Title: APM 2.5 & Arduflyer V2.5 - Guide for ArduCopter & MultiRotor's

Document Name: APM 2.5 / Arduflyer V2.5 Guide

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Please Read: This guide is written for the APM 2.5 and the Arduflyer V2.5 board by RcTimer, used in conjunction with ArduCopter.

The guide details common hardware and software configurations to enable new users of the platform to get up and running with minimal effort. The guide is not intended to cover every conceivable aspect but focuses on the more popular uses and configurations. You should ensure you follow any relevant local legislation and guidelines

Most of this information can be found on various forums and wiki's, and links to relevant sources and credits have been given where relevant.

Latest versions of this file can always be found at: www.Multi-Rotor.co.uk

Disclaimer: You use this guide and information contained at your own risk. The guide is offered subject to errors and omissions and it is assumed that you have basic level understanding of MultiRotor's and electronics.

The ArduPilot Mega 2.5 is a complete open source autopilot system, it allows the user to turn any MultiRotor capable of performing programmed GPS missions with waypoints. The OS / Firmware for the APM 2.5 for MultiRotor's is Arducopter.

Features:

- Arduino Compatible
- 3-axis gyro, accelerometer and magnetometer, along with a high-performance barometer
- Onboard 4 MP Dataflash chip for automatic datalogging
- Digital compass powered by Honeywell's HMC5883L-TR chip, now included on the main board.
- Optional off-board GPS, (any TTL level GPS should work, main choice being the uBlox LEA-6H module).
- Invensense's 6 DoF Accelerometer/Gyro MPU-6000.
- Barometric pressure sensor, MS5611-01BA03, from Measurement Specialties.
- Atmel's ATMEGA2560 and ATMEGA32U-2 chips for processing and USB functions.

Datasheets:

- MPU-6000, Six-Axis (Gyro + Accelerometer) MEMS MotionTracking[™].
- HMC5883L-TR, 3-Axis Digital Compass.
- LEA 6 GPS
- MS5611, MEAS High Resolution Altimeter

Depending on where you purchase your board will have an effect what cables are supplied. As a minimum the board is normally supplied with the GPS and Telemetry cables, either as one ended to make your own connections, or plugs on both ends for 3DR radios and GPS.

Connections



- A0- Sonar/ Ultrasonic
- A1- Voltage Sensor Attopilot
- A2-Current Sensor Attopilot
- A3- Optical Flow Sensor
- A4-Motor LED
- A5-Motor LED / Buzzer
- A6-Motor LED
- A7-Motor LED
- A8-Motor LED / Analogue RSSI
- A9-Camera Shutter
- A10-Camera Roll

A11-Camera Pitch

OP 1 – OP 8 – to ESC's, (see motor mapping section)

IN1 to IN 8 - from RX

- IN1 Channel 1 Rx, Roll
- IN2 Channel 2 Rx, Pitch
- IN3 Channel 3 Rx, Throttle
- IN4 Channel 4 Rx, Yaw
- IN5 Channel 5 RX, Flight Mode Switch

Note: IN5 – PPM SUM / CPPM input from RX – (See PPM SUM Section)



Rctimer APM 2.5 Clone ports



WWW.MULTI-ROTOR.CO.UK



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Header Pins: Most boards are supplied without the header pins soldered to the board, this gives you the option of choosing straight or right angled headers. Soldering these although fiddly although not difficult, make sure you have a low wattage fine tipped soldering iron.

Cases: Cases for the APM 2.5 will fit the Arduflyer V2.5 and vice versa.

Important: You should cover your barometric sensor with a piece of foam and tape it to the board:

Front



Back



3DR Status LEDs¶

The 3DR Radios have 2 status LEDs, one red and one green. The meaning of the different LED states is as follows:

- •green LED blinking searching for another radio
- •green LED solid link is established with another radio
- •red LED flashing transmitting data
- •red LED solid in firmware update mode

Appendix - Motor Connections

