

VERASYS™



VERASYS™

Drawings:

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Disclosure:

The following drawings & parts quote is our best interpretation of the parts needed based on the information given for this specific project. It is your (the contractor's) responsibility to verify that the parts quoted meet the requirements (ex. quantities needed, parts required) and specifications of the project being quoted. If additional or different parts are needed in order to complete the project or meet the specification; please reach out to the distributor listed on your quote to address the issues before using this quote to bid to your customer. **ADDITIONAL OR DIFFERENT PARTS MAY RESULT IN A PRICE DIFFERENCE.**

Support:

Contractor Phone #
 Distributor Phone #
 Verasys Tech Support (866) 663-6105
 be-verasyssupport@jci.com

Warranty: 3 Year Limited Warranty

<https://www.johnsoncontrols.com/-/media/jci/be/united-states/legal/warranty/files/jci-3y-warranty-final-11202018.pdf?la=en&hash=DD21C45A73770C636ED6088662E78EB0ACD02FC9>

Drawing Title											
Cover											
	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY					
	Sales Engineer	Project Manager	Application Engineer	Branch Information	DATE	BY	DATE				
Project Title				Branch Information			DATE	CONTRACT NUMBER			
3rd Party RTU-TEC				VERASYS™			DATE	DRAWING NUMBER			
							DATE	1			

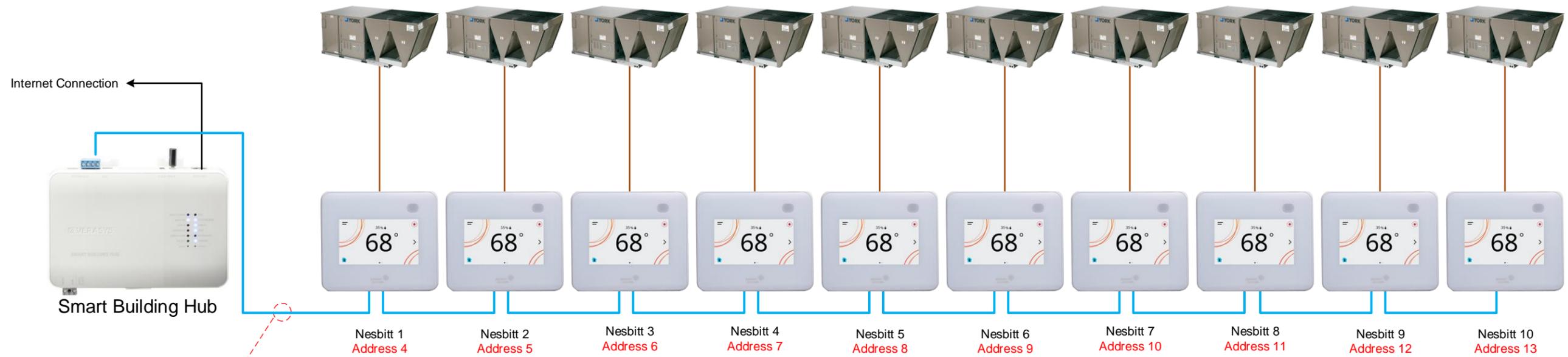
Verasys Bill of Materials

System	Function	JCI Part No	Description	Qty
Network	Smart Building Hub	LC-SBH200-0S	Verasys Smart Building Hub	1
Network	Communication Wire	CBL-22/3-FC-PLN	System/Zone Bus Cable 22-3C Shielded Plenum Wire	1
SZ - Smart Equipment	NS Sensor	NSB8BTN140-0	TEMP, DISPLAY, SETPOINT, WHITE, NO LOGO	10

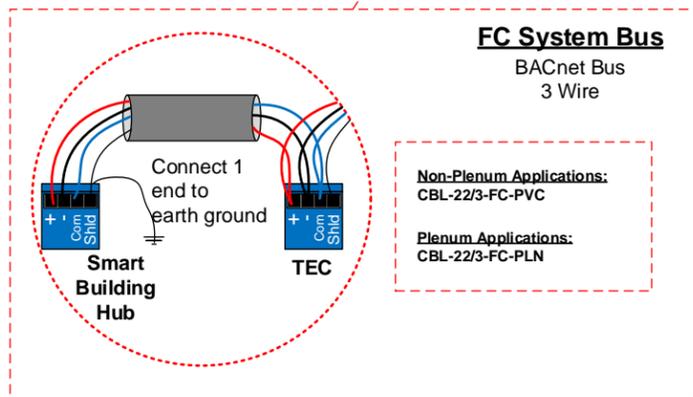
Feature	System features Smart Equipment Single Zone Units can cover
Up to 2 Stage Cooling	Yes
Up to 4 Stage Cooling	Yes
Modulated Cooling	No
Up to 2 Stage Heating	Yes
Up to 3 Stage Heating	Yes
Modulated Heating	Yes
Heat Pump	Yes
Economizer	Yes
Title 24 Economizer	Yes
Demand Ventilation Control	Yes
Dehumidification	Yes
Humidification	No
Fixed Variable Fan	Yes

Drawing Title									
Bill Of Materials									
Project Title									
3rd Party RTU-TEC									
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY				
Sales Engineer	Project Manager	Application Engineer	Branch Information	DATE	BY	DATE	CONTRACT NUMBER		
				12-30-2021	Steve Nichols				
						DRAWING NUMBER			
						2			

System Riser

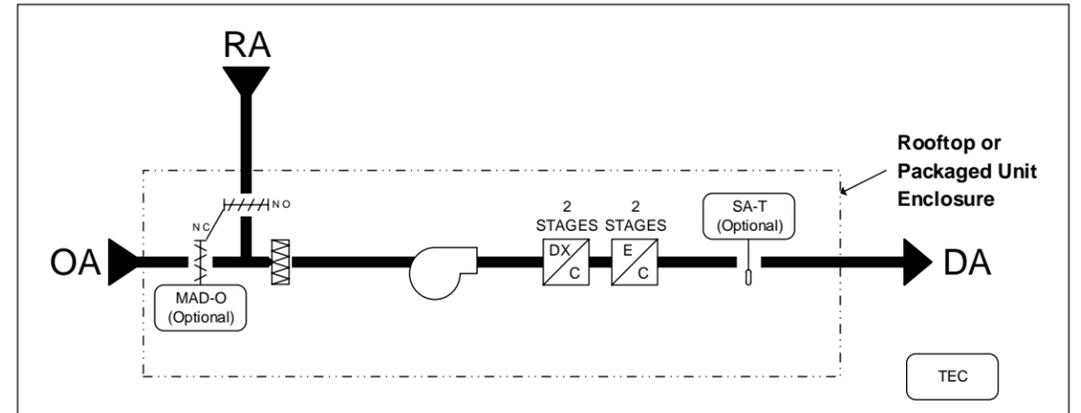


Every device needs to have a unique address. Duplicate addresses on the bus will cause controllers to disappear



Drawing Title									
Riser Diagram									
Project Title		3rd Party RTU-TEC		VERASYS™		CONTRACT NUMBER		DRAWING NUMBER	
								3	
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	DATE	BY	DATE	BY
Sales Engineer	Project Manager	Application Engineer	Steve Nichols	12-30-2021					

TEC Terminations



SUPPLY FAN CONTROL:

THE CONSTANT SPEED SUPPLY FAN WILL RUN ANY TIME THERE IS A CALL FOR HEATING OR COOLING DURING BOTH OCCUPIED AND UNOCCUPIED STATES.

TEMPERATURE CONTROL:

THE UNIT WILL CONTROL TO MAINTAIN THE ZONE TEMPERATURE SETPOINT AS SENSED BY THE ZONE TEMPERATURE SENSOR.

OCCUPIED MODE:

THE OCCUPANCY MODE WILL BE CONTROLLED VIA ON BOARD SCHEDULE.

COOLING COIL:

THE COOLING COIL WILL BE STAGED IN SEQUENCE TO MAINTAIN THE TEMPERATURE SETPOINT.

REHEAT COIL:

THE REHEAT COIL WILL BE STAGED IN SEQUENCE TO MAINTAIN THE TEMPERATURE SETPOINT.

ECONOMIZER CONTROL:

WHEN THE OUTDOOR AIR IS COOLER THAN THE ECONOMIZER SETPOINT, THE ECONOMIZER WILL ACT AS THE INITIAL STAGE OF COOLING, WORKING IN SEQUENCE WITH THE COOLING COIL. OUTSIDE AIR TEMPERATURE (OA-T) MUST BE CONNECTED. SUPPLY AIR TEMPERATURE (SA-T) IS FOR MONITORING ONLY.

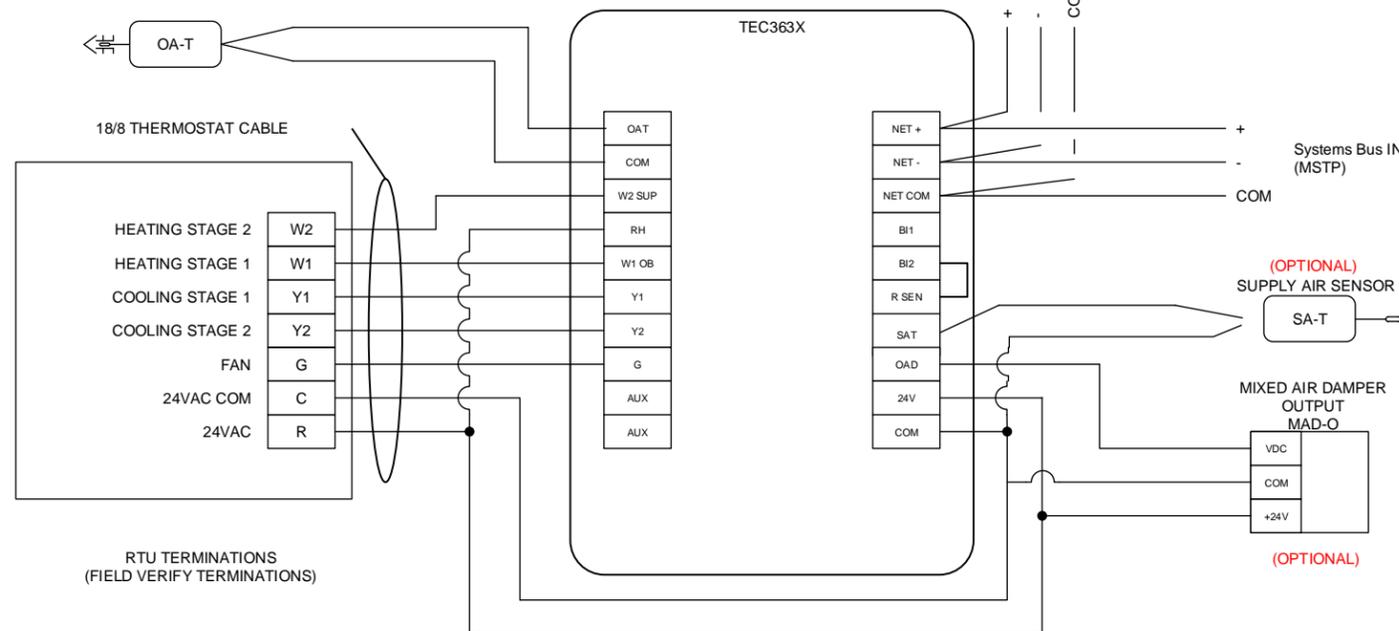
ADDITIONAL POINTS MONITORED BY THE FMS:

- SUPPLY AIR TEMPERATURE (SA-T) – IF THE THERMOSTAT CALLS FOR HEATING OR COOLING AND THE SUPPLY AIR SENSOR DOES NOT CHANGE WITHIN AN ADJUSTABLE PERIOD OF TIME, THEN AN ALARM WILL BE GENERATED BY THERMOSTAT. IF THIS TIME SETTING IS SET TO 0 THE ALARM WILL BE DISABLED.
- THE UNIT WILL TOTALIZE THE RUN HOURS THAT THE FAN IS COMMANDED. WHEN THE UNIT HITS THE TOTALIZED LIMIT AN ALARM WILL BE GENERATED SO MAINTENANCE CAN BE CONDUCTED ON THE UNIT (IE CHANGE THE FILTERS, ROUTINE CHECKS). IF THE LIMIT IS SET TO 0 THE ALARM WILL BE DISABLED.

(OPTIONAL, MUST HAVE IF YOU HAVE ECONOMIZER)
OUTSIDE AIR SENSOR

Systems Bus Out (MSTP)

RISER DETAIL FOR SYSTEM BUS WIRING



Drawing Title									
TEC									
Project Title		3rd Party RTU-TEC		Branch Information		CONTRACT NUMBER		DRAWING NUMBER	
								4	



Damper Wiring Detail

OUTSIDE AIR DAMPER



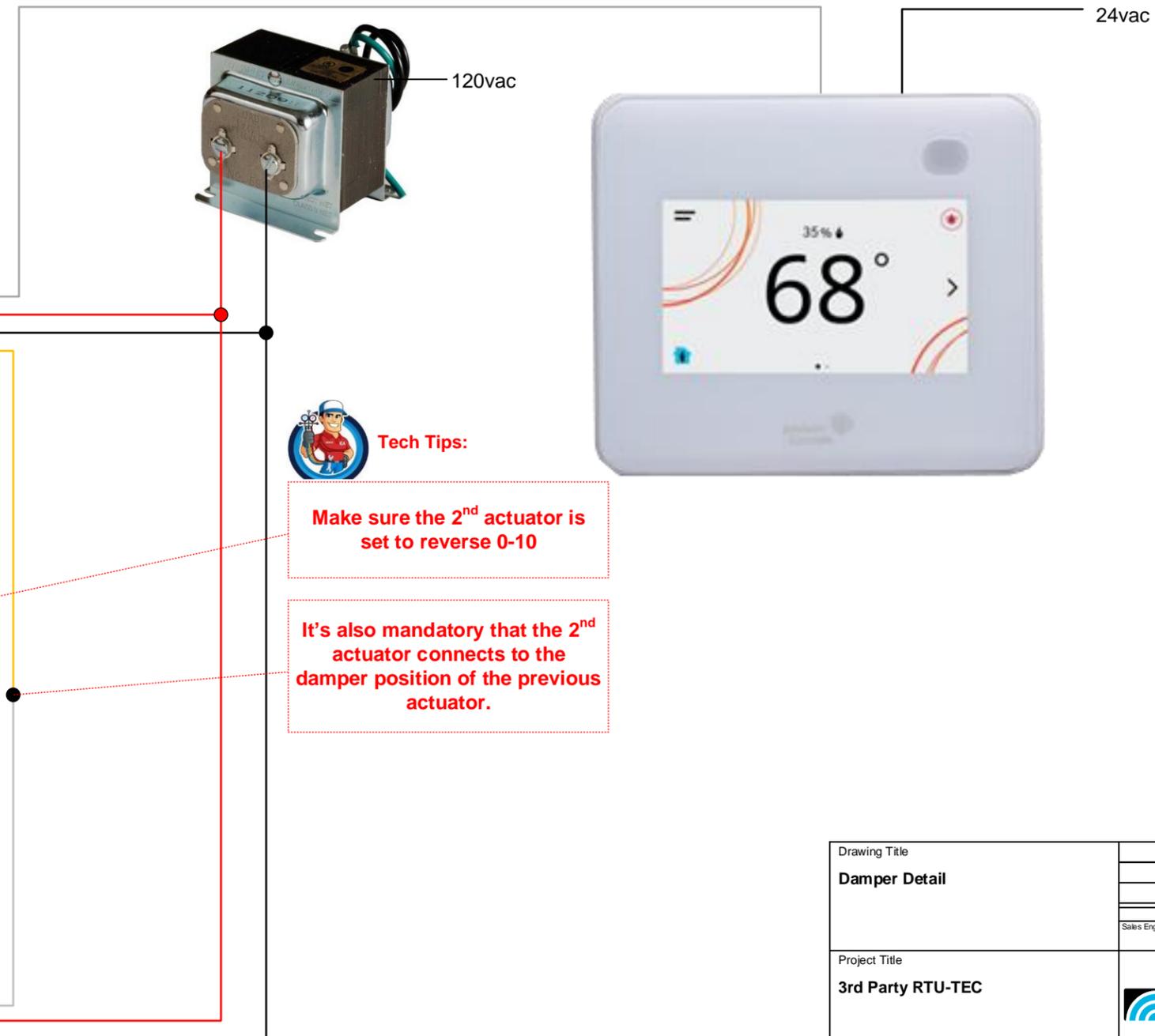
Tech Tip:  An M9208-250 Mounting Bracket Kit may be needed for this application. Verify existing damper needs & order as needed.

MIXED AIR DAMPER



Tech Tips:  Make sure the 2nd actuator is set to reverse 0-10

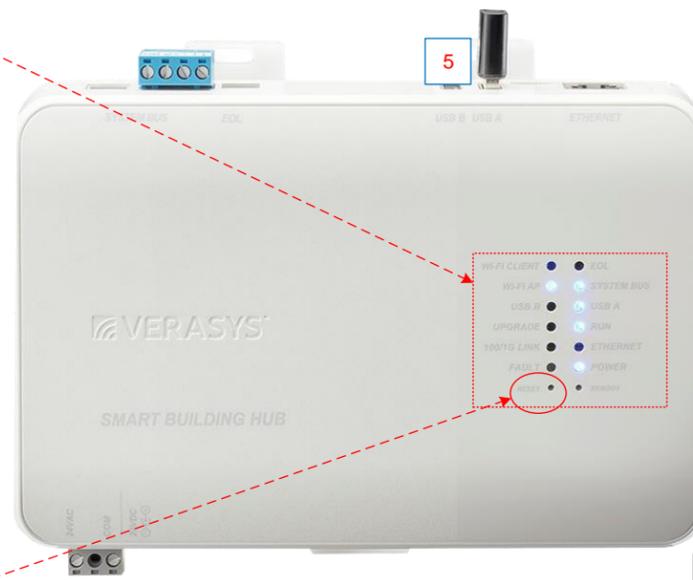
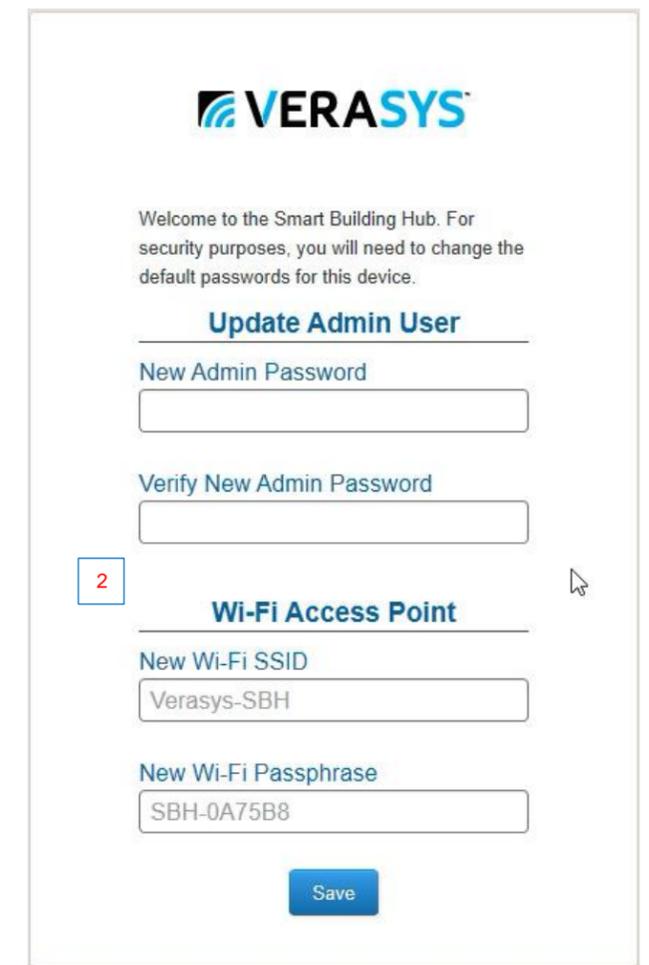
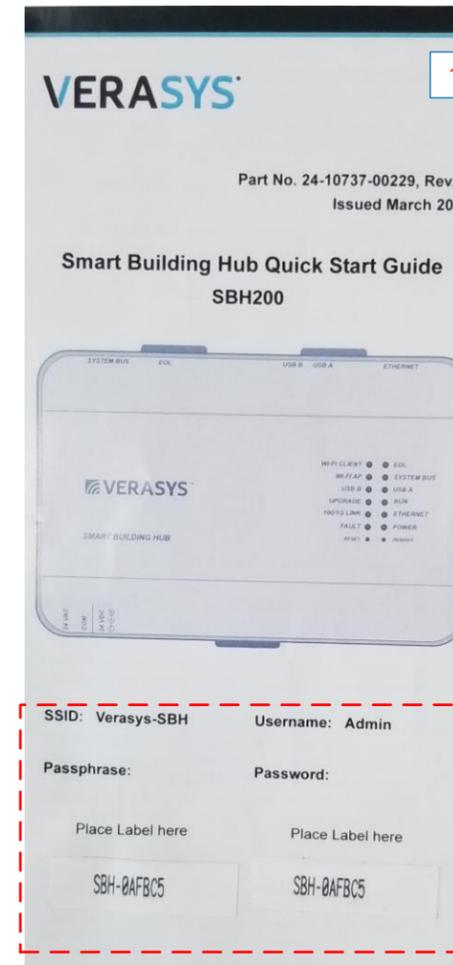
It's also mandatory that the 2nd actuator connects to the damper position of the previous actuator.



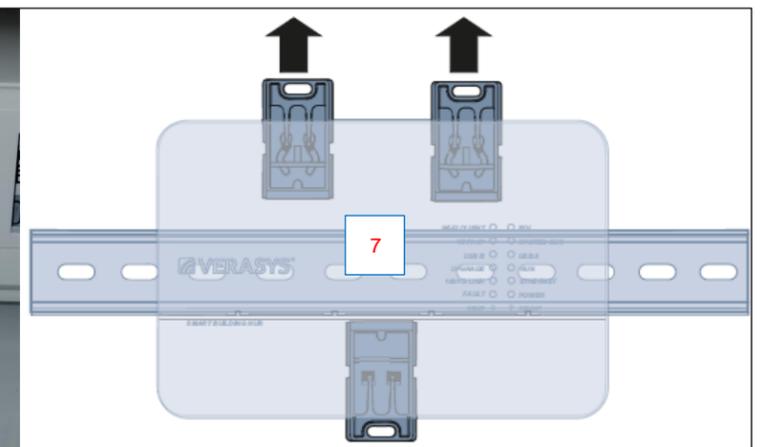
Drawing Title									
Damper Detail									
Project Title		3rd Party RTU-TEC		VERASYS™		DRAWING NUMBER		5	
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	APPROVED		CONTRACT NUMBER	
Sales Engineer	Project Manager	Application Engineer	By Steve Nichols	DATE 7-22-2022	BY	DATE			

Smart Building Hub Information

LED Name	Color	Normal	Descriptions/Other Conditions
Power	Blue or Purple	On steady	Off = No power On Purple = Power is supplied by primary voltage On Blue = OS booted and power is supplied by primary voltage
Fault	Red	Off	Off = No faults/normal operation On steady = Missing hardware, missing software, operating system has not yet been initialized, or reset is in progress Slow flicker then fast flicker = Reset button is being pressed Medium flicker (2 blinks per second) = Startup sequence Fast flicker (5 blinks per second) = Fault
Ethernet	Blue	Flicker with activity	Off = Receiving data On steady = Transmitting data Flicker = Data transmission
100/1G Link	Blue	On steady	Off = no network connection On steady = network is connected
Run	Blue	On steady	Off = No power or waiting for processes to start On steady = OS and all monitored processes have started and the device is ready to use
Upgrade	Blue	On steady	Off = No upgrade in progress On steady = upgrade in progress
USB A	Blue	On when a device is connected	Off = No device is connected On steady = a device is connected
USB B	Blue	On when a device is connected	Off = No device is connected On steady = A device is connected
System Bus	Blue	Flicker with activity	Off = Not receiving data On steady = Transmitting data Flicker = Data transmission
Wi-Fi AP	Yellow	Flicker with activity	Off = No Wi-Fi adapter connected On steady = A device is connected to the Wi-Fi Network of the SBH Flicker = Wifi adapter is connected but no devices are connected
EOL	Yellow	On if the device is the end of the line Off if it is in the middle of the bus	Off = EOL not switched on On steady = EOL is switched on
W-Fi Client	Yellow	Not Used	Not Used - This will be used at a future date



Reset Function	Reset Operation ¹
Reset the Wi-Fi and Ethernet Settings	<ol style="list-style-type: none"> 1. Press and hold the RESET button for two seconds. The FAULT LED displays slow flicker behavior. 2. Release the RESET button within three seconds. The FAULT LED continues slow flicker behavior. 3. Within five seconds, press the RESET button again, and then immediately release it to confirm that you want to reset Wi-Fi and Ethernet settings. If you do not press the reset button to confirm within five seconds, the reset operation is canceled. <p>Result: You have reset the Wi-Fi SSID and passphrase and Ethernet settings to factory defaults. The LEDs stop flickering for two seconds, then the LEDs return to normal operation, based on the current state of the device.</p>
Reset to Factory Defaults²	<ol style="list-style-type: none"> 1. Press and hold the RESET button for six seconds. After two seconds, the FAULT LED displays slow flicker behavior. This changes to fast flicker behavior after an additional four seconds of holding the RESET button. 2. Release the RESET button within three seconds of seeing fast flicker behavior. The FAULT LED continues fast flicker behavior. 3. Within five seconds, press the RESET button again, and then immediately release it to confirm that you want to reset to factory defaults. If you do not press the RESET button to confirm within five seconds, the reset operation is canceled. <p>Result: You have reset all unit settings to factory defaults. The LEDs stop flashing for two seconds, then the LEDs return to normal operation, based on the current state of the device.</p>



- 1 Every SBH comes with a Quick Start Guide that gives you the login information
- 2 The first time you login into the SBH it will prompt you to change the default login (**SAVE THIS NEW LOGIN INFO**)
- 3 If you forget or lose the login information follow the info above
- 4 If you don't have the Quick Start Guide & need the default login use the following:
 Verasys-SBH
 SBH-XXXXXX (last 6 digits of your mac address on the back of the SBH-no dashes)
 Admin
 SBH-XXXXXX (last 6 digits of your mac address on the back of the SBH-no dashes)
- 5 The wi-fi dongle can be used in either USB port
- 6 The SBH can be powered by a 24vdc, 50w, Class II power supply or you can use a 24vac, 75va Class II transformer
- 7 The SBH can be mounted on denrail or screwed down using the standoffs

Drawing Title									
Smart Building Hub Detail									
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY				
Sales Engineer	Project Manager	Application Engineer	By Steve Nichols	DATE 12-30-2021	BY	DATE			
Project Title		Branch Information		CONTRACT NUMBER					
3rd Party RTU-TEC									
						DRAWING NUMBER			
						6			

Smart Building Hub Quick Start

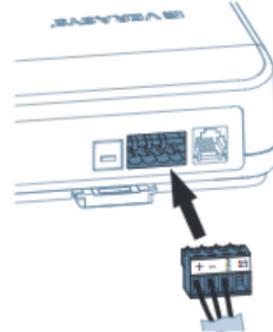
1. Connect the Smart Building Hub to Equipment

The Smart Building Hub (SBH) permanently connects to the Verasys™ system using the 4-terminal System bus port. Wire the system bus communications to the blue, 4-terminal connector and plug it into the port.

Note: If this device is at the end of a line, set the end of the line switch to on.

Note: The RJ-12 jack next to the 4-terminal block can be used as a temporary connection to the System bus using the RJ-12 cable supplied with the SBH.

Figure 1: Connecting the SBH



- Wire your cable to the supplied four-pin adapter as illustrated.
- Plug the Wi-Fi adapter that comes with the SBH into either of the USB ports.
- Connect the RJ45 Ethernet port to the building Ethernet network as instructed by the building IT department. The Ethernet must be plugged into the device if you choose the (optional) Ethernet setup in step 6.
- Connect power to the Smart Building Hub. Once power is supplied to the SBH, the **WiFi AP** LED flashes to indicate that the device is initializing. When the **Fault** LED turns off, the **WiFi AP** LED flashes, and the **RUN** LED is on, you can connect the SBH using the built-in Wifi access point.

Figure 2: SBH LED Map

WI-FI CLIENT	●	EOL
WI-FI AP	●	SYSTEM BUS
USB B	●	USB A
UPGRADE	●	RUN
100/1G LINK	●	ETHERNET
FAULT	●	POWER
RESET	●	REBOOT

2. Connect to the Smart Building Hub Wi-Fi access point

The SBH can be configured over Wi-Fi using a mobile device or laptop.

- In your Wi-Fi enabled device, access the Wi-Fi settings and select the Verasys-SBH access point name.
- Connect to the SBH Wi-Fi network using the supplied credentials from the beginning of this guide.

3. Open a Web Browser

- Navigate to the following URL: www.smartbuildinghub.com, to open the SBH browser interface.

Note: The SBH ships with a private smartbuildinghub.com SSL certificate installed to ensure secure communication with the SBH. However, this certificate does not indicate that it is trusted in a browser. If you wish to install your own certificate, refer to the *Smart Building Hub Network and IT Guidance Technical Bulletin (LIT-12012324)* for more information.

4. Log in to the Smart Building Hub

- Use the default Admin login credentials from the beginning of this guide.
- Read and accept the SBH license agreement.

5. Change Passwords and SSID

The first time you log into the SBH, the **Change Password and Passphrase** web page appears. You must change the Admin password, Wi-Fi passphrase, and the SSID.

IMPORTANT: After you change the Wi-Fi passphrase or SSID, the web server restarts and you must rejoin the SBH Wi-Fi network using the new passphrase. On some mobile devices, you must select and forget the original SBH Wi-Fi network before rejoining the network with the new passphrase. A laptop running Microsoft Windows is a device that behaves this way.

- In the **New Admin Password** field, enter a new password.
- In the **Verify New Admin Password** field, enter the same new password.
- In the **New Wi-Fi SSID** field, enter the new Wi-Fi SSID.
- In the **New Wi-Fi Passphrase** field, enter the new Wi-Fi Passphrase.
- Click the **Save** button.

Navigate to the following URL: www.smartbuildinghub.com, to open the SBH browser interface.

Note: The SBH ships with a private smartbuildinghub.com SSL

certificate installed to ensure secure communication with the SBH. However, this certificate does not indicate that it is trusted in a browser. If you wish to install your own certificate, refer to the *Smart Building Hub Network and IT Guidance Technical Bulletin (LIT-12012324)* for more information.

Navigate to the following URL: www.smartbuildinghub.com, to open the SBH browser interface.

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6. Ethernet Setup (Optional)

This step describes how to access the SBH over an Ethernet network.

- In the SBH UI, navigate to **Settings > Ethernet**.
- On the **Ethernet** drop-down list, select **On** to enable the SBH Ethernet port.
- Click the **Save** button.
- Take note of the address in the IP Address field. By default, the SBH is configured to dynamically receive an IP address from your network using DHCP.
Note: If the IP Address does not appear, refresh the screen.
- Enter the IP address from the previous step. You now have access to the SBH over an Ethernet network. Refer to the *Smart Building Hub Network and IT Guidance Technical Bulletin (LIT-12012324)* for more options.

7. Use the Smart Building Hub

Select a device from the equipment list and use the web pages from the SBH to view, commission, and configure devices as needed.

IMPORTANT: Save this guide. It contains your default user name and password information. This information may be needed to reset your Smart Building Hub to factory defaults.

Technical Specifications

Smart Building Hub

Power Consumption	38W maximum
Ambient Temperature Conditions	Operating: 0 to 50°C (32 to 122°F) Operating Survival: -30 to 60°C (-22 to 140°F) Non-Operating: -40 to 70°C (-40 to 158°F)
Ambient Humidity Conditions	Storage: 5 to 95% RH 30°C (86°F) maximum dew point conditions Operating: 10-90% RH, 30°C (86°F) maximum dew point conditions

Drawing Title									
SBH Quick Install									
REFERENCE DRAWING		NO.		REVISION-LOCATION		ECN		DATE	
Sales Engineer		Project Manager		Application Engineer		DRAWN		APPROVED	
				By Steve Nichols		DATE 12-30-2021		BY DATE	
Project Title		3rd Party RTU-TEC		Branch Information		CONTRACT NUMBER		DRAWING NUMBER	
								7	



Smart Building Internet Settings

Choose a device...
SETTINGS
ETHERNET

← Menu

1 Settings

Wi-Fi Access Point

Backup

Restore

Profiles

Clone

2 Ethernet

Load Shedding

Global Shutdown

System Settings

Verasys Enterprise

BACnet Settings

BBMD

SSL

Alarm Notifications

Software Updates

Administration

Custom Logo

Ethernet

3 On

Hostname: SBH00108D0A7F56

Domain Name Suffix: _____

Ethernet Mac Address: 00:10:8d:0a:7f:56

Auto DHCP: 4 Off

IP Address

5 Get From I.T. Group

Subnet Mask

6 Get From I.T. Group

Default Gateway

7 Get From I.T. Group

Auto DNS

Off

Primary DNS Server

8 8.8.8.8

Secondary DNS Server

9 8.8.4.4

Enable Proxy

No

Note: Smart Building Hub must be connected to an external power source for Ethernet to function.

Cancel 10 Save

Setting up Internet Access:

- Reach out to the customers I.T. group & get the following... a "Static IP Address", "Subnet Mask", "Default Gateway", & "Primary & a Secondary DNS Server"
- Log into the SBH, click on "Settings" then "Ethernet" & change "Auto DHCP" to "Off"
- Add the info you got from the IT group into the SBH & make sure there's a network cable plugged into the SBH & the customers internet.
- Turn off your wifi. Open Chrome or Safari & type in the ip address. This should bring you to the Verasys login page...if not you may need to log into the customers VPN. (Call customer I.T. people up for VPN access) & repeat Step 4.

Get This Info From Customer I.T. Group or I.S.P. Then Write Info Here:

Static IP Address: _____

Subnet Mask: _____

Default Gateway: _____

Primary DNS Server: _____

Secondary DNS Server: _____

Email Host: _____

Email Port: _____

Mail Server User Name: _____

Mail Server Password: _____

VPN Address: _____

VPN User: _____

VPN Password: _____

After you set up the SBH write down login info here

SSID: _____

Wi-Fi Password: _____

User Name: _____

User Password: _____

Drawing Title									
SBH Internet Info									
Project Title		3rd Party RTU-TEC		VERASYS™		CONTRACT NUMBER		8	
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY	DATE	BY	DATE	BY
Sales Engineer	Project Manager	Application Engineer		7-6-2022	Steve Nichols				

Smart Building Alerts & Email Settings

Global Shutdown

System Settings

Verasys Enterprise

BACnet Settings

BBMD

SSL

1 Alarm Notifications

Software Updates

13 Administration

Custom Logo

Audit Log

Diagnostics

SETTINGS
ALARM NOTIFICATIONS

Enabled

2 On

Use SSL/TLS

3 Yes

Host
Ex: mail.server.com

4 mail.server.com

Port

5 80

Locale
Notification emails will be sent using this locale

6 English

From Email Address
Notification emails will come from this address

7 This can be any email address

Site Name

8 Best to make this the name of the building

Username

9

Set Password

Cancel **10** Save

Test Email Address
Address to send test email to

11 Enter the name of your email to verify it works

12 Send Test Email

Note: To get text & email alerts you need to be connected to the internet & set up a user for each person who needs to get alerts. Follow Steps 1-23

Setting Up Text & Email Alerts:
-Reach out to the customers I.T. group & get the following... a mail server "Host", "Port #"

Setting Up Text & Email Alerts:
-Reach out to the customers I.T. group & get the following... Mail Server "User Name" & "Password"

Adding Text Alerts:

AT&T phone#nodashes@txt.att.net

Verizon phone#nodashes@vtext.com

T-Mobile phone#nodashes@tmomail.net

Sprint phone#nodashes@messaging.sprintpcs.com

Cricket phone#nodashes@mms.cricketwireless.net

Virgin phone#nodashes@vmobl.com

Tracfone phone#nodashes@mmst5.tracfone.com

Metro PCS phone#nodashes@mymetropcs.com

Boost phone#nodashes@myboostmobile.com

If your cell carrier is not displayed go to Google & search for their text address

14 Add New User

ADMINISTRATION
ADD USER

Name

15 Brad Pitt

Username
No spaces

16 Brad

Password
Must contain 8 or more characters, 1 lowercase letter, 1 uppercase letter, 1 number

17

Verify Password

18

Role

19 Admin

Alarm Notification Level

20 Service Priority

Email Address 1

21 bradley.pitt@hollywood.com

Email Address 2

22 8038675309@txt.att.net

Cancel **23** Save

Drawing Title									
Alerts & Alarms									
REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY				
Sales Engineer	Project Manager	Application Engineer	By Steve	DATE 12-30-2021	APPROVED				
Project Title			Branch Information		CONTRACT NUMBER				
3rd Party RTU-TEC									
					DRAWING NUMBER				
					9				

Standard Installation Procedures

- Step 1: Install Smart Building Hub & get it connected to the internet. See pages 6-9
- Step 2: Pull 3 conductor BACnet wire from the Smart Building Hub to each classroom. See page 3
- Step 3: Install TEC stat & connect BACnet wire. See page 4
- Step 4: Connect TEC to the RTU. See page 4 & 5
- Step 5: After you power up TEC login & change the BACnet address. See page 3
- Step 6: Configure TEC to work with RTU by using the touch screen display.
- Step 7: After all the TECs are installed verify they show up on the Smart Building Hub.
- Step 8: Create a schedule in the Smart Building Hub & sync it with all the TECs.
- Step 9: Test each TEC to verify it works with RTU..
- Step 10: Update this drawing with redlines.
- Step 11: Update this drawings with I.T. info & SBH login info.
- Step 12: Create As-Built set of drawings & leave a copy on the job site & email customer copy.

Drawing Title									
Project Title		NO.		REVISION-LOCATION		ECN	DATE	BY	
SBH Config		REFERENCE DRAWING							
		Sales Engineer	Project Manager	Application Engineer	DRAWN	BY	DATE	APPROVED	BY
					JB	3-23-21			
		Branch Information		CONTRACT NUMBER		DRAWING NUMBER			
						13			

Definitions:

Actuator-A controlled piece of hardware that rotates to open & close valves or dampers
AHU-Air Handling Unit. Typically heat supplied by a boiler & cool water supplied by a chiller
BACnet IP-BACnet communication over the internet
BACnet MS\TP-Master-Slave/Token Passing. 3 wire communication bus
BACnet-A data communication protocol for building automation & control networks
BAS-Building Automation System.
BBMD-BACnet/IP Broadcast Management Device. Not used unless your using BACnet/IP
BYP200-Bypass Damper Controller used for COBP.
CO2-Carbon Dioxide. Our bodies breathe in Oxygen & breath out CO2.
COBP-Change Over Bypass may also be called VVT. A type of zoning for your building using a bypass damper & zone dampers. Each zone gets a vote & the VZC determines the order of attention for each zone.
DHCP-When a router or gateway assigns an address to each device plugged into it (Can change with power cycle)
Differential Pressure-The difference in pressure between 2 given points. (like a VAV box or a filter)
DNS-Domain Name System. Similar to a phone book for the internet.
DVC or DCV-Demand Ventilation Control. A method to add fresh air in a room using CO2 sensors.
ECM-Electronically Commutated Controller. A DC powered motor that can vary the speed & torque.
Ethernet-A system for connecting a number of computers or controllers to form a local area network.
FC-BACnet ms\tp bus. Verasys can have up to 100 devices on this bus or 10 VZCs.
Gateway-The network hardware that routes information in your building.
ISP-Internet Service Provider. (Comcast, Century Link, Cox,...)
LAN-Local Area Network. A collection of devices connected together in one physical location, such as a building, office, or home.
MA-Mixed Air. Where outside air & return air from the building mix.
OA-Outside Air. Fresh air from outside the building.
RA-Return Air. Air from the building coming back into the duct work to be reused or cycled outside.
RTU-Rooftop Unit. A packaged unit that contains heating & cooling.
SA-Sensor Bus. Verasys can have 8 devices on this bus. It has to have 4 wires. 2 for power & 2 for data.
SA-Supply Air. May also be referred to as Discharge Air. This is the conditioned air from the RTU or AHU going into the space
SBH-Smart Building Hub. The internet hub for Verasys.
SMART-A software layer on many JCI products that allows them to be a plug & play device with Verasys.
SSE-Simplicity Smart Equipment. Many York RTU\AHU\Chillers, Coleman, Lux Air, Tempmaster, Quantech Chillers have the SSE card installed. This makes them a SMART plug & play device with Verasys.
SSL-Secure Sockets Layer. A computing protocol that ensures the security of data sent via the internet by using encryption.
Static I.P. Address- Similar to a phone number but on the internet. (Fixed) Used to access the SBH.
Subnet-A method used to separate a network in a building. BAS should be on it's own Subnet.
TEC-BACnet Stat for 3rd Party RTU, Heat Pumps, Unit Heaters, & Splits. Has a built in economizer. Can't control VFDs.
TLS-Transport Layer Security. A security protocol designed to facilitate privacy and data security for communications over the Internet.
VAC-RTU Controller for 3rd Party Units. Can also be used for IOM, Lighting, Boiler, Chiller, & Sideloop applications.
VAV-Variable Air Volume. A type of zoning for your building using VAV boxes & a VFD. RTU is usually cooling only.
VEC-RTU Controller for Zoning. There are multiple apps you can install on the VEC. (Heat Pump, Mod Heat Mod Cool, Mod Heat Stage Cool, Stage Heat Mod Cool, Stage Heat Stage Cool)
VFD-Variable Frequency Drive. Hardware that allows you to vary the speed of a fan or pump. Great for saving energy!
VPN-Virtual Private Network. A layer of internet security end user typically use requiring you to have a login to access their network.
VZC-Verasys Zone Coordinator. Verasys can have up to 10 VZCs on the FC System bus.
ZA-Zone Bus. Verasys can have up 33 controllers on this bus. 32 zones & 1 controller for RTU.
ZEC310-Damper Controller used for COBP.
ZEC510-VAV Box Controller. Can be used as stand alone zone control.

The Gotchas:

- #1-Identify what kind of system this is? SMART, 3rd Party, CV, VAV, VVT, Boiler, Chiller, Lighting, Power Monitoring? This will determine what parts & apps you need.
- #2-Is the RTU or AHU motor an ECM? (variable speed motor...no need for a VFD)
- #3-Is the fan motor single phase? (VFDs typically don't work on single phase)
- #4-Does the OA Damper have an existing actuator & if so can you re-use it?
- #5-Does the existing actuator even work?
- #6-How does the actuator mount & will we need mounting hardware to mount a new actuator?
- #7-How are you going to run the BACnet wire & how much do you need?
- #8-Where will everything mount in RTU or AHU?
- #9-Do the RTUs already have DCV & VFD's?
- #10-Where am I going to mount the SBH & can I get internet access?
- #11-Have you read the spec & have you reviewed the notes in the drawings?
- #12-Can the RTU or AHU be used for VAV? Does it have a VFD or differential pressure?
- #13-Is there already a BACnet Com card on the SSE board?
- #14-Does the SSE board have 8mb of memory? If not it will lock up the board if you load the Verasys firmware on it.
- #15-Current firmware is loaded at the factory. However we don't know how long a part will sit before installation. On every job **update all hardware to current firmware versions.**

Suggestion: When bidding a job get pictures of the RTU TAG, nameplate on the fan motor, the inside of the RTU where equipment will mount, OA damper & how it mounts. If the RTU has an SSE card then take a detailed picture of the board & barcode on it to determine if it will work with Verasys. This is also a good time to meet with the I.T. group to see if you can be on their network. If they say "yes" then ask for: Static IP Address, Subnet Mask, Default Gateway, & Primary & a Secondary DNS Server. If they say "no" talk to the end user about getting internet from a local ISP. There's even a cellular option we could recommend for Verasys.

Helpful Links:

- <http://www.verasyscontrols.com/resources/training-and-education>
- <http://www.verasyscontrols.com/resources/technical-literature-and-documentation#installation>

Drawing Title										
Appendix										
	REFERENCE DRAWING	NO.	REVISION-LOCATION	ECN	DATE	BY				
	Sales Engineer	Project Manager	Application Engineer	Drawn	DATE 12-30-2021	BY	DATE			
Project Title						Branch Information		CONTRACT NUMBER		
3rd Party RTU-TEC										
								DRAWING NUMBER		
								11		