



# U-Pilot & U-Pilot OEM Specification

version 1.3 2015/02/18

## Flight Control

Flight Control.....Fully 3D three axis control  
 Attitude Estimation & control.....1000Hz update rate  
 Flight-plan.....Up to 200 way-points  
 Speed Control.....Auto-throttle for all vehicles  
 Airfield operations.....Automatic take-off & landing  
 Engines.....Electric & combustion  
 Platforms.....Fixed Wind, Helicopter, Multicopter

## Mechanical (Standard)

Dimensions (WxHxL).....89x35x155 mm<sup>1</sup>  
 Weight.....280 g  
 Main connector.....Glenair GMR7590-51P Micro-D  
 Pressure connector Diameter.....3 mm  
 Radio Connector.....SMA female  
 GPS Connector.....SMA female

## Mechanical (OEM)

Dimensions (WxHxL).....58x21x138 mm<sup>2</sup>  
 Weight.....77 g  
 Main connector.....Glenair GMR7590-51P Micro-D  
 Pressure connector Diameter.....3 mm  
 GPS Connectors.....UFL female/ SMA female  
 Radio Connector..... MMCX female

## Electrical

Supply Voltage..... 6V – 28V<sup>3</sup>  
 Power Consumption.....4 W  
 Maximum Temperature Range.....-30 °C to +85°C  
 Recommended Temperature Rating.....+10 °C to +60°C

## GPS Positioning

Channels.....12  
 Satellite Based Augmentation System ....Global coverage  
 Differential/Relative navigation.....Available on request

## Sensor Suite

3 axis accelerometer .....±10 g  
 3-axis gyroscope .....± 300°/s  
 Triple sensor suite .....Available on request  
 External 3-axis magnetometer..... Avoids interference<sup>4</sup>

## Interface with Payloads & Actuators

PWM / GPIO outputs.....31  
 PWM rate (configurable).....50/200/300/333/540 Hz  
 RS-232 ports.....4 RS-232 compliant ports  
 RS-232 Rates.....9600 – 115200 bps  
 External ADC channels.....3 channel 12bit - 0-30 V  
 Main Voltage Supply Supervisor.....Yes

## Telemetry

Frequency .....370MHz/**900MHz**/1.4 Ghz/2.4GHz<sup>5</sup>  
 Power.....1 W  
 Range.....100 km / 80km / 40 km  
 Baud Rate.....115200

## Air Data System

Dynamic pressure sensor range.....0 – 200 km/h<sup>6</sup>  
 Static pressure, low altitude option .....0-2000 m  
 Static pressure, high altitude option.....0-4000 m

## Hardware Architecture

Technology.....Based in Altera® FPGA technology  
 Access to peripherals.....Dedicated hardware.  
 CPUs.....Two NIOS II soft-cores at 75MHz  
 Bus access.....Non blocking sensors access  
 CPU1.....Flight computer, State Estimator & Control loops  
 CPU2.....Mission control, Payload & Comm

1 Excluding connectors in front panel.  
 2 Excluding connectors in front panel.  
 3 Input voltage can reach up to 36V under certain circumstances.

4 Magnetometer occupies one RS-232 Port.  
 5 Depending on local legislation  
 6 Other ranges are available upon request