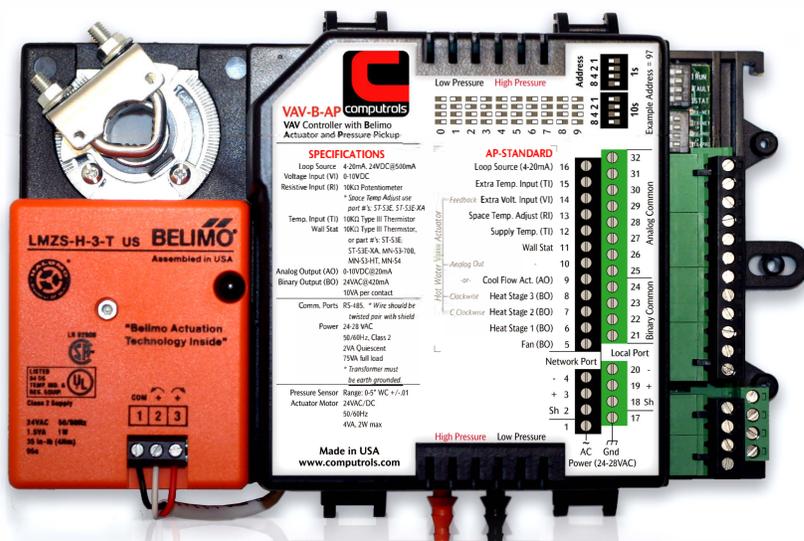


VAV-B

Programming Manual



VAV-B Programming Manual

(Updated 2/28/2011)

Things you will need:

CBAS version 10.2.8 or newer
Firmware version 13.4 or newer on Host controller
USB to 485 commissioning cable (need part number) or
USB Isolator (B&B Electronics model USOPTL4)
Drivers for cable or isolator
VAV_Utility.exe commissioning software
vcredist_x86.exe (in certain cases)

The preferred protocol for the VAV-B is OPTO. It is easier to program the points in CBAS with OPTO. However, BASnet and BACnet (pending) are also available.

Basic Steps

- Wire the VAV-B including power, 485 Comm to Host, and commissioning cable.
- Set Address using dipswitches.
- Place the VAV_Utility.exe commissioning software in the CBAS folder.
- Create shortcut to above software (optional).
- Plug in the cable to a USB slot and complete installation using drivers.
- Start Utility Program.
- Click VAV Connection and set the parameters to connect.
- Choose “Serial Port via 485 converter” and enter address.
- Select USB serial port, then click Connect. Database should download and Status should show Ready.
- You can now Click Pre Box Setup and work your way down the list of parameters. Click OK.
- Do the same with Installer button.
- Click “Save and Export Database”.
- Click Save All Changes to VAV. The controller will reboot and the program will reconnect.
- To zero out the pressure pickup and damper actuator, etc, click Test and Balance.
- Return to Main Screen, then Save/Export Database.
- Save All Changes to the VAV.
- Open CBAS in Editor Mode.
- In Hardware View, add a channel to host the VAV-B controllers (could be OPTO, BASnet, or BACnet (pending)).
- Add a VAV-Belimo to the channel.
- OPTO: Import points from file saved in earlier step during commissioning.
- BASnet: Add a blank controller. DO NOT choose to Add from Template, or Copy from another controller. Click controller, then Add Points to VAV-B.
- BACnet: Pending.

- Go to Real Mode and start monitoring.
- Add a VAV-B Commission point to the Workstation channel. This allows you to commission VAV-Bs through the 485 channel. VAV_UTILITY.exe must be in the C:\CBAS folder.

Hardware

Wiring the VAV-B Controllers

See wiring diagram. The commission cable can be connected through a MN-S3 display stat as shown.

- If you are not using a MN-S3, you will need a cable with bare wires on the end opposite the USB plug.
- The black wire attaches to the Programming Port (-) terminal and the red wire attaches to the (+) terminal.
- The 24VDC common must be connected to earth ground!
- You may daisy chain up to 50 VAV-B controllers on one 485 channel connected to either the Host port or Secondary port on the Host Controller.
- Terminate sensor and output wires to terminals according to the label on the controller.

Set the address

Using the dipswitches, set the address.

- There is one set for the 10s and one set for the 1s, so the address can be from 1 to 99. Zero is an invalid address.
- Dipswitches in the UP position are added up to make the address.
- There are examples shown on the controller's label.

Install Commission Cable

- Plug in the USB to 485 commissioning cable and the Found New Hardware Wizard will appear.
- Browse to the location where you placed the cable drivers.
- Inside the i386 folder, highlight the ftdibus.sys file and click next.
- Complete the installation wizard.

The cable will be listed in Device Manager under Ports, as USB Serial Port COMXX. (XX represents the comm port number)

Software

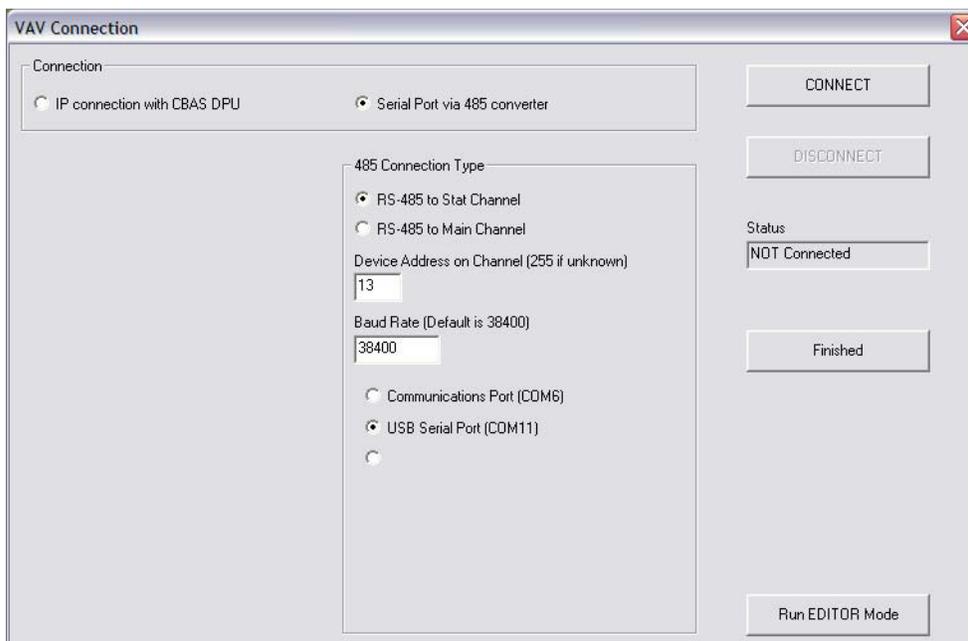
Utility Program

Copy the VAV_Utility.exe commissioning software to C:\CBAS.

Right-click the file and click Send To, then Desktop (Shortcut), if you need a desktop shortcut for commissioning purposes.

Connecting

- Start the VAV_Utility program.
- If you get an error, run the vcredist_x86.exe then start the program again. (Should only be necessary on Windows XP, if CBAS has not been installed on the PC)
- At the top of the window, click VAV Connection. (See Figure below)
- Choose Serial Port Via 485 converter.
- Choose RS-485 to Stat Channel. (Main Channel refers to 485 network to Host controller)
- Enter the address of the VAV-B.
- Leave the Baud rate at default.
- Choose the USB Serial port.
- Click Connect and the database will load with 10 seconds.



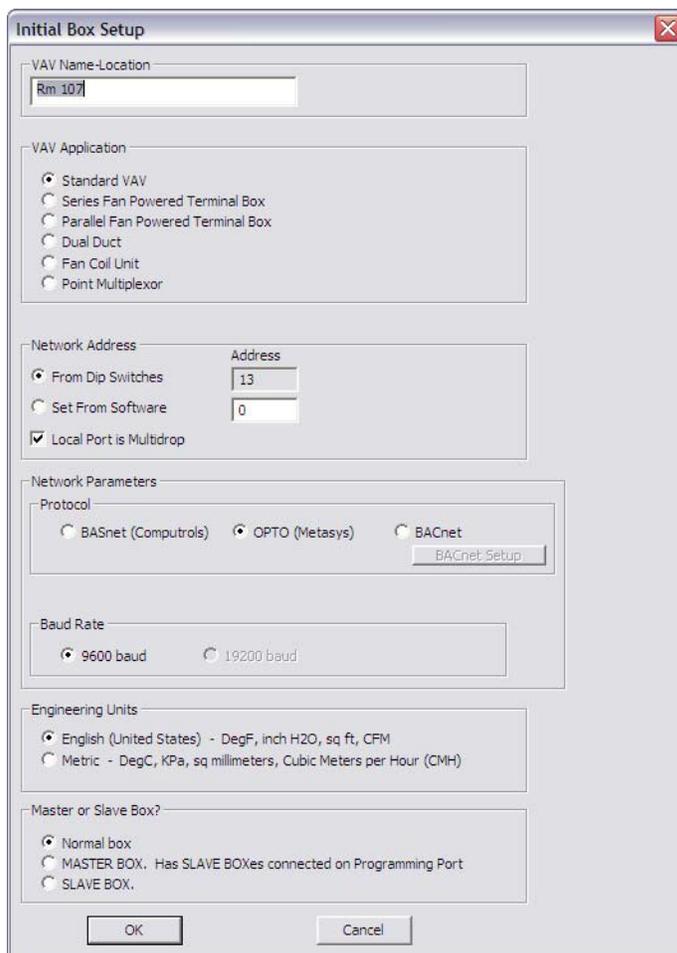
Commissioning the first VAV-B

Once you have connected, all the buttons will be active, except the Save All Changes button. It will be active as soon as changes are made.

The buttons are in order from top to bottom, but you should normally only need the first 3, then the Save and Load buttons will be used.

Prebox Setup

Click the first button, PreBox Setup. (See Figure below)



The image shows a software dialog box titled "Initial Box Setup". It contains several sections for configuring a VAV-B box:

- VAV Name-Location:** A text field containing "Rm 107".
- VAV Application:** A group box with radio buttons for "Standard VAV" (selected), "Series Fan Powered Terminal Box", "Parallel Fan Powered Terminal Box", "Dual Duct", "Fan Coil Unit", and "Point Multiplexor".
- Network Address:** A group box with radio buttons for "From Dip Switches" (selected) and "Set From Software". The "From Dip Switches" option has a text field with "13". The "Set From Software" option has a text field with "0". There is also a checked checkbox for "Local Port is Multidrop".
- Network Parameters:** A group box with radio buttons for "BASnet (Computrols)", "OPTO (Metasys)" (selected), and "BACnet". A "BACnet Setup" button is visible next to the BACnet option.
- Baud Rate:** A group box with radio buttons for "9600 baud" (selected) and "19200 baud".
- Engineering Units:** A group box with radio buttons for "English (United States) - DegF, inch H2O, sq ft, CFM" (selected) and "Metric - DegC, KPa, sq millimeters, Cubic Meters per Hour (CMH)".
- Master or Slave Box?:** A group box with radio buttons for "Normal box" (selected), "MASTER BOX. Has SLAVE BOXes connected on Programming Port", and "SLAVE BOX".

At the bottom of the dialog are "OK" and "Cancel" buttons.

Type in a Name/Location.

Choose the VAV Application type.

Choices should be self-explanatory, except for Point Multiplexor: The Point Multiplexor allows you to use a VAV-B as a generic point board. You can command the Outputs to any value from a logic statement in the DPU or 8X. You can still use the Pressure sensor (internal and 1 external), Dampers (up to 4) and S3 when the VAV-B is programmed as

Multiplexor. There are new screens in VAV Utility that allow you to setup the VAV-B when in Multiplexor mode.

Network Address

You should not have to change anything in the Network Address section. It is possible to change the address by selecting “Set in Software”.

- When you Save to VAV, the address changes.
- You will lose connection and will have to restart the connection using the new address.
- Choose your protocol and baud rate.
- 19200 Baud is only available in Bacnet (pending).

Choose English units or Metric.

Master or Slave Box?

With most VAV-Bs, the box type will be Normal Box. Master and Slave are used when you have 2 or more boxes sharing a single space temp and setpoint.

- Select Master for the Master box and Slave for the Slave Box.
- Then, connect the 485 programming port wires together on the 2 VAV-Bs.
- The Master box will share it's space temp and setpoint with the Slave box. You can have multiple slave boxes per master. So, you could have 1 VAV-B with a S3 then several other VAV-Bs maintaining the space temp using the Master space temp and setpoint.

Saving Changes

Once you have made all of your choices under Pre Box Setup, click OK to save them. However, they will not be saved to the VAV-B until you Save All Changes to the VAV from the main screen. But, you can complete the Installer screen setup prior to saving.

Installer Screen

Now click the Installer button. (See Figure below)

The screen will have different choices depending on the application chosen in the Pre Box Setup screen.

Make your choices for the type of temperature sensor, setpoint, and overtime. The Software Point choices refer to a point on the VAV-B controller where the setpoint can be commanded. This is covered in a later section.

Installer

Hardware Configuration

Space Temp (Wall Sensor)

- 10K Thermistor
- Software Point
- SIEBE S3

Setpoint Setpoint Config

- Software Point
- 10K Potentiometer (Resistive Input 1)
- SIEBE S3

Overtime

- None
- Software Point
- Short 10K Thermistor
- SIEBE S3

Heat

- None
- 1 Stage (BO2)
- 2 Stage (BO3)
- 3 Stage (BO4)
- Prop Hot Water Valve (Analog Output 1)
- Prop Hot Water Valve (Analog Output 2)
- Prop Hot Water Valve (BO 3 and 4)

Cooling CFM Damper Actuator Setup

- None
- Binary No Feedback (Internal Damper Default)
- Binary Resistive Feedback (Int Damper and Int Res)
- Analog (AO1) No Feedback
- Analog (AO1) Voltage Feedback (AI1)

CFM Setup

NO PRESSURE SENSOR. NO CFM Setup Required.

Min Cool Flow CFM Max Cool Flow CFM

Heat Flow CFM

Duct Area Sq Ft Calculate... 10.0" Round Duct

Min Readable Pressure

Point	Configuration
Internal Damper	
Internal Resistive Feedback	
Internal Voltage Feedback	
Internal Pressure Sensor	Pressure
B01 Fan	—
B02 Heat1	HEAT1
B03 Heat2	HEAT2
B04 Heat3	—
Analog Output1	Cool Damper
Analog Output2	—
Wall Sensor	10K Space Temp
Resistive Input 1	Resistive
Resistive Input 2	10K Temp - Manual Config
Volt Input1	—
Volt Input2	—

Double Click to Manually configure points

[Return to Main Screen](#)

Choose your type of Heat, or none.

- The 1 – 3 Stage Heat choices are for electric heat of course, and require a relay. Proportional Hot Water Valves are 0-10VDC and it is possible to change to 2-10VDC by clicking the Actuator Setup button.
- The final choice is for Pulse Valves and that choice takes up the 2 Binary Outputs used for Heat Stage 2 and 3. BO2 pulses the valve in a positive direction and BO3 is the negative or opposite pulse.

Choose your Cooling Damper type, or None.

- Binary No Feedback is the default when you are using the internal damper included with the VAV-B-AP.
- With Resistive Feedback, you would not be using an Internal Damper. On the VAV-B-X, there is a plug on the side where you would plug in that damper with feedback.
- The final 2 choices are for AO1 and are 0-10VDC.

Extra Points

- In the section listing the points in the bottom right, you can click a line that is not being used and manually configure the type of input or output.

Initial CFM Calibration

In the top right section, set your Min, Max, and Heat CFM targets.

- For your CFM calculation to work, you must set the correct duct area.
- Click the Calculate button.
- Enter the size and shape of the duct and click Calculate.
- Then click Save and it will be saved to the Duct Area field.
- Min Readable Pressure is the lowest that your sensor can read in Inches of Water Column (“WC). Anything below this amount will display as 0 CFM.
- If you are not using a pressure sensor, you can check the box at the top of this section.

When the Installer screen is complete, click Return to Main Screen.

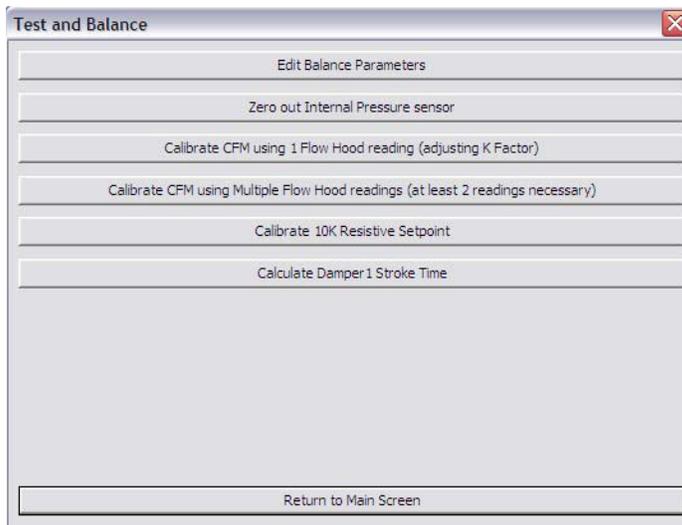
Save Configuration

Now is a good time to click Save/Export Database. This will create a file containing all of the setup choices you have made. The file is saved in the CBAS folder and can be used to add identical VAV-B controllers in the future. This will be covered in a later section.

Now click Save All Changes to VAV. Within a minute, the utility program will reconnect to the VAV-B for further configuration.

Test, Balance and Zero-out Pressure/Damper

From the Main Screen, click the Test and Balance button. (See figure below)



Edit Balance Parameters (See Figure Below)

The screenshot shows the 'Test and Balance' software interface. It is divided into several sections:

- Test Damper Loop:** Force Damper To: 0, Go, Done (Release damper to control loop)
- Test Flow Control Loop:** Desired CFM: 0, Go, Done (Release CFM Setpoint to control loop)
- CFM Control Loop Setup:** A slider from Slowest to Fastest, CFM Deadband: 10 CFM, and a checked box for Use Pressure Sensor Filter.
- Cooling Design CFM:** Min Cool: 595 CFM, Max Cool: 595 CFM
- Heating Design CFM:** 595 CFM
- Unoccupied CFM:** 100 CFM
- Duct Size:** 0.5454 Sq In, Duct Size Calculator
- VAV Readings:** Damper Position: 4.21041, Feedback: 4.21, Overshoot: -5, Pressure: 0, CFM: 0, Disabled: Damper Disabled, Force Value: 0.0
- Return to Main Screen:** Button at the bottom.

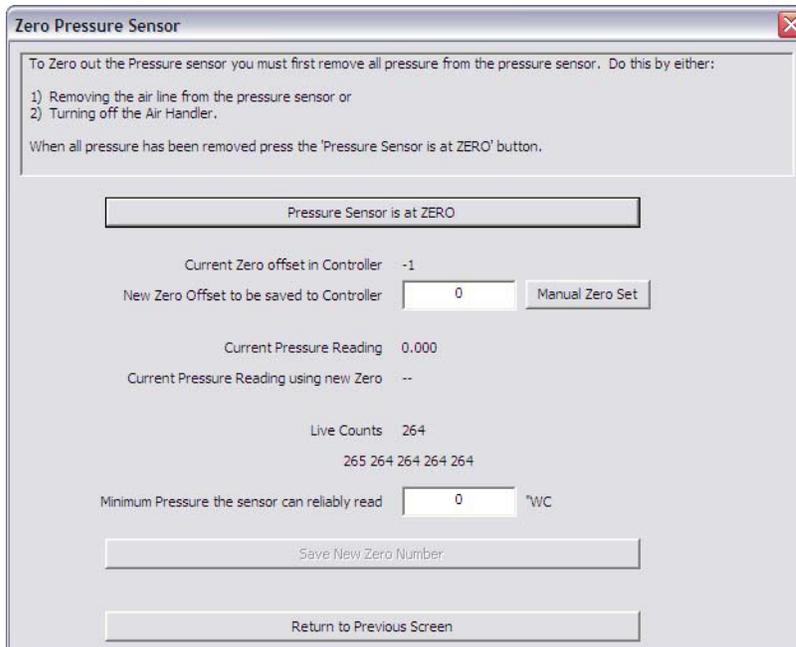
From this screen, you can test the operation of the damper alone and in relation to CFM Targets. Also, targets, duct size and control loop speed can be adjusted.

To test, just type in a damper position or a desired CFM flow then click the GO button. You will see actual readings from the damper on the right as they change. When finished testing, click Done and the control loop will take over.

Click Return to Main Screen when finished testing and making changes. If changes are made to the control loop and CFM Targets, you will need to Save All Changes again.

Zero Out Internal Pressure Sensor

In order to get an accurate zero CFM reading from the internal pressure sensor when there is no airflow, you must zero it out. Click the button and you will see the following screen.



- This is an easy process. Either turn off the AHU or remove the tubes from the pressure sensor on the VAV-B.
- When you know that the flow has stopped, click Pressure Sensor is at ZERO. The process will take about a minute.
- When the process is complete, the Save New Zero Number button will become active. Click that button.
- You will get a warning to Reboot Controller for New Setting to Take Affect.
- Click OK to return to the Test and Balance choices.
- When you save changes again, the new settings will be saved.

Calibrate CFM Using 1 Flow Hood Reading

Click this button and you will see the following screen, which is intended for use in balancing the VAV boxes after installation.

The first step is to override the CFM so that it doesn't move during the calibration process. Wait for the CFM to settle, then click the Load Average.

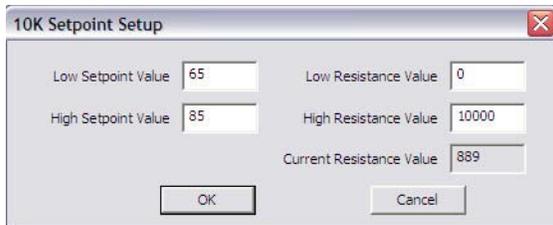
- Click Load Average CFM From Controller.
- Type in the CFM Reading from the Flow Hood and click Calculate New K Factor.
- If you would like to manually set the K factor, type it into the New K Factor field and click the button to the right.
- To test the operation of the damper in relation to the Setpoints, click the buttons in the next section.
- Be sure to click the Release CFM Override button when finished.
- Click Return to Previous Section.

Calibrate CFM using Multiple Flow Hood Readings

Complete the process by following the onscreen instructions for steps 1 and 2. There is also a test section identical to the one in the Edit Balance Parameters screen. When finished, click Return to Main Screen.

Calibrate 10K Resistive Setpoint

If you are using a 10K Potentiometer for the field setpoint, this is where you set the range of possible temperatures for the setpoint. In most cases, you should be able to just type in the low and high setpoint value and click OK.



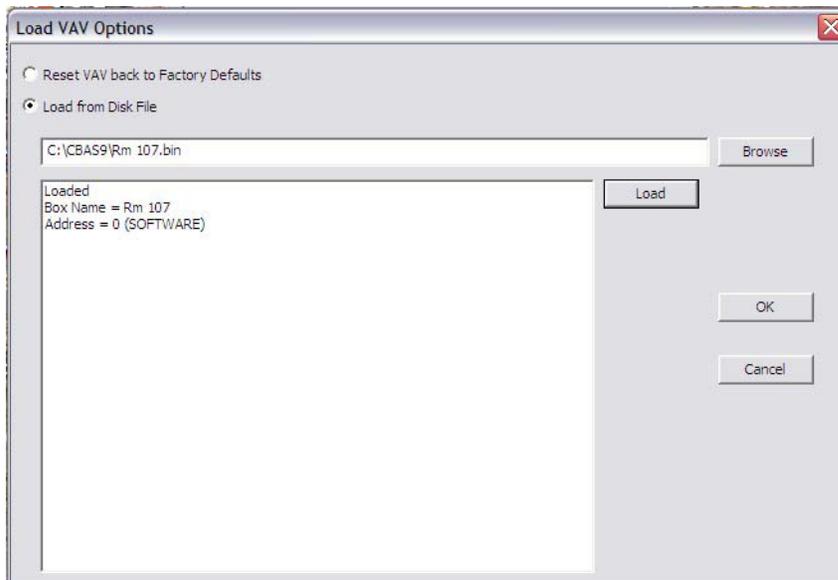
Calibrate Damper 1 Stroke Time

You must calibrate (or at least verify) stroke time even when using the standard damper. Stroke time is the time it takes to go from 0% to 100%. The standard damper has a stroke time of about 95 seconds. Damper 1 is the Internal Damper. If all VAV boxes at a site are the same, then maybe you can calibrate the first few, then use the same setting on the rest.

- This is another easy process. Click the first button.
- When the damper has gotten to zero percent, click the second and it will go to 100 percent.
- You must watch the damper. When it stops moving, click the third button and it will stop counting.
- Click the next button to save the new stroke time.

Adding More VAV-Bs from Saved Configuration File

- First, open the Utility program and connect to the next VAV-B.
- Now click Load/Reset Database.



- Click Browse and find the file you saved earlier.
- Select it and click OPEN. The path will be shown next to the Browse button.

- Click Load, then OK.
- Now go back to Pre Box Setup and change the name/location of the box, then click OK.
- If the duct size is different on this box, go back to the Installer screen and make the change there, then click OK.
- If you would like to save this configuration also, click Save/Export Database.
- Now click Save All Changes to VAV.

CBAS Configuration

Adding VAV-B to the Database

VAV-B controllers can be added to the following channel types at this time: OPTO 485 over TCP/IP (same as N2), OPTO-22 on Controller (also N2), BASnet 485 over TCP/IP, and BACnet 485 over TCP/IP (BACnet MS/TP). Of course, you must match the CBAS Protocol selection to the one that you chose earlier in the VAV-B Utility program and then saved to the controller. BACnet on Controller is a channel choice in CBAS. However, it is not available at this time.

The advantage of an “On Controller Channel” is that the databases of the controllers on the channel are contained in the database of the Host controller as well as the Server PC. So, all software points and the logic, schedules, etc. should be programmed on the Host controller, making the entire channel head-end independent or stand-alone.

Either of the OPTO channels would be preferred and would also work if the site had an existing channel of Johnson Metasys controllers that you would like to add a VAV-B to. BASnet would only be preferred if the site had an existing channel of VAVs and you were replacing one with a VAV-B, or needed to add an additional one to the channel.

Add Channel to the Host controller

These instructions assume that you have already learned how to add a controller to the TCP/IP for Controllers channel.

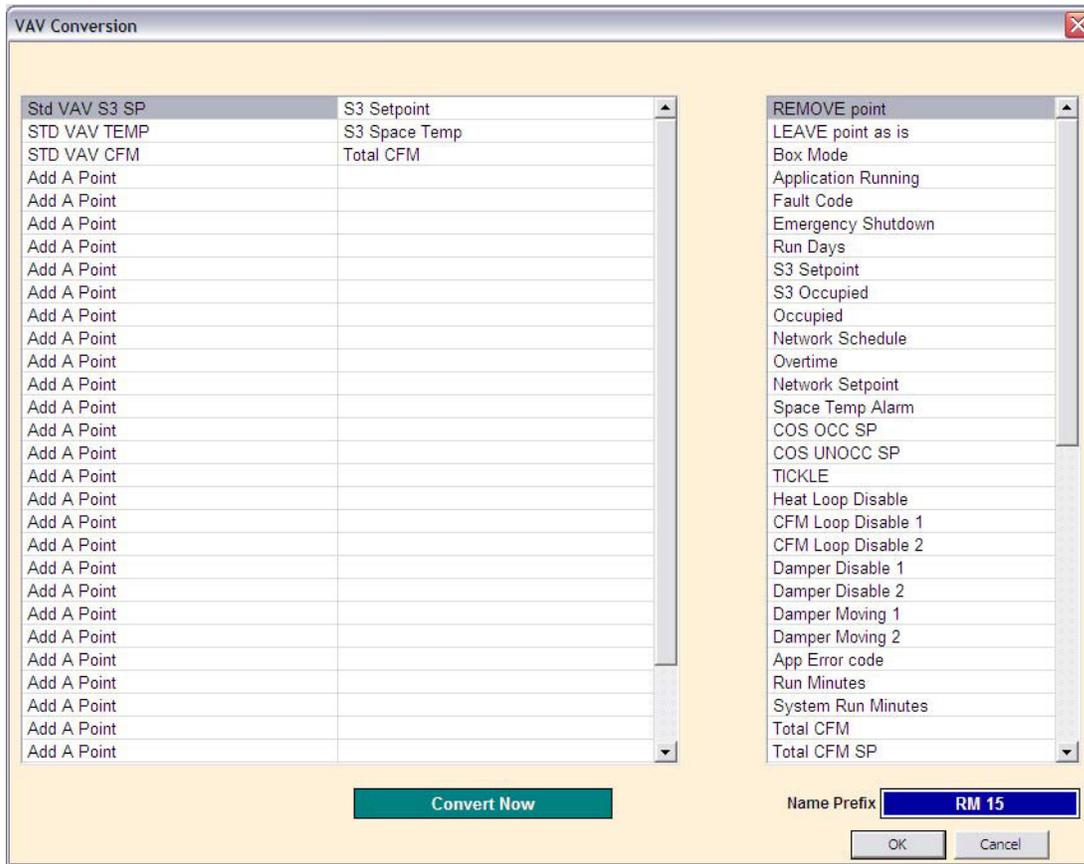
- In Editor Mode, Hardware View, TCP/IP for Controllers channel, locate the controller that will host the VAV-B channel.
- Click the controller, then Channels.
- Click Add A Channel to either the Host or Secondary 485.
- Give the channel a name and choose the protocol configuration.
- Click Add Channel Now.
- If the channel is an “On Controller” channel, click the channel just created to add a controller to it.
- If not, escape to the main Channel screen in Hardware View to find the channel.

Add a VAV-B

- Click the Channel, then Controllers.
- Click Add a Controller on the line that contains the address you want to use. (The address can later be changed on the controller program screen)
- Give the controller a name similar to the one you gave it in the Utility program.
- For configuration, choose VAV-Belimo.
- Click Add Controller Now.
- A popup box will ask if you would like to import the points.
- If the channel is BASnet, answer NO. (For the second VAV-B, you can Copy or Use a Template)
- If the channel is OPTO or BACnet, answer YES.
- The next screen will allow you to browse to the location where you saved the configuration from the VAV Utility program.
- Choose the txt file with either OPTO or BACnet in the name, then click OPEN.
- You will be prompted to enter a prefix for the point names. Click Yes and you can enter the prefix which will differentiate these points from the points of another controller.
- Hit the ENTER key and CBAS will verify how many points were imported.
- Click OK, and you can now click the controller and view the points.
- Subsequent controllers can be added the same way.

Adding Points to a BASnet VAV-B

When adding a VAV-B to a BASnet 485 over TCP/IP channel, you will have a choice of adding a Blank Controller, Using a Template Database, or Copying from Another Controller. **ADDING A BLANK CONTROLLER IS THE ONLY VALID CHOICE.** Once the controller is added, click the controller then click Add Points to Controller. (See figure below)



- Type in a prefix in the Name Prefix field. Each point you add will have that prefix added to it.
- The list of points on the right side contains the points that are available. It is recommended that you only add the ones you will need. Highlight a point on the list.
- Now click Add a Point on the left column. The points will appear on the controller in order from top to bottom, once added.
- Type in a name for the point after the prefix, then press enter.
- Click the field in the middle column on the same line and the point that is highlighted on the right column will be added.
- Continue adding points the same way.
- To remove a point, highlight Remove Point at the top of the right column, then click the point on the left middle column. It will say Remove Point until you click Convert Now.
- You can also go back in at a later time and add or remove points using the same procedure.

Adding Subsequent BASnet VAV-B Controllers

Subsequent VAV-Bs can be added by Copying from the previously added controller. Or, you can create a Template and add from that.

Proceed to Real Mode and begin monitoring the VAV-B

Commanding the Setpoints

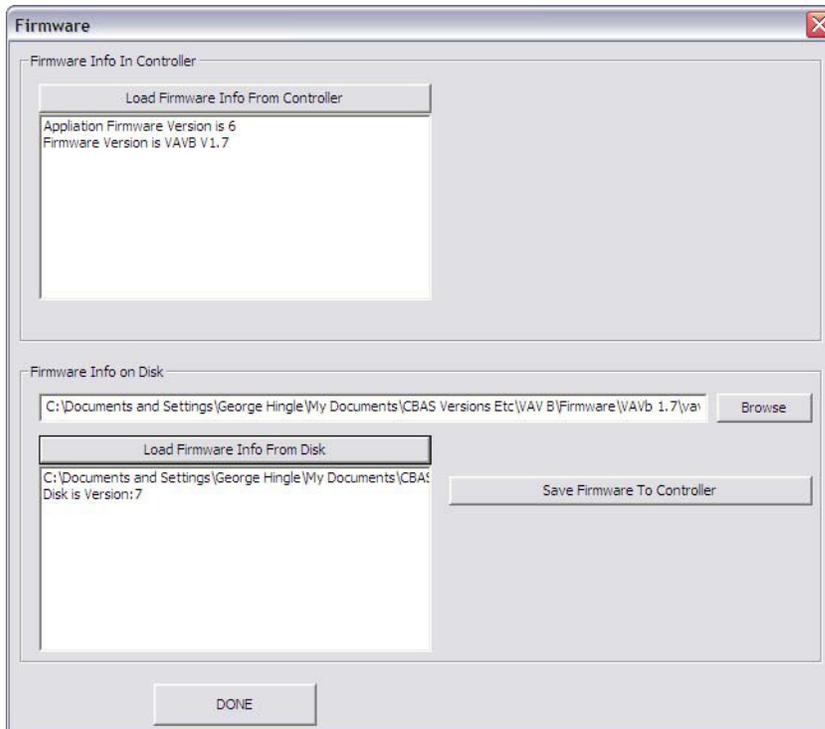
There is a NET SPACE TEMP point that you can command at any time. A command to this point will override the space temp sensor. The space temp will remain at the commanded value until the user commands the point to 0. Zero releases the space temp. This is only used for simulation purposes.

The NETWORK SETPOINT is the point you command to change the Active Setpoint, which can be changed from the S3 or Potentiometer. If you command this point from CBAS it overrides the internal setpoint in the VAV-B. The setpoint point may behave differently if the VAV-B is using an S3 or 10K potentiometer. When using a S3 the NETWORK SETPOINT point will go back to 0 after the command. But when using a 10K potentiometer, it will retain its value. For the 10K potentiometer, you would have to command to 0 to release the setpoint override. That is because when using a S3, the user can override the commanded value. But when using 10K potentiometer, you can slide the potentiometer all you want, but as long as there is a NETWORK SETPOINT command it will keep the network setpoint.

Reburning the Application Firmware

The Application Firmware contains the programming code for each of the VAV Applications that you can choose in the Pre Box Setup screen of the Utility program. If Computrols makes a change to one of the applications, it may be necessary for you to upgrade the firmware. Obtain the firmware file from Computrols Technical Support.

Connect to the controller using the VAV Utility program. The last button is labeled Firmware. Click Firmware and you will see the following screen.



- To check the firmware on the controller, use the first button.
- Click Browse and select the firmware file, which will have a .bin extension.
- To check the version of you firmware file, click Load Firmware Info from Disk.
- Click Save Firmware to Controller.
- When complete, click DONE to exit.

Setup Program

To burn both the Application and non-Application firmware, a program called Setup.exe is required. Firmware file, VAV7 xxxx.bin, contains both firmwares.

- Open the Setup Program by double clicking Setup.exe.
- Click the Alpha Set button then Comm Port Config. and choose your comm port. This is the port number that the USB to 485 Commissioning cable uses.
- Click “Put Controller into Bootload” and you will see 3 lights blinking in succession on the controller.
- Click VAV7 Setup button and point to the bin (firmware) file.
- Click VAV7 Burn then Start.
- Once finished, open Utility program to verify firmware versions.

VAV Utility through CBAS

This allows you to commission VAV-Bs through the 485 channel.

VAV_UTILITY.exe must be in the C:\CBAS folder.

- Add a VAV-B Commission point to the Workstation channel in CBAS.
- In Real Mode, go to the channel containing the VAV-B you want to work with.
- Once the controller has Normal communication, click the VAV-B controller, then click Utility Program.
- The Utility Program will pop up and connect to the VAV-B automatically as long as the controller is online.
- From there, everything is the same as described earlier in this manual.
- Don't forget to Save All Changes and Save/Export the Database.

Appendix A: VAV-B Points in CBAS

CBAS Name (Suggested)	BASnet Name	OPTO Position	Commandable
Essential			
Occupied Command	Occupied	BDM46	YES
Occupied Feedback	Box Occupied	BDM45	
Space Temp	Space	ADF3	
Space Temp Setpoint	Setpoint	ADF23	
Space Temp Setpoint Com	Network Setpoint	BDM49	YES
Space Temp Error	Space Err	ADF19	
Space Temp Alarm	Space Alm	BD50	
CFM	CFM	ADI17	
CFM Setpoint	CFM SP	ADI21	
Box Mode	Box Mode	BDM26	
Damper Feedback	Dampr FB2	ADF6	
Damper Position	Dampercmd	ADF39	
Supply Temp	Extra Temp	ADF5	
Humidity	Humidity	ADF17	
Non-Essential			
Occupied Schedule	Net Sched	BDM46	YES
Overtime Command	Overtime	BD47	YES
Emergency Shutdown	Emer Shut	BD29	YES
Heat Control Loop Disable	Heat LP Dis	BD56	YES
Damper 1 Disable	Damp Dis	BDM64	YES
Damper 2 Disable	Damp Dis	BDM65	YES
Cooling Setpoint	Cool Sp	ADF29	
Heating Setpoint	Heat SP	ADF30	
Pressure	Pressure	ADF27	
External Pressure	Pressure 2	ADF28	
Multiplexor			
Binary Output 1 (Fan)	BO1 FAN	BD20	YES

Binary Output 2 (Heat 1)	BO2 HEAT1	BD21	YES
Binary Output 3 (Heat 2)	BO3 HEAT2	BD22	YES
Binary Output 4 (Heat 3)	BO3HEAT3	BD23	YES
Analog Output 1	VOLT OUT 1	ADF14	YES
Analog Output 2	VOLT OUT 2	ADF15	YES
Internal Pressure Sensor	PRESSURE	ADF2	
Wall Sensor	WALL STAT	ADF3	
External Resistive Input 1	RES INPUT 1	ADF4	
External Resistive Input 2	RES INPUT 2	ADF5	
Internal Resistive Input	INT RES INPUT	ADF6	
External Voltage Input 1	VOLTIN 1	ADF7	
External Voltage Input 2	VOLTIN 2	ADF8	
Internal Voltage Input	INT VOLTIN	ADF9	
Not Needed			
Internal Sched	Int Sched	BDM48	
Application Running	app running	BD27	
Application Error	app error	ADI2	
Fault Code	fault code	BDM28	
Cooling Damper Position	Damper Position 1	ADF39	
Heating Damp/HWV Pos	Damper Position 2	ADF40	
Internal Press Sensor DP	Internal Press Sensor	ADF27	
External Press Sensor DP	Voltage Input 2	ADF28	
Damper 1 Moving	Damp Mov	BDM68	
Damper 2 Moving	Damp Mov	BDM69	
Damper 1 Runtime	Damp Run	ADF55	
Damper 2 Runtime	Damp Run	ADF56	

Notes on Commanding Points

Occupied Command	0=useLocal, 1=OCC, 2=OptStart, 3=UNOCC-OvrdrOFF
Space Temp Setpoint	
Command	Command, then 0=release
Overtime Command	Used for overtime scheduling
Emergency Shutdown	Rarely used/needed
Heat Control Loop Disable	Stops the 4 BOs from doing anything so they can be commanded via network
Damper 1 Disable	1-Stops Damp 4-104 Cmds Damp to 0-100. 2 and 3 are resvd for Box Startup
Damper 2 Disable	1-Stops Damp 4-104 Cmds Damp to 0-100. 2 and 3 are resvd for Box Startup

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