

REVISION	CHANGE	APPROVED	DATE
0	Provisional release	JTS	29/11/2023
1	Updated to include AC300 controllers	JTS	03/12/2024

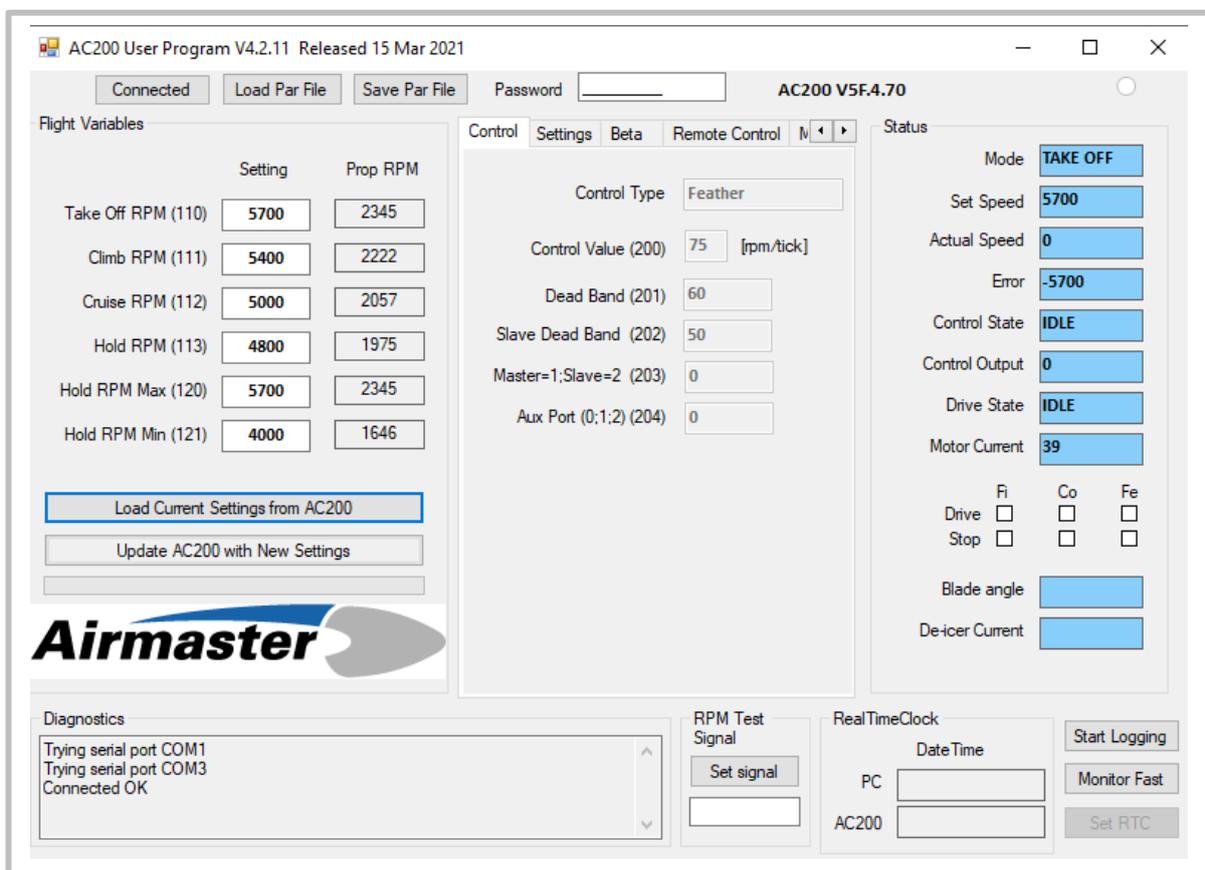


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# APL-SI-00xx

## DESCRIPTION & USE OF USER PROGRAM

### PROCEDURE



### SUBJECT:

CONTROLLER OPERATION

ASSEMBLY NO:	APPLICABILITY:
A0110x   A0170x	AC200 controller hardware versions 4 and up. All AC300 controller versions

## 1. TOPIC

### 1.1 Introduction

This instruction covers the Airmaster User Program and describes how the operator can use this program to check the flight parameters programmed into the propeller's controller, and how these can be modified.

The flight variables i.e. the propeller's pre-set automatic speed settings (parameters 110 to 121) can be adjusted to the operator's preference. The other setting and control parameters are password protected. Please contact Airmaster for authorisation and instruction to modify these parameters.

Any parameter changes must be recorded in the leading particulars section of the propeller logbook and updated within the AC200 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>
- If applicable, ensure that AC200 controller hardware is version 4 or higher.

#### Note

*The controller hardware version is recorded in the AC200/AC300 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/AC300 'Smart Pitch' Controller	

### 2.2 Tooling

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

## 2.3 Paperwork

ITEM	QTY	CODE	DESCRIPTION
1.	1	AD-UNIVERSAL	AC200 Firmware & Parameters Sheet
2.	1	AD-UNIVERSAL	Airmaster Propeller Logbook

## 3. PROCEDURE

### 3.1 Download User Program

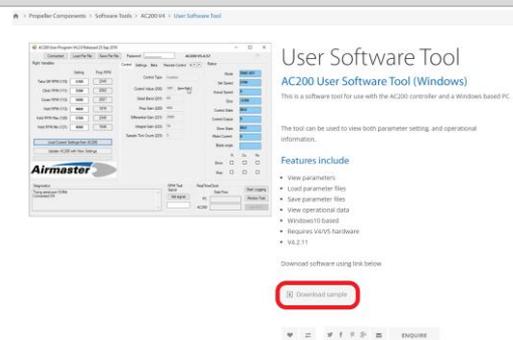
#### **Procedure:** Downloading User Program

#### Step 1 Download User Program

- Download the AC200 User Program from the Airmaster website:  
<https://propellor.com/ac200-user-software-tool>

#### Note

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



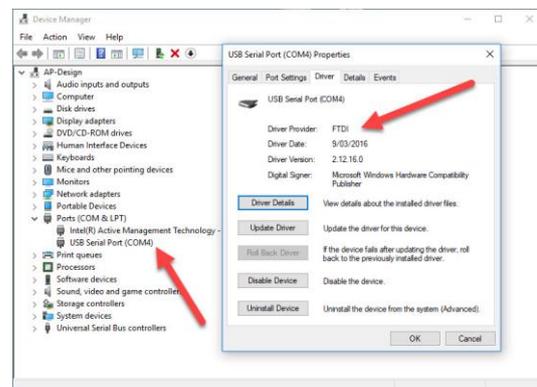
#### Step 2 Install USB Driver (As Required)

- When the USB-serial cable 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 10 operating systems.*

- Visit link below and download the "Setup Executable" for your operating system:  
<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: Control Panel > Device Manager > USB Serial Port > Driver.



## 3.2 View Controller Parameters

### **Procedure:** Viewing Controller Parameters

#### **Step 1** Connect Controller to PC

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

#### **Step 2** Run Application

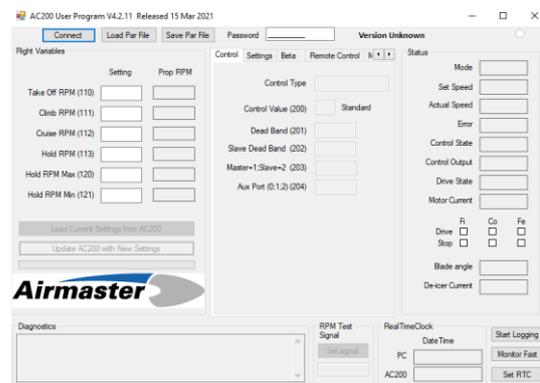
- Run the User Program.

##### **Note**

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

##### **Note**

This program can't be run if another Airmaster application is open that is accessing the same COM port assigned to the USB-serial cable.



#### **Step 3** Connect to Controller

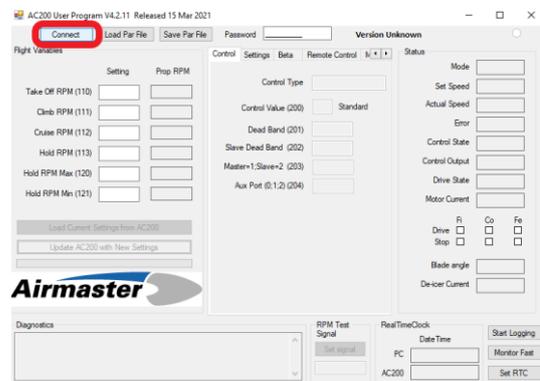
- Press 'Connect'.

##### **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.

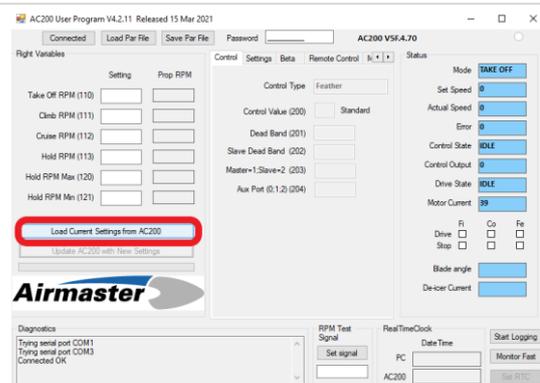


#### **Step 4** View Parameters

- 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 Modify Controller Parameters

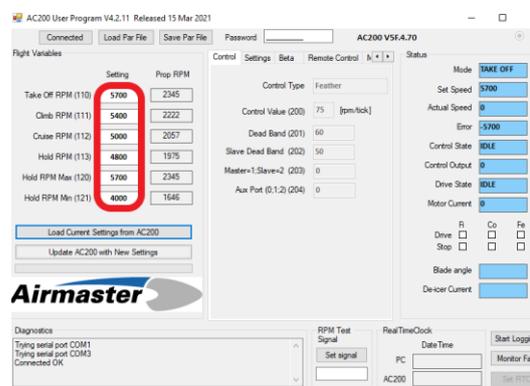
#### **Note**

The flight variables i.e. the propeller's pre-set automatic speed settings (parameters 110 to 121) are the only controller parameters that aren't password protected and can be openly modified by the operator. These parameters are shown in the left window of the User program. They are also recorded in the leading particulars section of the propeller logbook, and in the 'Controller Firmware & Parameters Sheet' located in the propeller's assembly drawings booklet.

#### **Procedure: Modifying Controller Parameters**

##### **Step 1 Adjust Flight Variables (As required)**

- Enter new values in the setting window beside each parameter, ensuring that:
  - 'Take-Off RPM' and 'Hold RPM Max' should 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 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 Parameters (As Required)**

- Enter password in the top window (not required for flight variable parameters).

#### **Note**

Request password from Airmaster.

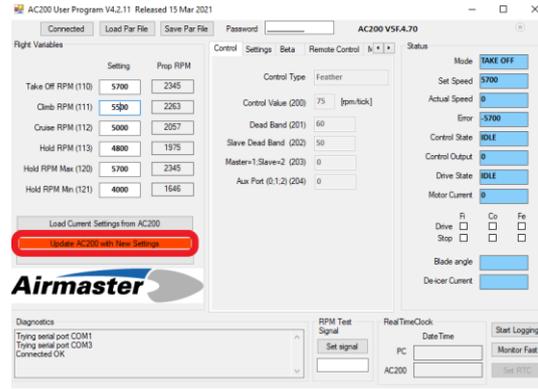
- Adjust the control parameter values as instructed to by Airmaster.

### Step 3 Update Parameters

- Press 'Update AC200 with New Settings'.

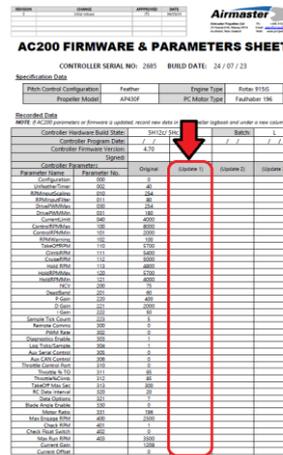
**Note**

Press this button twice as parameters may fail to 'stick' after only one flash update cycle.



### Step 4 Record Parameter Update

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



## 3.4 Load New Parameter File

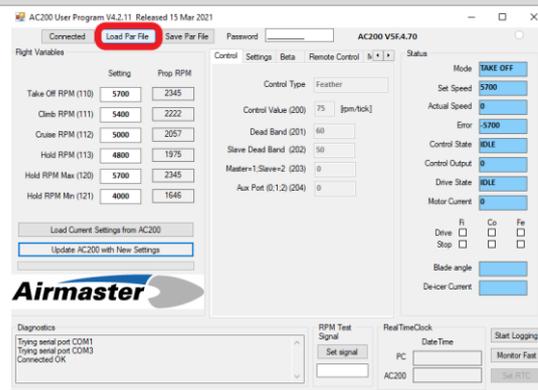
**Note**

Perform this task to load a new parameter file to the controller, rather than adjusting individual parameters.

### Procedure: Loading Parameter File

#### Step 1 Load Parameters

- Press 'Load Par File'.
- Select the desired parameter file.
- Press 'Open'.

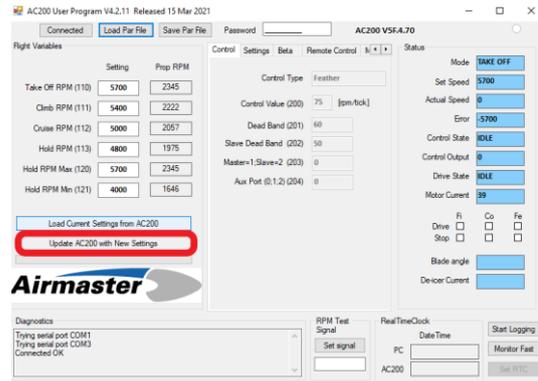


**Step 2 Update Parameters**

- Press 'Update AC200 with New Settings'

**Note**

Press this button two times as parameters may fail to 'stick' after only one flash update cycle.

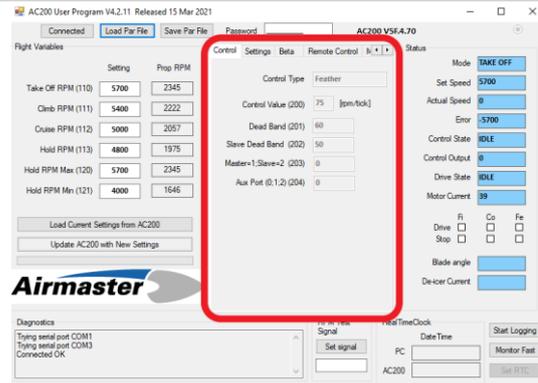


**Step 3 Check Parameters**

- Verify that all parameters shown in the User program match those listed in the AC200 Firmware & Parameters sheet.

**Note**

Use toggle arrows to view all parameters



**3.5 Save Parameter File**

**Note**

Perform this task to save a copy of the parameters programmed into the controller. The resultant .par file can be shared to Airmaster via e-mail for review.

**Procedure: Saving Parameter Files**

**Step 1 Save Parameter File**

- Select 'Save Par File' and save 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.

