microhard

RC receiver

Sensors

Airspeed and barometer

I2C Airspeed sensor mounted in the nose with short pressure hoses to pitot tube.

Ensure that microhard modem antenna cable is on the opposite side of fuselage compared to I2C hub and I2C cables.

GPS and magnetometer

Push button

Buzzer

Servos and throttles

Pixhawk connections:

Sensors

Connect sensors according to standard Pixhawk manual

Servos/ESCs

Telemetry

Microhard signal level is RS-232 but pixhawk telemetry signal level is TTL. A level converter is required.

Power to the microhard is supplied directly from the batteries. Cables are connect to the power input on the automating connector for the servos.

Power connector housing: molex 43025-0400 elfa art: 144-02-299

Pin: 43030-0007 elfa art: 144-02-477.

Ensure antenna cable for Microhard is secured on the opposite side of fuselage compared to I2C bus cable.

Elevator setup:

Level trim for elevator is: 0 trim needed. Center at 1500us

Flap setup:

0 deg flaps = in line with centered aileron

Full flaps = close to 60 deg

In the Taranis radio, the flap is duplicated from RC5 to RC7. The flap is assigned to a three-way-switch SC. The three-way-switch has three options: Flaps up, flaps half down, and flaps down.

Down trim on elevator is needed to avoid nose up on flaps down. See elevator setup for details.

Aileron setup:

Deflection up = 9.2 mm

Deflection down = 13.2 mm

In the Taranis radio, the aileron is duplicated to RC4 to RC6.

Set up left aileron completely before continuing to right flap. Start with the Taranis radio and enter millisecond values from the Taranis radio in the pixhawk parameters

Throttle:

Structural modifications

Camera trigger and feedback

Camera triggering

RC10(AUX2) is used for connection to the trigger for the camera.

APMplane parameters

CAM_TRIG_TYPE	=	0
RC10_FUNCTION	=	10
RC10_MAX	=	1900
RC10_MIN	=	1100
RC10_TRIM	=	1500
CAM_SERVO_ON	=	1000
CAM_SERVO_OFF	=	1500
CAM_RELAY_ON	=	1
BRD_PWM_COUNT	=	2

Trigger verification

RC11(AUX3) is used for connection to the camera trigger verification circuit.

APMplane parameters

CAM_FEEDBACK_PIN	=	52
CAM_FEEDBACK_POL	=	0