AC200 User Notes: Diagnostic feature for AC200 Software Update Version 4.48 May 2017

Overview. Version 4.48 of the AC200 controller software has a diagnostics module, which along with the new AC200Diagnostics Windows program allows recording and analysis of AC200 activity. Its main purpose is to help Airmaster diagnose any potential problems with the AC200, but it also keeps a handy record of how much use the propeller has had, and what it has been doing.

There are three main features:

1) **Statistics.** The diagnostics module records the amount of time spent when the engine is running, and then breaks that time down by mode, such as take-off, climb and cruise. It also breaks the time into periods when the controller is actively changing the pitch or when it is idle. This allows analysis of how "busy" the controller is in each mode. In addition to breaking the time down by mode and whether the AC200 is active, the diagnostics module records data for the current "run", which is defined as a period in which the engine is running continuously, as well as overall totals. Turning the engine off will end the current run, but all the statistics for that run will be available until the engine restarts. Starting the engine will add all the current run totals to the overall totals then reset the current run totals.

2) **Circuit errors**. In addition to recording normal run activity for the controller, the diagnostics module also records error conditions. There are two conditions which are monitored – **motor overcurrent**, that is when the motor is drawing too much current, and **open circuit** which is when the controller detects that something is preventing the motor running, such as worn brushes or a faulty connection. The diagnostics module counts each occurrence, and the amount of time in each condition.

3) **Software errors**. Finally, the diagnostics module also records the details of anything which causes the controller software to restart, such as a "watchdog" timeout, or an unexpected condition.

Enabling Diagnostics. New versions of the AC200 will have diagnostics enabled, but older versions will need to be upgraded to version 4.48 (or later) of the software, then the AC200 parameter file will need to be modified by running the AC200User program, and once connected to the AC200, under the **Misc tab**, setting the **Diagnostics Enable (303)** field to **1** then clicking on the **Update AC200 with New Settings** button. Note that this field is password protected, so the password must be entered first.

Viewing Diagnostics. The Windows program to view diagnostics is called **AC200Diagnostics**, and it is supplied by Airmaster, along with the Airmaster monitoring program AC200User. Like AC200User, AC200Diagnostics communicates with the AC200 via the Airmaster supplied USB to serial cable.

Sending Diagnostics to Airmaster. The main purpose of the Diagnostics module is to help Airmaster diagnose any problems with the AC200. To make this simple, The AC200Diagnostics program has **a Save Diagnostics Rec** button which, after connecting with the AC200, saves current diagnostics to a file which can then be attached to an email and sent to Airmaster.