U-Pilot & U-Pilot OEM Specification

version 2.0 2020/09/01

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 Wing, Helicopter, Multi-copter

Mechanical (Standard)

Dimensions (WxHxL).....89x35x155 mm[1]

Weight.....280 g

Main connector.....Glenair GMR7590-51P Micro-D

Pressure connector Diameter.....3 mm

Radio Connector.....SMA female (onboard radio)

GPS Connector.....SMA female

Mechanical (OEM)

Dimensions (WxHxL).....58x21x138 mm[2]

Weight.....80 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[3]

Power Consumption.....4 W (8W Peak)

Maximum Temperature Range.....-30 °C to +85°C

Recommended Temperature Rating.....+10 °C to +60°C

GPS Positioning

Channels.....184

Satellite Based Augmentation System ….Global coverage

Differential/Relative navigation.....Available on request

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

Sensor Suite

3 axis accelerometer .....±10 g

3-axis gyroscope .....± 300°/s

Triple sensor suite .....Default option[4]

External 3-axis magnetometer..... Avoids interference[5]

Interface with Payloads & Actuators

PWM / GPIO outputs.....26

PWM rate (configurable).....50/200/300/333/540 Hz

Serial ports.....Up to 8 (RS-232) / 4 (RS-485)

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[6]

Power.....1 W

Range.....200km/100 km / 80km / 40 km[7]

Baud Rate.....115200

Cryptography.....128bit AES-CCM

Air Data System

Dynamic pressure sensor range.....0 – 200 km/h[8]

Static pressure, low altitude option .....0-2000 m

Static pressure, high altitude option.....0-4000 m

Hardware Architecture

Technology.....Based in Intel® FPGA technology

Access to peripherals.....Dedicated hardware.

CPUs.....Two NIOS II soft-cores at 100MHz

Bus access.....Non blocking sensors access

CPU1.….Flight computer, State Estimator & Control loops

CPU2.....Mission control, Payload & Comm

4 Option for single axis low-cost sensor suite available
5 Magnetometer occupies one serial port.
6 Depending on local legislation
7 Range may vary due to: Local RF noise level, antennas, installation, etc.
8 Other ranges are available upon request