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