USER GUIDE

MAN0154 rev 5

Aero^{CT}

Style conventions used in this document:

UI Text: Text that represents elements of the UI such as button names, menu options etc. is presented with a grey background and border, in Tahoma font which is traditionally used in Windows UIs. For example:

`Ok`

Standard Terms (Jargon): Text that is not English Language but instead refers to industry standard concepts such as Strategy, BACnet, or Analog Input is represents in slightly condensed font. For example:

BACnet

Code: Text that represents File paths, Code snippets or text file configuration settings is presented in fixed-width font, with a grey background and border. For example:

```
$config_file = c:\CYLON\settings\config.txt
```

Parameter values: Text that represents values to be entered into UI fields or displayed in dialogs is represented in fixed-width font with a shaded background. For example

`10°C`

Product Names: Text that represents a product name is represented in bold colored text. For example

INTEGRA™

Company Brand names: Brands that are not product names are represented by bold slightly compressed text:

ABB Building Analyzer

PC Keyboard keys: Text representing an instruction to press a particular key on the keyboard is enclosed in square brackets and in bold font. For example:

[Ctrl]+[1]

1 INTRODUCTION

2 APPLICATION SETUP

1 Introduction

WHAT IS THE Aero^{CT} APP?

Aero^{CT} is a mobile app to configure, commission, or set up **ABB Cylon CBV** and **FLXeon** controllers.

Note: **Aero^{CT}** can discover any **ABB Cylon** devices on the network, but devices running firmware v`9.1.0` or later, can download a config file from **CXpro^{HD}** that enables additional commissioning tools.

Note: For BLE, Aero^{CT} requires firmware version `9.2.2` or higher.

Aero^{CT} App (version `2`) is available for both **iOS®** and **Android™** and can be downloaded to your device for free from **Google Play™** or the **Apple® Store**. You can find this App by searching for `AeroCT`

REQUIREMENTS

Android™ : device able to access the **Google Play™** store and running version `5.0` (API Level 21 - Lollipop) or later.

iOS® : device must be able to access the **Apple® Store** and must be running **iOS** `10.0` or newer.

Network : a wireless IP connection to a router on the BACnet® building system must be available.

DOWNLOADING AND INSTALLATION

ANDROID™

If you are on a website that offers the App, click on the 

Icon.

Search for `AeroCT`,

then follow the directions for your device.

If you are on an Android™ device, navigate to the **Play Store™** App icon 

and click.

Search for `AeroCT`.

Click on the `Get` button and it will install on your device.

iOS®

On your **iOS®** device, navigate to the App Store® icon  and click.

Search for `AeroCT`.

Click on the `Get` button and it will install on your device.

After installation, the **AeroCT** icon  should be visible on your device.

Click this icon to start **AeroCT**.

Note: If you don't have wireless network access when you start the **AeroCT** app, any network packets continue to go out of the cellular service until you "cold start" the app – i.e. close the **AeroCT** app and then restart it.

- To close an app in Android™ OS, open `Settings` > `Apps` and click on the **AeroCT** entry in the apps list. On the App info screen for **AeroCT**, click the `Force Stop` button
- To close an app in iOS®, double-tp the home button to see recently used apps, scroll until the **AeroCT** app is in the center of the screen, then drag the **AeroCT** app up so that it disappears from the screen.

Note: On iOS® devices, the Wi-Fi Assist should be disabled, because it can cause the device to use cellular data, which will prevent connection to the BMS Wi-Fi access point.

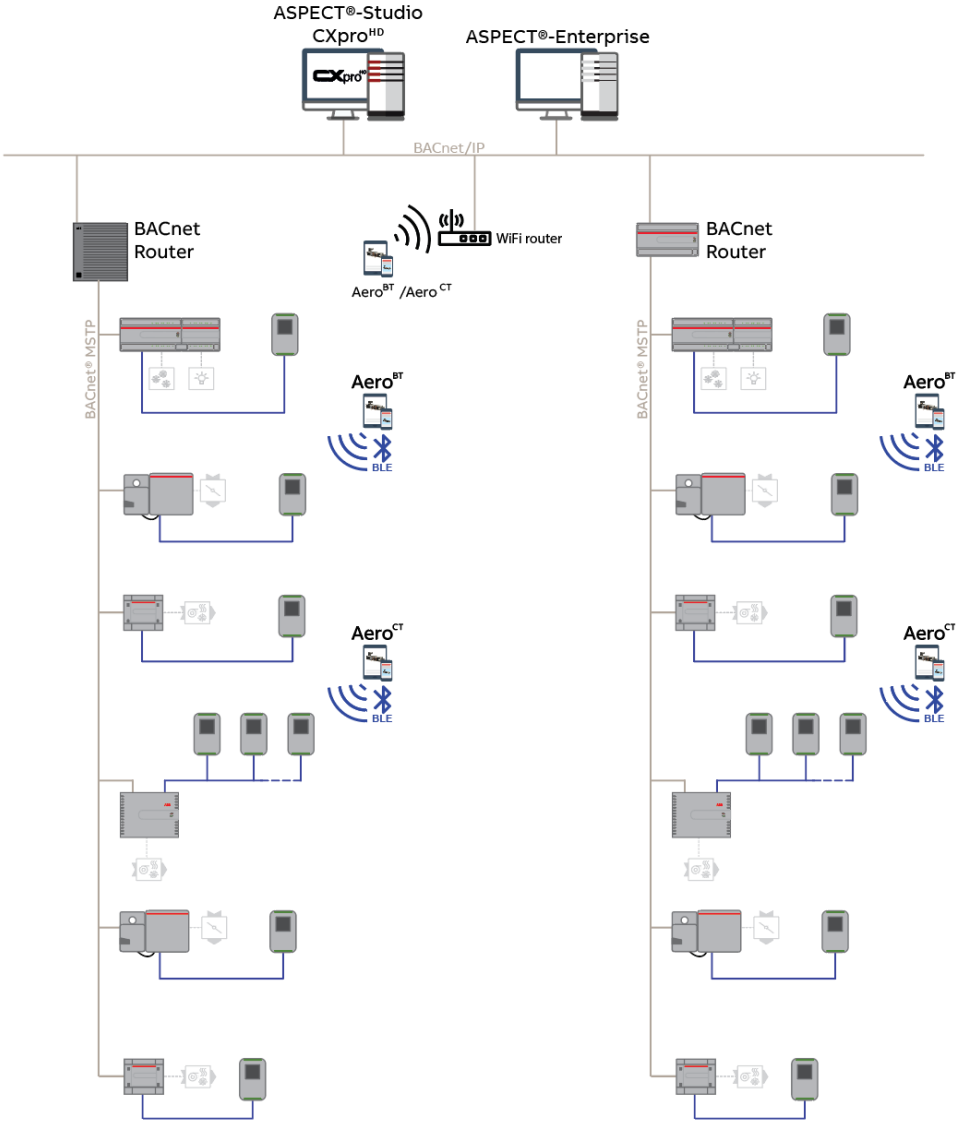
2 Application Setup

METHODS OF COMMUNICATION

BACNET® NETWORK TOPOLOGY

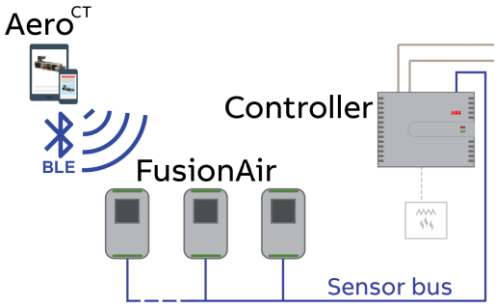
Aero^{CT} requires a wireless connection to the BMS so that the Android™ or iOS® system can connect to the **ABB Cylon** devices. If no wireless connection is available, a Wi-Fi Router must be added temporarily to allow **Aero^{CT}** to access the network.

- If the building automation system is located on the building IT system, consult with the system IT coordinator before adding additional wireless hardware.
- If the system is on its own separate network, consult with the system integrator for IP addressing.



USING BLUETOOTH LOW ENERGY WITH FusionAir SMART SENSORS

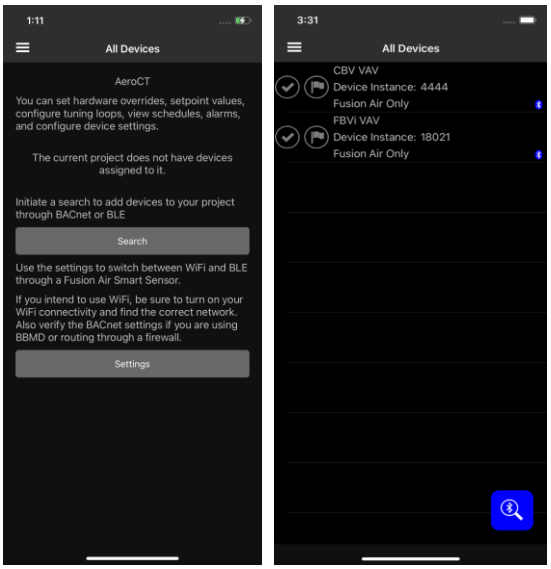
Starting with version `9.2.2` firmware of the **FLXeon** and **CB Series** and version `2.0` of **Aero^{CT}**, you may use Bluetooth Low Energy (BLE) through the **FusionAir** Smart Sensor.



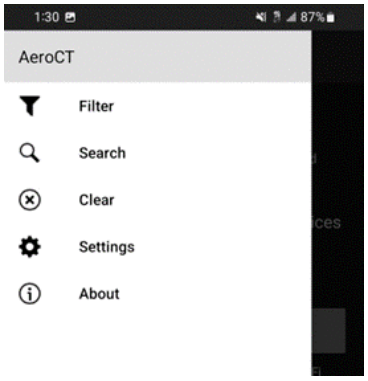
Regardless of the method of finding controllers (Wi-Fi or BLE), the same controller will be found. You may start with BLE to work with a controller. Later as Wi-Fi becomes available, you may search and find the same controller. Later still, if you need to access the controller again and would like to use BLE, you may switch to BLE and find the same controller. (The serial number of the controller is used as the key).

STARTUP – THE AeroCT DEVICES PAGE AND MENU

When the **AeroCT** app first starts, it displays the All Devices page. However, until a Search is run, the page will be empty as shown on the left. The page will show the devices discovered to this point in time as shown on the right.



All project functions are accessed from the **AeroCT** Menu (or from an empty home page as shown above), which is opened by clicking the ☰ icon at the top left of the All Devices page



There are two ways to start to populate the list of controllers, Wi-Fi and Bluetooth Low Energy through a **FusionAir** Smart Sensor attached to your controller.

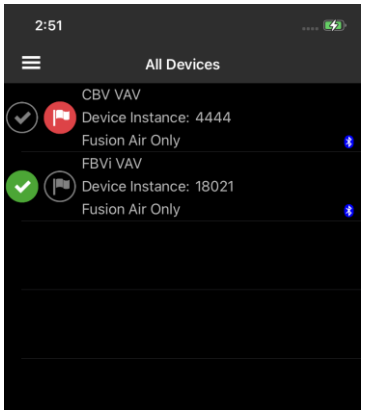
For Wi-Fi, there are two steps to get your devices listed:

1. Configure the **BACnet®** settings
2. Search the network

For BLE, each controller accessed through a **FusionAir** Sensor is added to the list if that controller has not been accessed through Wi-Fi. There are several steps to find the next device to work with.

1. Search for FusionAir Smart Sensors
2. Select the sensor you want to connect to
3. Enter the correct commissioning pin
4. Work with the controller. When complete, you will see the device added to the All Devices page.

When controllers are found, they are displayed on the All Devices page:



For each Device found the following will be listed here:

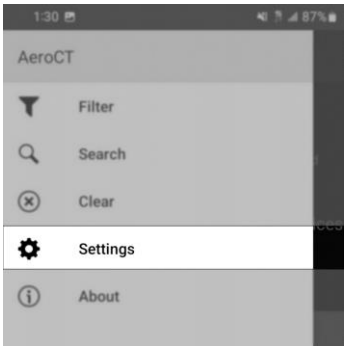
- Device Name
- Network Number
- Mac Address
- Device Instance

To access a Device, tap the Device name in the list.
To mark a Device for review at a later stage, you can toggle the Flag icon  . Use the Filter option Filter on the main menu to sort by flag.

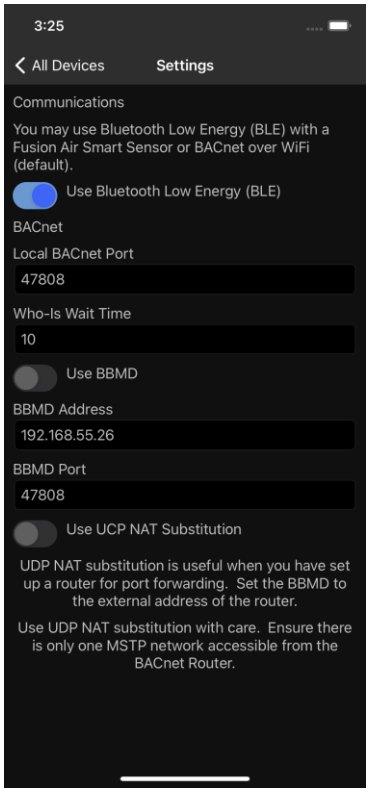
To mark a Device as 'Finished', click the Check icon  Use the Filter option Filter on the Main Menu to sort by check.

The small Bluetooth icon indicates devices that have been found through Bluetooth but not yet through Wi-Fi. When switching to Wi-Fi, search again and if the controller is found with the same serial number, the Bluetooth icon will be removed indicating it can be edited though Wi-Fi. At this point, you may use either Wi-Fi or BLE for accessing the controller. You may sort by controllers only found through BLE.

SETTINGS



The Settings option allows **Aero^{CT}** to be configured to access a specific BACnet network.



Use Bluetooth Low Energy (BLE) – To use BLE, toggle this option on. Wi-Fi will not be used to search for and communicate with controllers. Instead, **FusionAir** Smart Sensors will be used to communication with the controller the sensor is connected to.

Local BACnet Port – For Wi-Fi, this must match the local BACnet Port on the BACnet router. This should be the standard BACnet Port number by default.

Note: if you change the Local BACnet Port, the **Aero^{CT}** app must be shut down (see *Downloading and Installation on page* 5) and restarted in order for the port to engage.

Who-Is Wait Time. This is the time the system waits for a device to respond with an I-am message.

Use BBMD - Toggle to use BBMD if needed.

BBMD Address – this should be the IP address of the controller used as a gateway. This could be for example a BACnet® router, a **FBXi**, **CBXi**, a **MATRIX Series** device, or a **NEXUS Series** device.

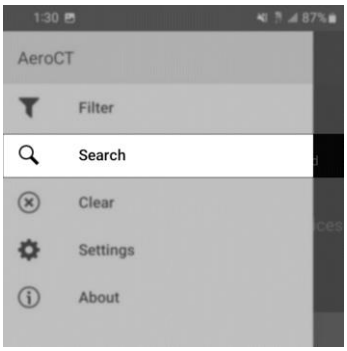
BBMD Port – the BACnet Port on the BACnet Router to be used for who-is messages using BBMD.

Use UDP NAT Substitution – used when the router is using port forwarding.

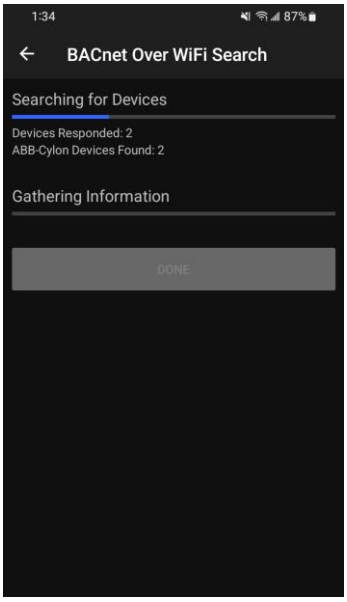
Note: BBMD is needed if Who-Is messages are transferring between two network segments. Only one BBMD per subnet is allowed. If more than one BBMD is setup for a subnet, network issues will result.

SEARCH

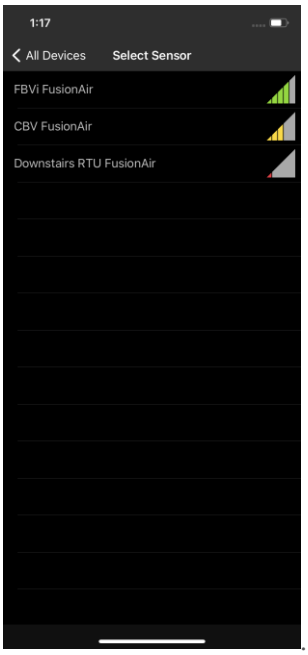
The Search option will search for controllers through Wi-Fi or **FusionAir** Smart Sensors through BLE.



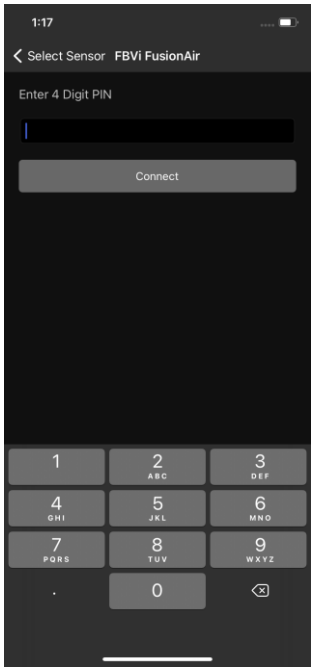
When configured for Wi-Fi, the Search option allows you to search the network for Controllers. When controllers are found, they will be added to the All Devices page.



When configured for BLE, the Search option shows a list of **FusionAir** Smart Sensors in the area. You may search for new **FusionAir** sensors using the search button on the All Devices page. 

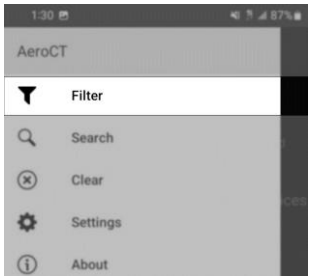


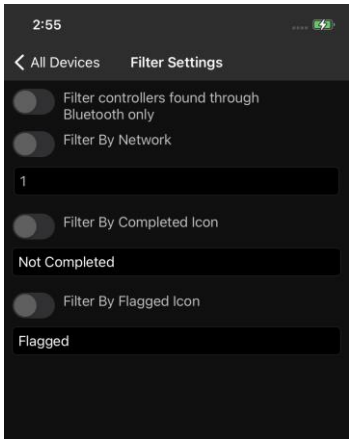
After selecting a sensor, enter the correct commissioning pin.



You will be able to work with the controller and after completion, the controller will be added to the All Devices page.

FILTER



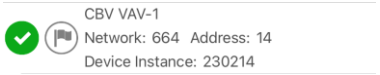


The All Devices list returned by a search can be filtered by the following:

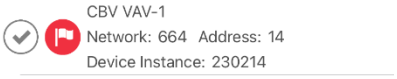
Controllers only found through Bluetooth Only

Network Number

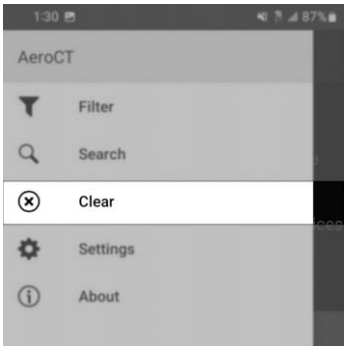
Checkmark (Completed) Icon toggled `ON` or `OFF`



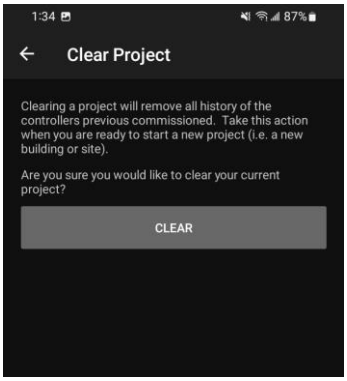
Flag Icon toggled `ON` or `OFF`



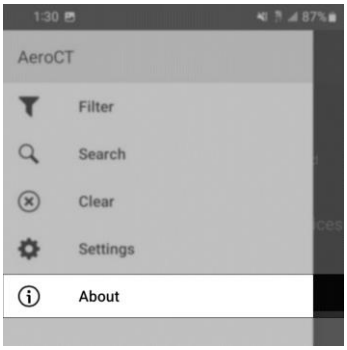
CLEAR



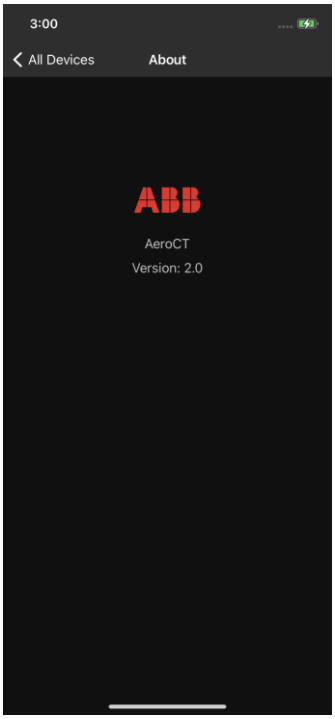
The Clear option removes all history of the controllers that were commissioned previously on this **Aero^{CT}** instance. This might be used for example to clear a finished floor.



ABOUT

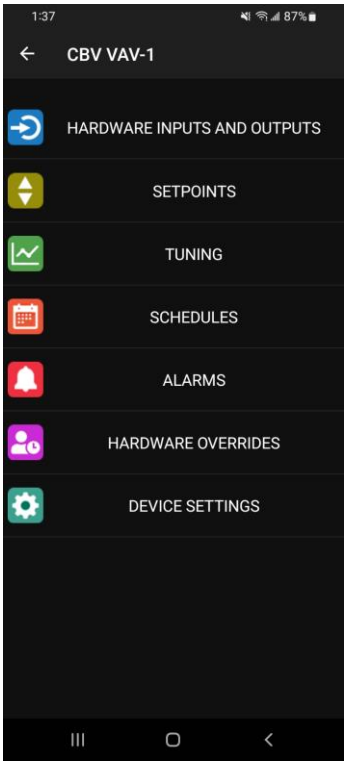


The About option displays the **Aero^{CT}** version number.



OPTIONS MENU

Tap on a device in the All Device Page to open the Option Menu for that device:



This menu allows you to access data within the selected controller.

If the **Aero^{CT}** settings for the selected controller have been configured in **CXpro^{HD}** then the SETPOINTS and TUNING options will be visible. Otherwise, they will be hidden from this menu and Setpoints cannot be adjusted.

Note: **Aero^{CT}** settings can be configured in **CXpro^{HD}** for controllers with firmware v `9.1.0` or later only.

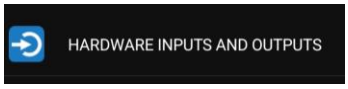
MANAGING HARDWARE OVERRIDES

AeroCT allows Controller inputs and outputs to be set manually to a fixed value.

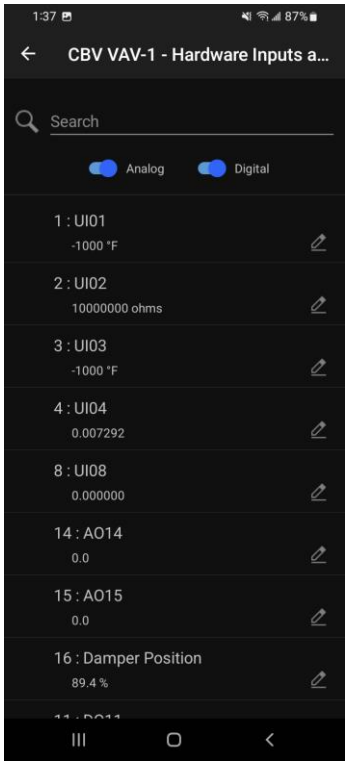
The overrides can be accessed from either the Hardware Inputs and Outputs list, or from the Hardware Overrides list

HARDWARE INPUTS AND OUTPUTS

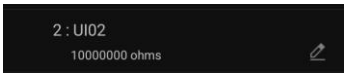
Tap the HARDWARE INPUT AND OUTPUTS option



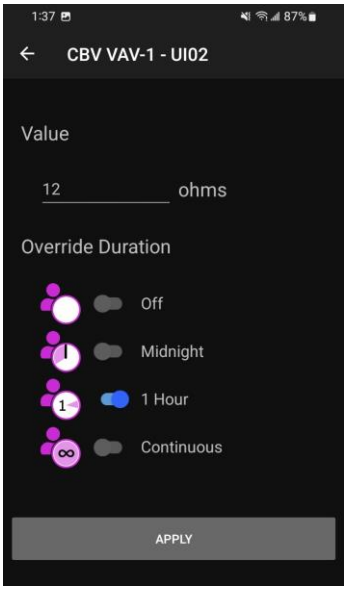
to open the Hardware Overrides list:



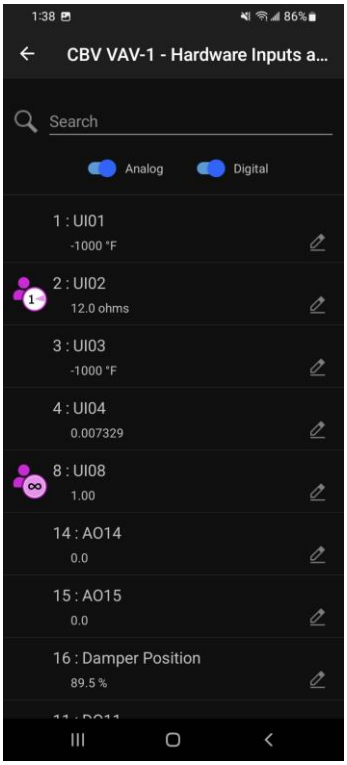
Tap one of the listed Hardware points



This opens the Override Status page for that point:

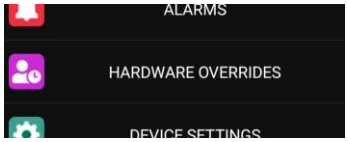


Set the override Value and Duration, then tap the APPLY button. **Aero^{CT}** returns to the Hardware Overrides list: but the points that have been overridden are indicated by an icon on the left:

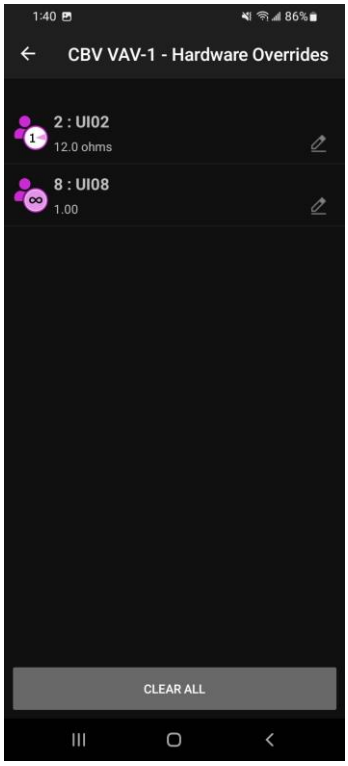


HARDWARE OVERRIDES LIST

Aero^{CT} provides a concise list of existing Overrides, allowing them to be cleared or edited, from the HARDWARE OVERRIDES option on the Option Menu:



This opens the Hardware Overrides page, listing all currently active Overrides on the connected controller:



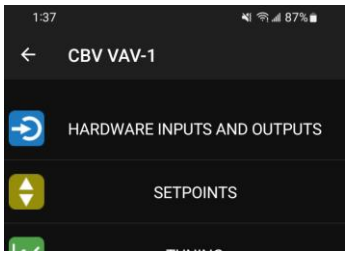
- To clear or adjust an existing override, click on the icon to the right of the specific override.
- To clear all overrides, and return the controller to strategy control, click the CLEAR ALL button at the bottom of the page.

ADJUSTING SETPOINTS

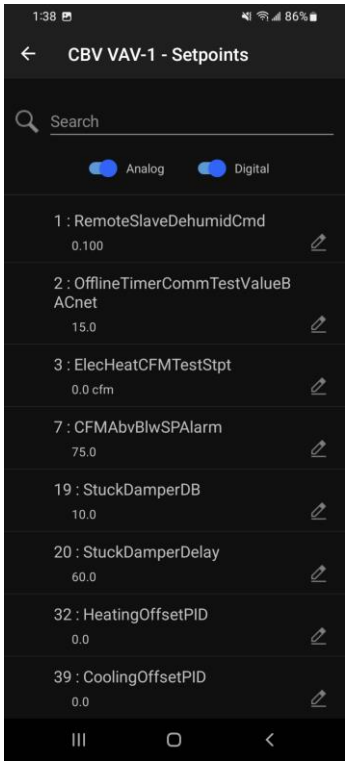
Aero^{CT} allows setpoints to be adjusted if they have been configured for this in **CXpro^{HD}**

Note: Setpoints must first be configured in **CXpro^{HD}** so that they be available for adjustment

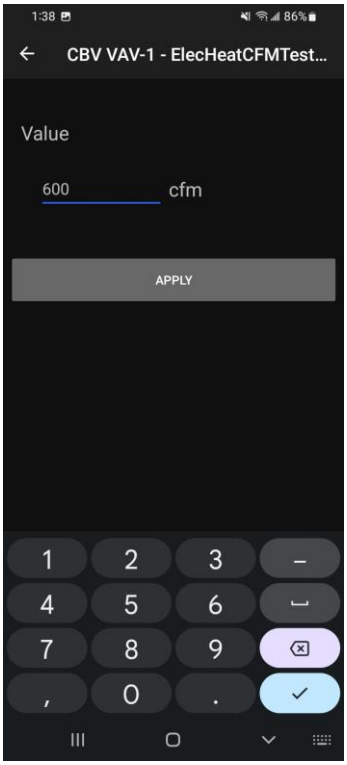
To adjust a setpoint, select SETPOINTS in the Option Menu:



This opens the Setpoints page for the connected device:



Tap a setpoint to open its Edit page:



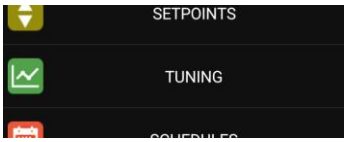
Enter a value and tap the APPLY button to send the new value to the controller and return to the Setpoints page.

APPLYING A TUNING ALGORITHM

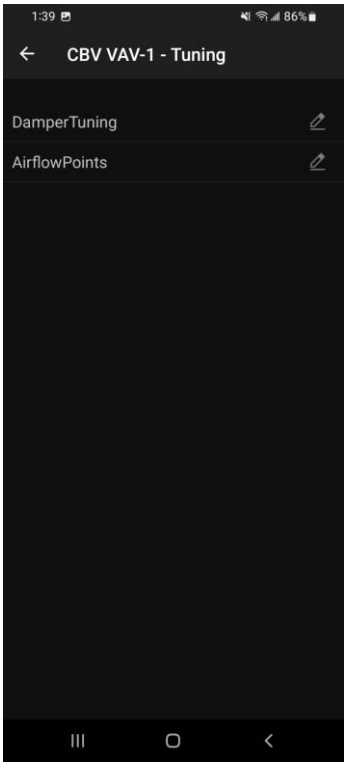
Within a controller strategy, behavior such as PID loops can be set up that are affected by setpoint values, which can later be adjusted to optimize performance. This behavior is referred to as a "Tuning Loop". In **CXpro**^{HD} Tuning Loops can be configured for use in **Aero**^{CT}, by defining points that should be graphed in **Aero**^{CT} to illustrate the loop performance, and setpoints that can be edited in **Aero**^{CT} to affect loop performance.

Note: **Aero**^{CT} settings can be configured in **CXpro**^{HD} for controllers with firmware v `9.1.0` or later only.

If Tuning Loops have been set up in **CXpro**^{HD} for the connected device, then **Aero**^{CT} allows them to be monitored and adjusted. To do this, select `TUNING` in the `Option Menu`:

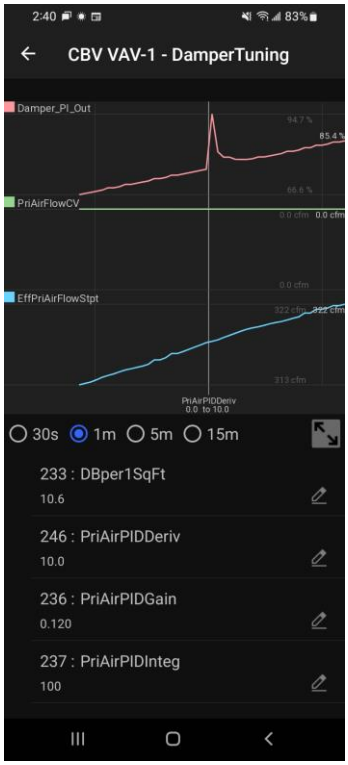


This opens the `Tuning page`, listing all of the Tuning Loops that have been created in **CXpro**^{HD} for the attached controller:

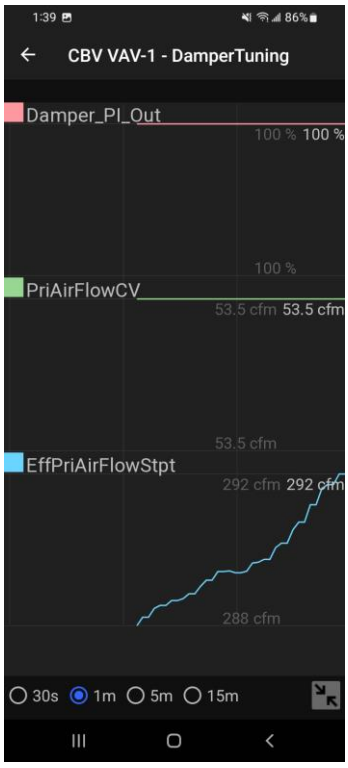


Tap on one of the Tuning Loops to open it in the `Tuning Loop Interface` page.

By default this page lists all of the setpoints involved in the Tuning Loop, with links to the Edit Page for each (by tapping the  icon). The effect of any change you make to the setpoints can be seen in real-time on the displayed graphs:

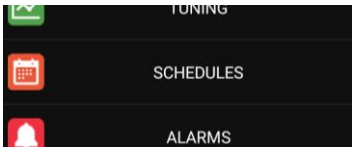


Tap the  icon to display the graphs without the setpoint list.

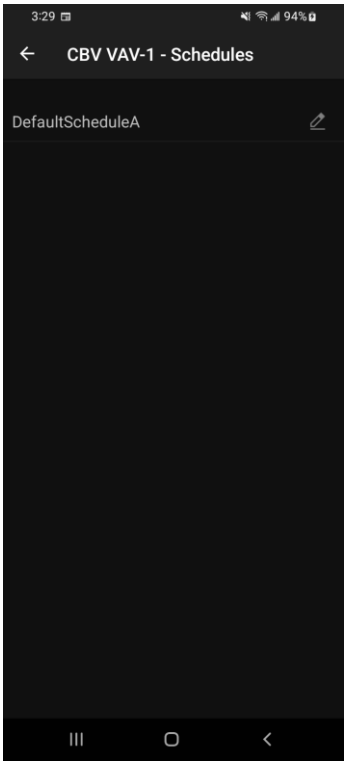


ADJUSTING TIME SCHEDULES

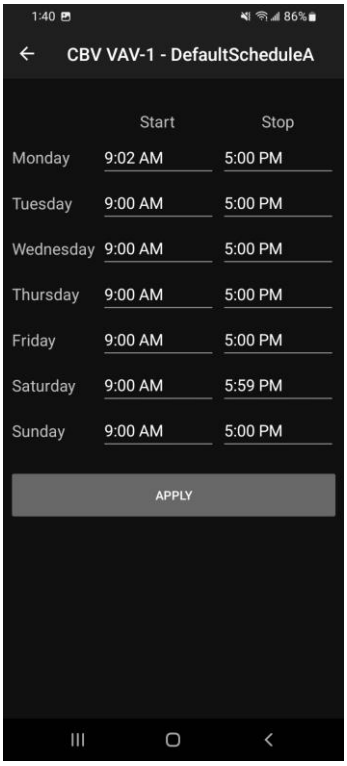
To adjust any of the time schedules in the connected controller, tap on the SCHEDULES option in the Option Menu:



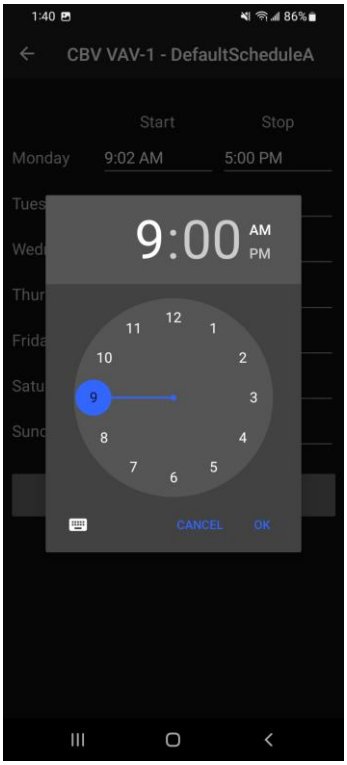
This opens the Schedules page, listing all of the Time Schedules configured on the connected device:



Tap on a Schedule to open the Schedule Details page. This lists the Start and Stop time on each day within the Schedule:



Click on any of the times to open its Time Editing page:

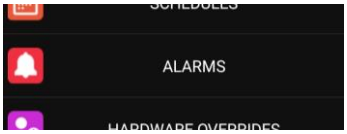


Enter a time and tap the APPLY button to return to the Schedule Details page.

When all of the Start and Stop times have been set for the Schedule, tap the APPLY button to return to the Schecules page.

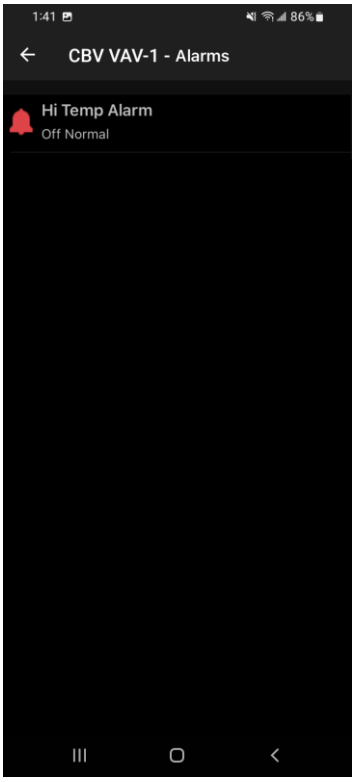
VIEWING ALARMS

Aero^{CT} displays the status of the Alarms configured in the strategy of the connected controller, by tapping on ALARMS in the Option Menu:



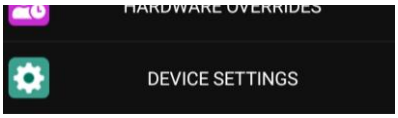
This opens the Alarms List page, showing the status of all configured Alarms.

If the Alarm is currently `Active`, it will be displayed with a icon next to it.



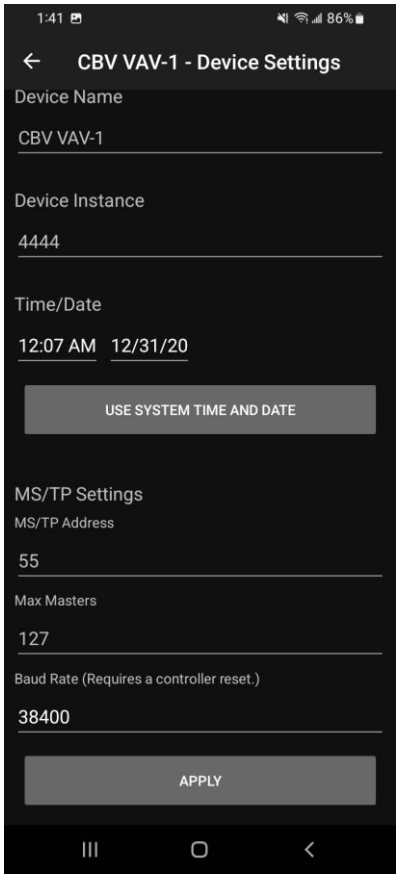
DEVICE SETTINGS

To configure the phone on which **Aero^{CT}** is running, tap the DEVICE SETTINGS option in the Options Menu:

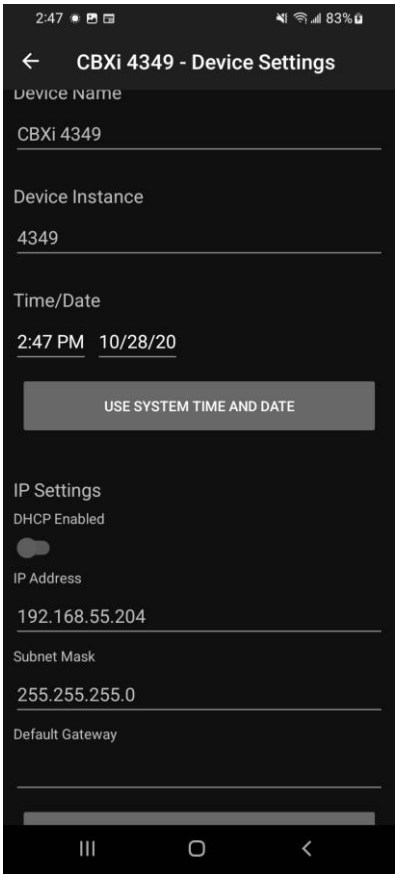


This opens the Device Settings Page, which is slightly different depending on whether the connected controller is an MS/TP device or an IP device:

MS/TP controller (**CBV**, **CBX**)



IP Controller (**CBXi**, **FBXi**, **FBVi**, **FBTi**)



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