REVISION	CHANGE	APPROVED	DATE
1	Published release	JTS	29/05/2025
1a	Formatted for website PDF	JTS	25/11/2025

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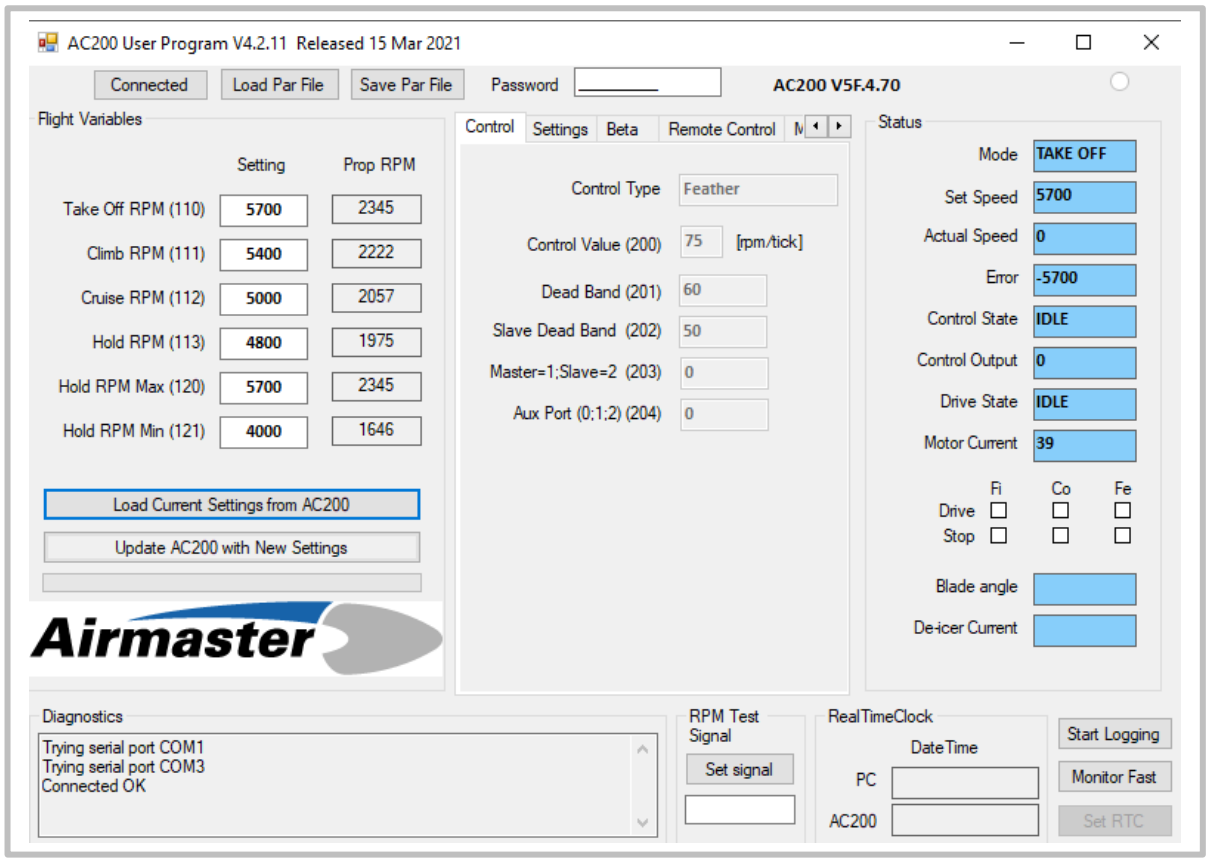
ASI-7-2-1

UPDATING CONTROLLER PARAMETERS & SETTINGS

PROCEDURE



SUBJECT:	
Service & Maintenance	
ASSEMBLY NO:	**APPLICABILITY:**
A0110x or A0170x	AC200 controller hardware versions 4 and up. All AC300 controller versions.

1. TOPIC

1.1 Introduction

This document covers the procedure for viewing, updating and saving the control parameters programmed into an Airmaster controller.

This task is performed using the Airmaster User Program running on a Microsoft Windows PC; a laptop is recommended so that it may be taken to the controller inside the cockpit. The controller is connected to the PC using the dedicated USB-serial cable (*A0117*) supplied with the propeller.

The operator can easily modify the flight parameter variables programmed into the controller. These are the pre-set automatic target speeds (parameters 110 to 121) to which the propeller will govern to across various phases of flight (e.g. Take-off RPM).

The other control setting parameters that can be viewed in the Airmaster User Program are password protected. These parameters should only be updated when directed to by Airmaster.

Any parameter changes must be recorded in the leading particulars section of the propeller logbook and updated within the 'ACx00 Firmware & Parameters Sheet' found in the propeller's assembly drawings booklet.

1.2 Prerequisites

Complete the following tasks before proceeding:

- Ensure that PC is updated to include .NET Framework 3.5
  https://www.microsoft.com/en-us/download/details.aspx?id=21

- For AC200 controllers, ensure that controller hardware is version 4 or higher.

> ⓘ *Note*
> *The controller hardware version is recorded in the 'ACx00 Firmware & Parameters sheet' (found in the propeller assembly drawings booklet). It is the first number shown under "Hardware Build State".*

2. MATERIAL REQUIREMENTS

2.1 Parts

ITEM	QTY	PART NO.	DESCRIPTION	IMAGE
1.	1	A0117	USB-Serial Cable	
2.	1	A0110x or A0170x	AC200 or AC300 Controller	

2.2 Tooling

ITEM	QTY	DESCRIPTION	IMAGE
1.	1	MS Windows Laptop	
2.	-	Airmaster User Program (*.exe*)	

2.3 Paperwork

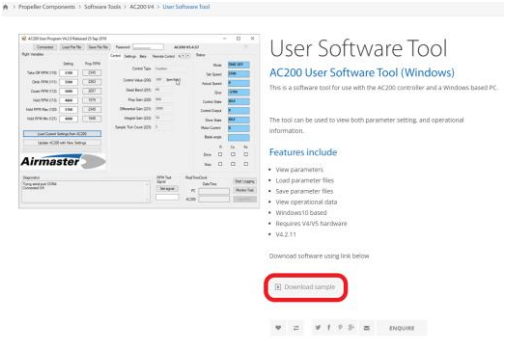
ITEM	QTY	CODE	DESCRIPTION
1.	1	AD-UNIVERSAL	ACx00 Controller Firmware & Parameters Sheet
2.	1	AD-UNIVERSAL	Airmaster Propeller Logbook

3. PROCEDURE

3.1 Download User Program

PROCEDURE

Step 1 Download Airmaster User Program

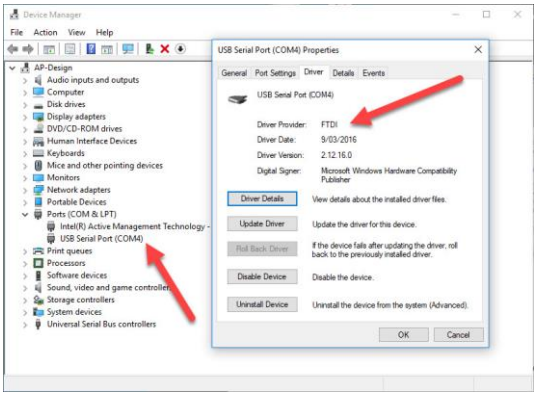


- Download the latest applicable version of the Airmaster User Program from the Airmaster website:
  - AC200 controller: *https://propellor.com/ac200-user-software-tool*
  - AC300 controller: *https://propellor.com/ac300-user-software-tool*

> *Note*
> *This program is only compatible with Microsoft Windows operating systems.*

Step 2 Install USB Driver (As Required)

- When the USB-serial cable (*A0117*) is connected to a PC for the first time, the required USB driver must be downloaded:



> *Note*
> *Generally, this task is completed automatically on Windows operating systems.*

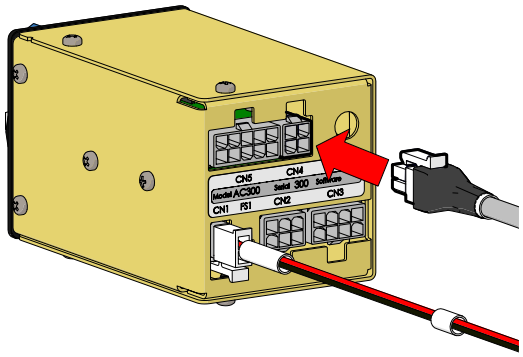
  - Visit the link below and download the "Setup Executable" for your OS: *https://www.ftdichip.com/Drivers/VCP.htm*
  - Open the setup .zip file and choose a convenient folder to unzip the executable.
  - Confirm, accept, and finish the extraction.
  - Check the COM port assigned to the USB-serial cable on PC: Control Panel > Device Manager > USB Serial Port > Driver.

3.2 View Controller Parameters

PROCEDURE

Step 1 Connect Controller to PC

- Plug USB-serial cable (*A0117*) into USB port on windows PC.
- Plug USB-serial cable (4-way connector) into rear of controller [CN4].
- Apply power to controller by turning on aircraft power supply.

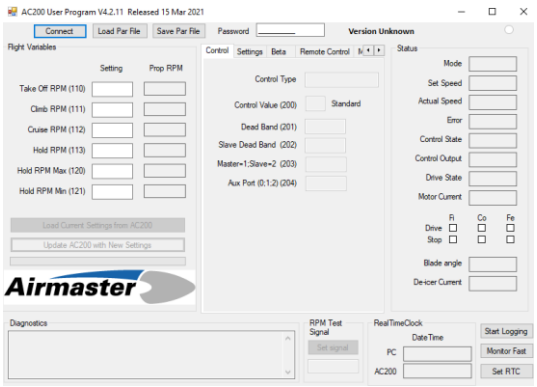


Step 2 Run User Program

- Run the Airmaster User Program.

Note
A warning window may appear before opening the program. This is normal, select More Info > Run Anyway.

Note
The program can't be run if another Airmaster application is running and accessing the same COM port assigned to the USB-serial cable.

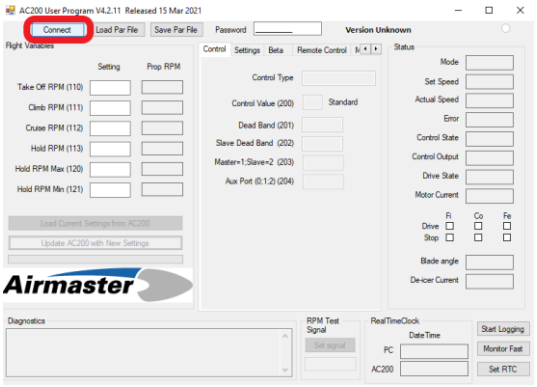


Step 3 Connect to Controller

- Press 'Connect'.

Note
After a few seconds the program will show that it is connected to the controller and the right-hand panel will display the current state of the controller.

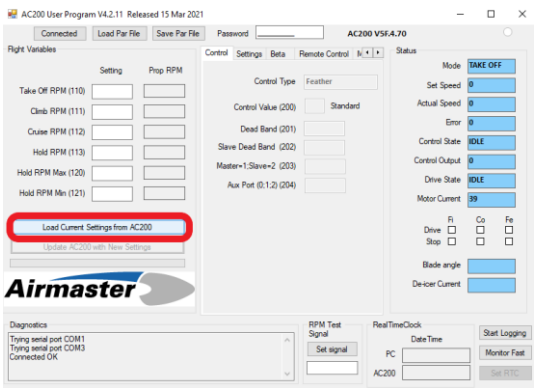
Note
Controller firmware version is shown in the top right corner.



Step 4 View Parameters

- Press 'Load Current Settings from AC200'.

Note
Many parameters are listed under the tabbed windows, use the toggle arrows to navigate. These parameters require a password for modification whereas the flight variables shown in the left window do not.



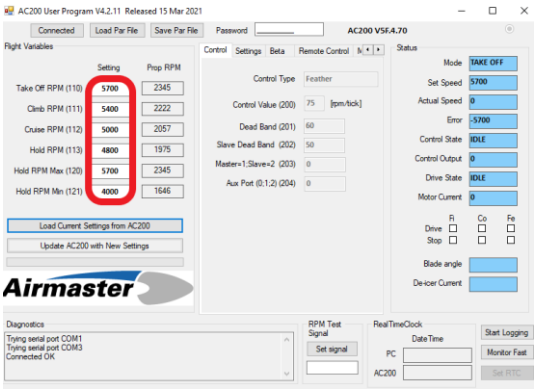
3.3 Update Controller Parameters

> **Note**
> *The flight parameter variables are the propeller's pre-set automatic target speed settings. These are the only parameters available for update by the operator. These parameters are displayed in the left window of the User Program (par 110 to 121); they are also recorded in the leading particulars section of the propeller logbook, and the 'Controller Firmware & Parameters Sheet'.*

PROCEDURE

Step 1 Adjust Flight Variables

- Enter desired flight variable values in the setting window beside each parameter ensuring that:
  - '*Take-Off RPM*' and '*Hold RPM Max*' must be at least 100rpm less than the maximum speed for the engine (i.e. 5700rpm or less for Rotax engines).
  - The calculated propeller speed ('*Prop RPM*') for '*Take-Off RPM*' and '*Hold RPM Max*' should be within allowable ratings for the Airmaster hub type being used.



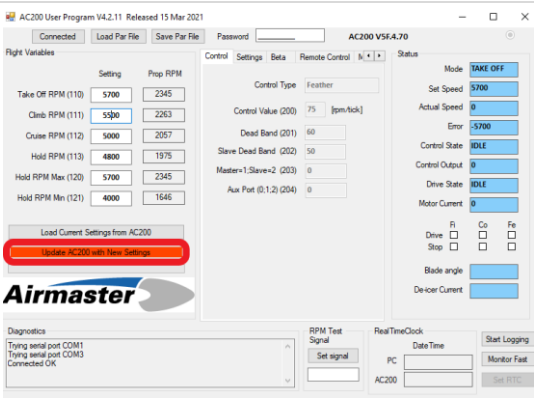
> **Note**
> *Current versions of the controller firmware check the controller parameters and ensure their settings are sensible and meet certain criteria.*

Step 2 Adjust Control Settings (Authorization Required)

- If Airmaster has authorized the operator to adjust the control parameter settings:
  - Enter password (shared by Airmaster) in the top window (password is not required for flight variable parameters).
  - Enter new values in the window for each control parameter as instructed by Airmaster.

Step 3 Apply Parameter Update

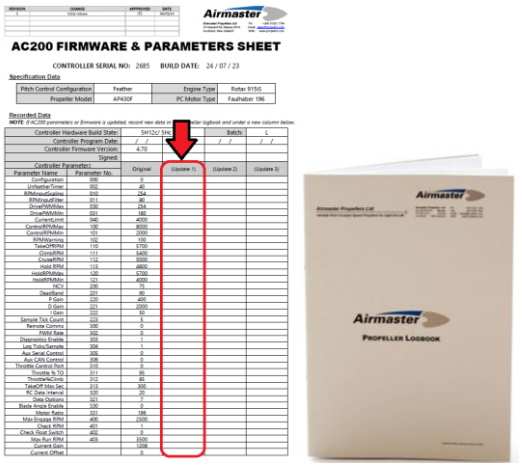
- Press 'Update AC200 with New Settings' twice.



> **Note**
> *Some parameters may fail to update successfully after only one flash update cycle.*

Step 4 Record Parameter Update

- Record updated parameter values under a new column in the following locations:
  - Controller Firmware & Parameters Sheet.
  - ‘Leading Particulars’ section of propeller logbook.
- Create an entry in the propeller logbook to record the work carried out.



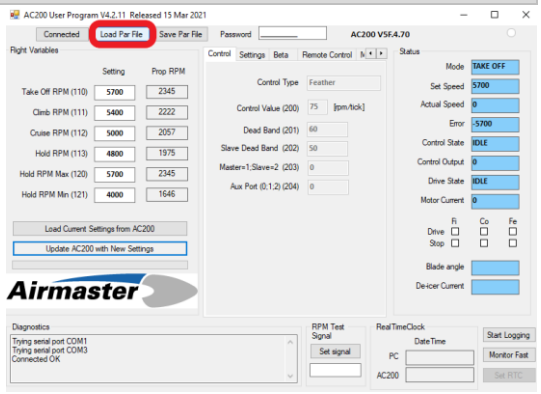
3.4 Load New Controller Parameter File

> ⓘ *Note*
> *Perform this task to load a new parameter file to the controller, rather than updating individual parameters.*

PROCEDURE

Step 1 Load Parameter File

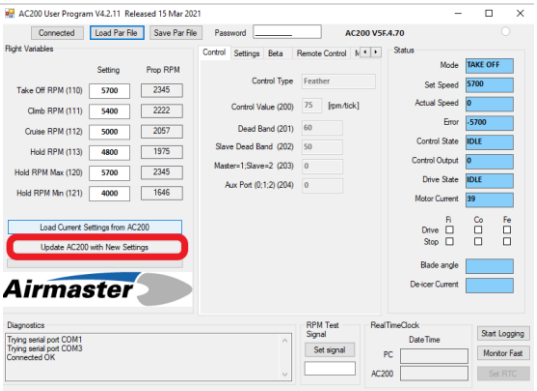
- Press ‘Load Par File’.
- Select the desired parameter file (*.par*).
- Press ‘Open’.



Step 2 Apply Parameter File Update

- Press ‘Update AC200 with New Settings’.

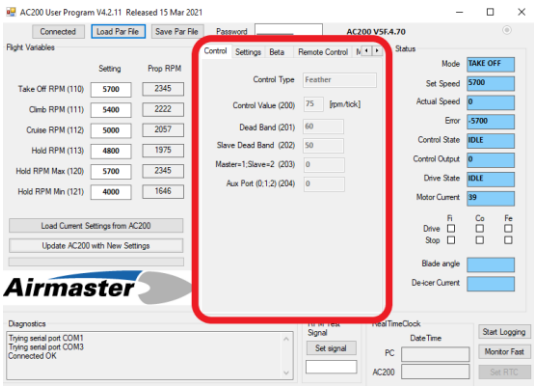
> ⓘ *Note*
> *Press this button two times as parameters may fail to ‘stick’ after only one flash update cycle.*



Step 3 Check Update Successful

- Verify that all parameters shown in the User program match those listed in the 'ACx00 Controller Firmware & Parameters sheet'.

> *Note*
> *Use toggle arrows to navigate to pages showing additional parameters*

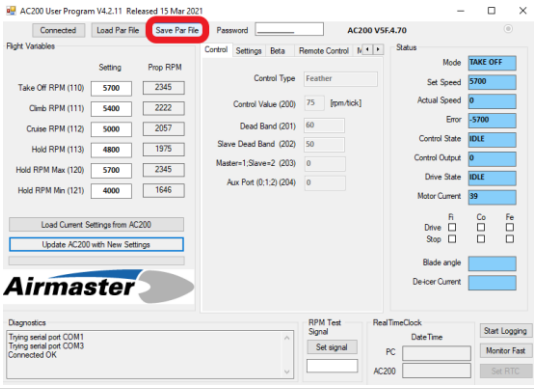


3.5 Save Parameter File from Controller

> *Note*
> *Perform this task to save a copy of the parameters currently programmed into the controller. The resultant (.par) file can be shared to Airmaster via e-mail to check.*

PROCEDURE

Step 1 Save Parameter File

- Select 'Save Par File'
- Save the resultant file to a convenient file location.

> *Note*
> *The resultant file is a text based (.par file) which can be viewed using a text editor e.g. Notepad.*