



PT-Link II LON-3[®] Technical Guide

VCCX2 Controller Code: SS1088 Version 1.02 and up

VCC-X Controller Code: SS1079 Version 2.0 and up

VCB-X Controller Code: SS1051 Version 2.0

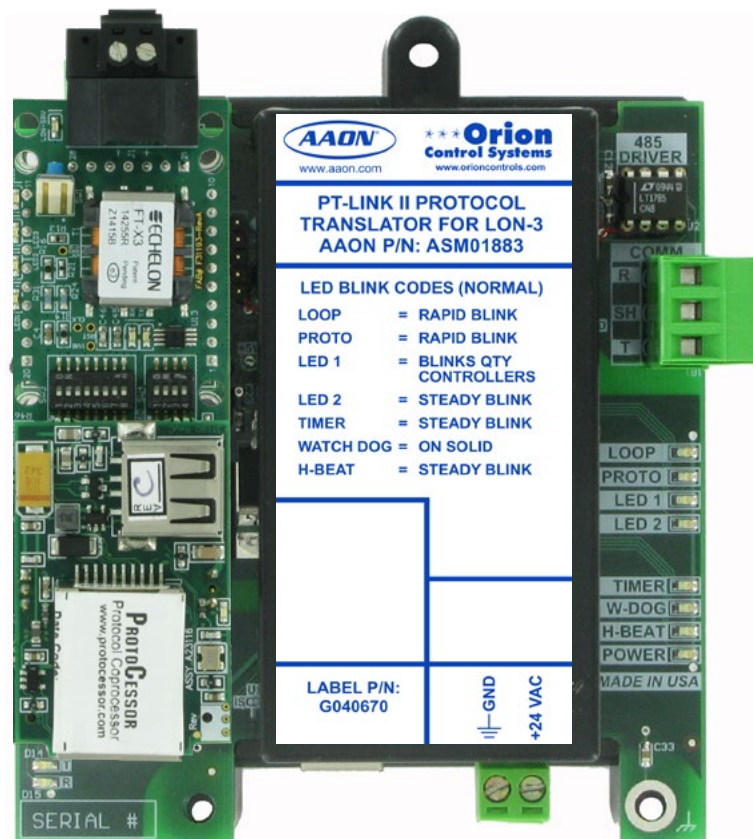
VCM-X Controller Code: SS1026 & Y200920 Version 2.0 and up;

VCM-X Modular Controller Code: SS1030 & SS1034

VCM-X WSHP Controller Code: SS1032 & SS1033

SA Controller Code: Y200921

VCM Controller Code: SS1016, Y200409, Y200616, Y200822





www.aaon.com

This manual is also available for download from www.aaon.com/controlsmanuals, under PT-Link, where you can always find the latest literature updates.

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1. GENERAL INFORMATION

1.1 Overview and System Requirements

The PT-Link II LON-3[®], provides bi-directional communication between ONE* of the following types of Orion controllers—VCCX2, VCC-X, VCB-X, VCM-X, SA, VCM, MUA II, or VAV/CAV:

VCCX2 Controller (SS1088)

VCC-X Controller (SS1079)

VCB-X Controller (SS1051)

VCM-X Controller (SS1026, SS1030, SS1032, SS1033, SS1034, Y200920)

SA Controller (Y200921)

VCM Controller (SS1016, Y200409, Y200616, Y200822)

** MUA II Controller (Y200405); VAV/CAV Controller (Y200301)

To determine what controller you have, you must look at the software label located on the controller. **NOTE:** The label is located on the EPROM on older devices. If the controller label does not match any of the SS or Y numbers listed above, your controller will not work with the PT-Link II LON[®].

***NOTE:** The PT-Link II LON[®] device can be used to connect to only one Orion controller. If more than one Orion controller is present in a system, each one will require a PT-Link II LON[®] device for integration with a LON[®] protocol network.

****NOTE:** Documentation is available for MUA II/VAV/CAV on our website: www.aon.com/controlsmanuals under previous generation controls.

Data Sharing

The PT-Link II LON[®] interface provides the following data sharing capabilities:

- Provides values from points on the Orion side of the gateway to LON[®] devices as if the values were originating from LON[®] objects.
- Allows LON[®] devices to modify point values on the Orion controller side of the PT-Link II LON[®] by using standard LON[®] write services.

Hardware Specifications

Technical Data	
LON [®] Loop	TP/FT-10 (78 Kps)
Orion Controller Loop	RS-485, 9600 Baud Rate
Network Protocol	LONWorks [®]
Orion Controls Protocol Communications	HSI Open Protocol Token Passing
Power Input Voltage	18-30 VAC
Power Consumption	10 VA Maximum
Operating Temp	-30°F to 150°F
Operating Humidity	0-95% RH Non-Condensing
Weight	4.7 oz.

Table 1: PT-Link II LON-3[®] Interface Technical Data

System Requirements

- The PT-Link II LON[®] interface is packaged and assembled as surface mount. Surface mount components are included for your convenience.
- Computer running Microsoft[®] Windows 10 operating system.
- Ethernet Crossover Cable (supplied).
- PT-Link LON[®] and RUINET software— included on flash drive and also downloadable from www.aon.com/controlstechsupport
- Prism 2 software—downloadable from www.aon.com/prism

2. QUICK PT-LINK SETUP

2.1 Quick Start Guide

The following steps are a quick means to get the PT-Link II LON-3[®] operational for many simple installations. This quick start depends on the ability of the front end to accurately and successfully obtain the required information directly over the LON[®] connection. If the front end cannot successfully do this, it will be necessary to manually obtain an XIF file from the PT-Link as described in the next section and then to manually commission the PT-Link II LON-3[®] device.

1. Familiarize yourself with the PT-Link II components (Figure 1). **NOTE:** The DIP Switches should be left in their default position which is all OFF. They are not used in this application.
2. Connect your PT-Link II LON-3[®] to the Unit Controller on your system (only one) and connect your PT-Link II to the LON Network (Figure 2, page 6).
3. Power up the PT-Link II LON-3[®] with an appropriately sized isolated 24 VAC power. (Note that the Unit Controller should already be powered up and running). Do not use the same power for both the PT-Link and the Unit Controller, improper wiring of these two devices on the same power source will cause damage to both the PT-Link and the Unit Controller as they do not have isolated communications.
4. Allow at least 3 minutes for the PT-Link II LON-3[®] to learn internally all its information and prepare the data tables; after this point, use the learning capabilities of your front end to discover the PT-Link device on the LON network and subsequently to discover the points provided by the PT-Link gateway.

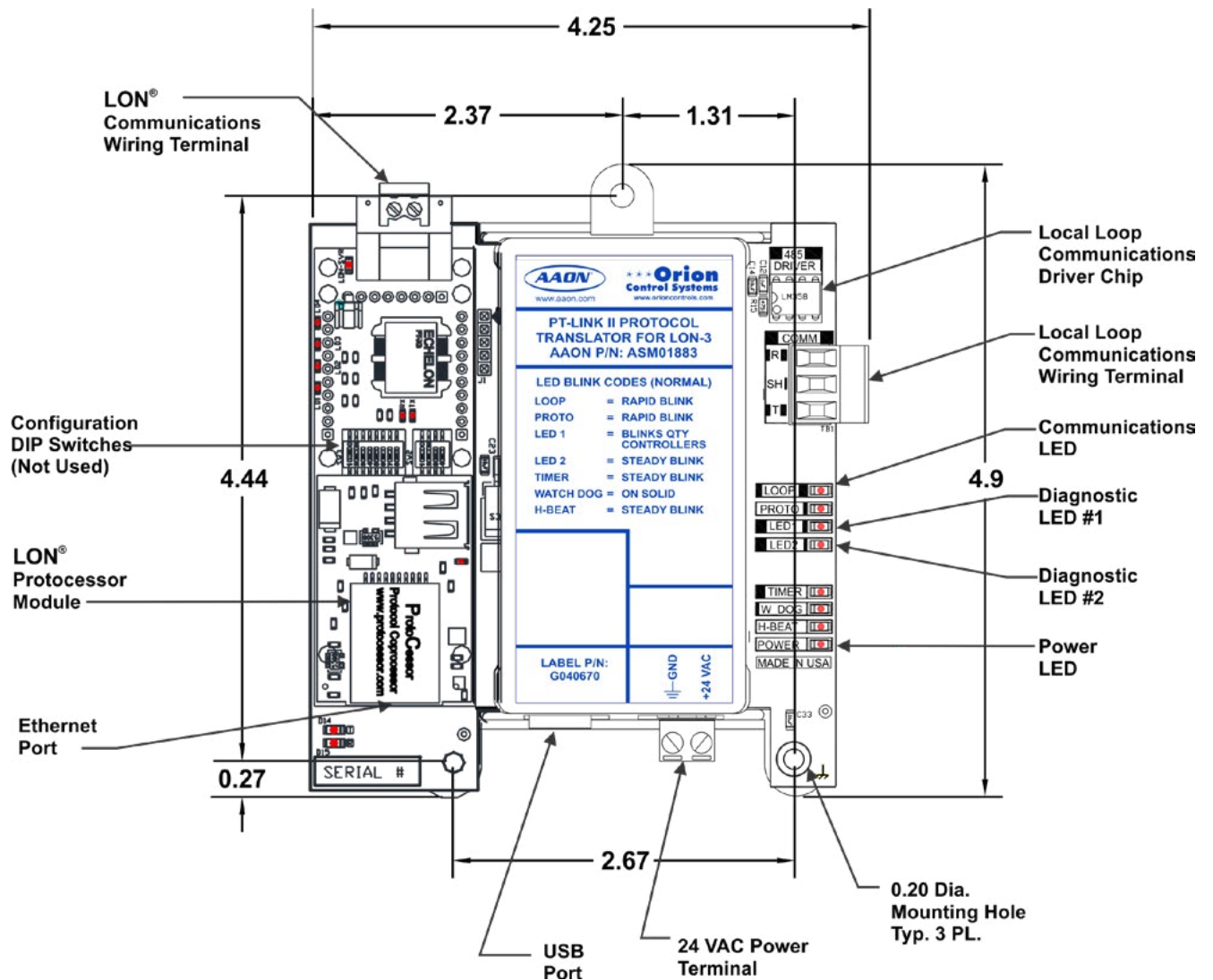


Figure 1: PT-Link II LON-3[®] Dimensions and Components

2. QUICK PT-LINK SETUP

2.2 Connection and Wiring Information

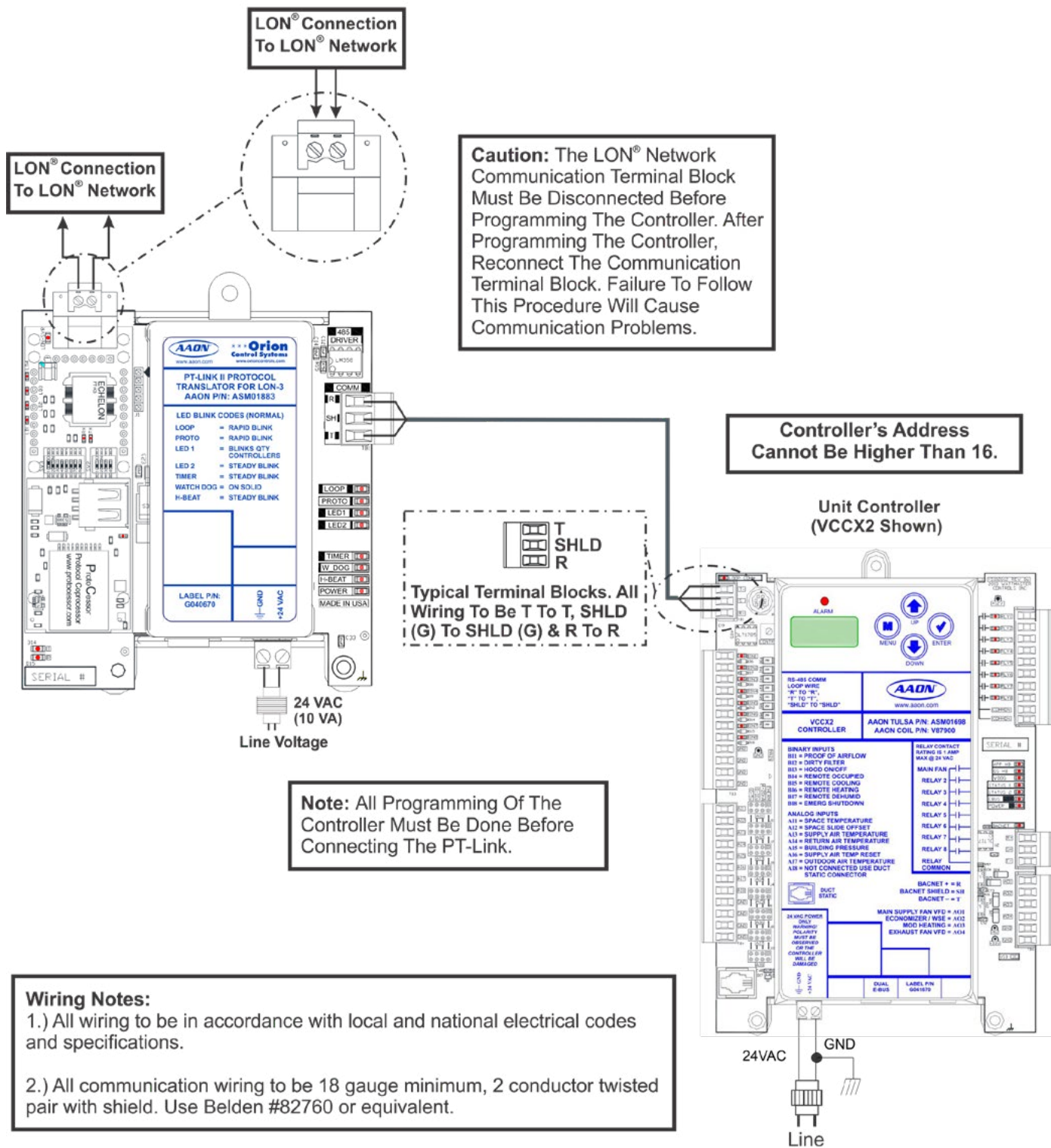


Figure 2: PT-Link II LON-3® Interface Wiring to Unit Controller (VCCX2 Shown)

3.1 Obtaining the External Interface File

The External Interface File (XIF) is used in various forms by many front-end systems for off-line commissioning and situations where the front end cannot properly obtain the necessary information directly from the PT-Link. This information file is generated automatically by the PT-Link II LON-3[®] module on startup and is accessible through the Ethernet interface of the FieldServer module on the PT-Link.

1. The FieldServer module resides at IP address 192.168.1.24. It is necessary that the PC which is to communicate with the FieldServer module be configured on the same effective IP network as the FieldServer module. Refer to **Section 6.2, page 18** for information on configuring a Windows[®] computer for this network.
2. With the PC attached to the FieldServer module via Ethernet (refer to **Figure 28, page 17** for instructions), open a browser window and in the address bar *type* the address below and *press* **<Enter>**:

192.168.1.24/fserver.xif

The browser window will now show the entire generated XIF file starting with “File: fserver.xif....”.

3. Use the edit menu **<Select All>** function or *press* **<CTRL + A>** to select everything in the browser window and then use the edit menu **<Copy>** function or *press* **<CTRL + C>** to copy the contents.
4. *Open* Notepad and use the edit menu **<Paste>** or *press* **<CTRL + V>** to paste the entire file information into Notepad.
5. Using the file menu, do a **<Save As>** and give the new file the name “fserver.xif” (without the enclosing parenthesis).
6. Use this new fserver.xif file directly with your front end or modify as necessary for your given front end and complete the off-line commissioning.

4. UPDATING THE SOFTWARE

4.1 Updating the PT-Link II Controller with Prism 2

The PT-Link II is equipped with the ability to update its software with the use of a computer. You will need the following before you begin:

- PT-Link II in need of an update (powered up, no other connections necessary)
- Computer running Microsoft® Windows® 10 operating system
- Prism 2 software from www.aaon.com/prism
- Latest version of PT-Link II software and software sheet (e-mailed from AAON Controls Support staff)
- USB Driver Setup.exe file from flash drive or downloaded from www.aaon.com/prism
- USB cable

Follow these simple steps to update the PT-Link II:

1. Turn on your computer and download the latest Prism 2 software from www.aaon.com/prism.
2. Download and unzip the PT-Link II hex file from the e-mail you received from AAON Controls Support. Record the path and name of the file for later use. You will need to know where the file is located for **Step 15**. Also, print the software sheet provided for future reference. **NOTE:** You must unzip the file in order for Prism to recognize the hex file.
3. Run the USB Driver Setup.exe file (found on the flash drive or downloaded from www.aaon.com/prism) so that Prism can communicate to the PT Link II. Unzip the file to the directory where you saved your PT-Link II software.
4. Plug the USB cable into the computer's and PT-Link II's USB ports.
5. A message will pop-up from the lower menu bar of Windows that reads, "Found New Hardware." Click on this message and follow the instructions that appear to install the USB drivers.
6. Open Prism 2 and Login with the User Name, **admin** and the Password, **admin**. If successful, "Administrator Access" will appear at the lower right of the Prism program.
7. Click on the **<Job-Site>** icon. The *Job-Sites Window* will appear. In the *Type of CommLink Dialog Box*, select "CommLink 5 or USB Link II." Under "Network Configuration," select "Single Loop / USB Link."

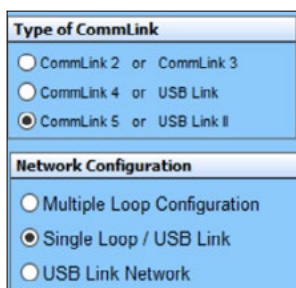


Figure 3: Type of CommLink Window

8. In the *Job-Sites Window*, from the Serial Port drop down list, select the correct COM port. If you don't know the COM port number, follow the directions on **page 9**.

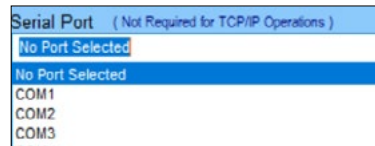


Figure 4: Serial Port Drop Down Menu

9. From Prism2's Communications tab, select "Flash Selected Controller", and then select "Manual Flashing."

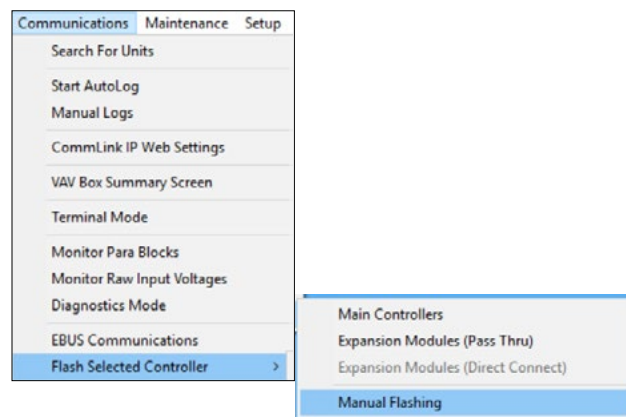


Figure 5: Communications Menu

10. The *Manual Flash Controllers Window* will appear.

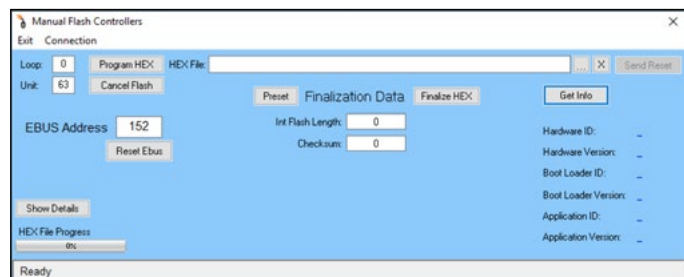


Figure 6: Flash Controllers Window

11. At the top of the window under "Connection", select "Direct". Keep the *Manual Flash Controllers Window* open.

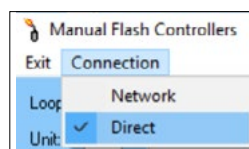


Figure 7: Direct Connection

4. UPDATING THE SOFTWARE

4.1 Updating the PT-Link II Controller with Prism 2

12. In the *Manual Flash Controller Window*'s Loop and Unit fields, type 0 for the Loop and 63 for the Unit, and then press **<ENTER>**.

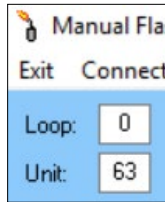


Figure 8: Loop and Unit Boxes

13. Cycle power to the PT-Link II and within 5 seconds, click the **<Get Info>** button in the *Manual Flash Controller Window*. The PT-Link II information will now appear in the window under the **<Get Info>** button.



Figure 9: Get Info

14. The Application ID should be SS1035 and the Application Version should be a lower version than the one you will be updating to.
15. In the HEX File field, enter the path and name of the HEX file you downloaded and/or copied to your hard drive. Use the Browse button (...) to the right of the field if you need help in locating the file.

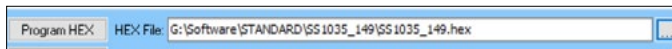


Figure 10: HEX File Field

16. Now, cycle power to the PT-Link II once again and within 5 seconds click on the **<Program HEX>** button (shown above). If successful, you should see the Progress Application HEX bar showing the progress percentage.

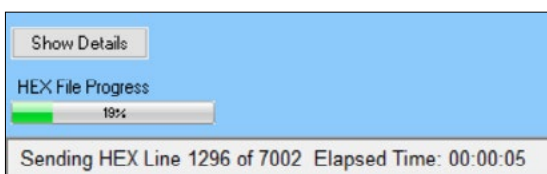


Figure 11: HEX File Updating

17. When the bar shows 100% completed, verify the PT-Link II's software is running by observing the Timer LED blinking.
18. Verify the PT-Link II's Application Version by once again cycling power to the PT-Link II and within 5 seconds clicking the **<Get Info>** button.
19. Verify that the Application ID still shows SS1035 and the Application Version shows the correct version number for the version just loaded.



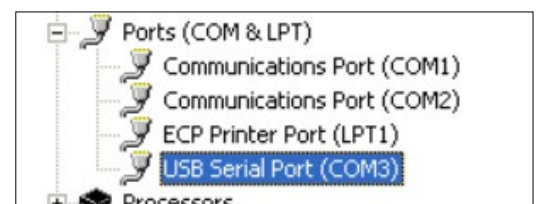
Figure 12: Application ID and Version Verification

Finding What COM Port Number the PT-Link II is Using (Windows® 10)

1. *Right-click* on the Windows® icon, located on the bottom left or top left of the Windows® Tool Bar.



2. Click on **<Device Manager>**.
3. Click on **<Ports>** to see all of the common ports.



4. *Locate* the USB Serial Port (COM#). The COM# in parentheses is the port it is located on. *Write* this COM port number down. You will need to know this when setting up the Prism software.

4. UPDATING THE SOFTWARE

4.2 Updating the Field Server Software

1. Install the FieldServer Toolbox. Follow instructions on **page 20**.
2. Extract and save the update file you receive from Field Server onto your PC.
3. *Open* your web browser, and *type* the IP Address of the PT-Link, which defaults to **<192.168.1.24>**, and *press* **<ENTER>**. The GUI will launch. *Click* **<Diagnostic and Debugging>**. The *Main Screen* will appear. See **Figure 13**.
5. Refer to the *File Transfer Window* below (**Figure 15**). In the *General Tab*, *click* **<Browse>** and locate the file you saved in Step 1. Then *click* on **<Submit>**. When the download is complete, *click* on the **<System Restart>** button.

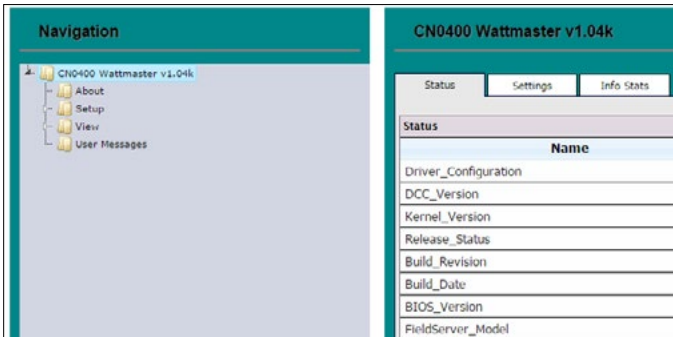


Figure 13: The FS-GUI Main Screen

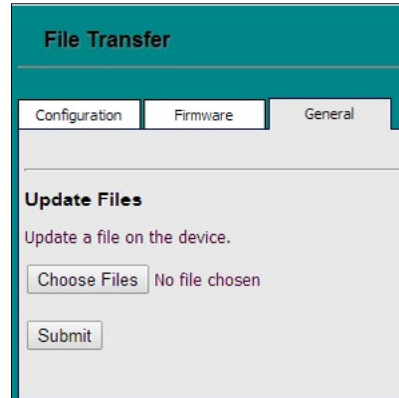


Figure 15: File Transfer - General Tab

4. In the *Navigation Window* on the left of the *FS-GUI Screen*, *click* **<Setup>** and then *click* **<File Transfer>**. See **Figure 14**.



Figure 14: Navigation Window - File Transfer

5.1 Troubleshooting Overview

5.1.1 Check that the PT-Link is operating normally

Observe the LEDs on the PT-Link base board (refer to **Section 5.2 PT-Link Module LEDs** for more details). In normal operation, the TIMER LED should be flashing at a fast rate, the H-BEAT LED should be flashing at a slow rate, and the W-DOG and POWER LEDs should be on solid. If any of these are not operating as indicated, refer to the appropriate LED in **Section 5.2 PT-Link Module LEDs** for more details and actions, including possibly cycling power to the board.

5.1.2 Check that the Unit Controller is operating normally

Observe the LEDs on the attached Unit Controller. Refer to the *Unit Controller's Technical Guide* for LED information. If any of the LEDs are not operating as indicated, refer to the *Unit Controller Technical Guide* for more details and actions, including possibly cycling power to the board.

5.1.3 Check that the Unit Controller and the PT-Link are communicating

Observe the LEDs on the PT-Link base board (refer to **Section 5.2 PT-Link Module LEDs** for more details). In normal communications, LED 1 should be pulsing on and off once every 5 seconds and the LOOP LED should be somewhat dimmer but should be toggling between two distinct brightness levels. As well, on the Unit Controller, the COMM LED should be flashing to indicate communication between the Unit Controller and the PT-Link. Please refer to the *Unit Controller's Technical Guide* for further LED information. If any of these LEDs are not functioning properly:

- Check that the communications cable between the Unit Controller and the PT-Link is present and that no wires have been pulled from it.
- Check that the wiring is correct, T-T, R-R, and SH-SH, and that SH is the shield or drain wire from the interconnecting cable.
- Note that if the LOOP LED on the PT-Link board is varying between 4 distinct brightness levels, it indicates the PT-Link and the Unit Controller have never communicated successfully. If it is a solid single brightness, it indicates the PT-Link and the Unit Controller have successfully communicated since the last time both were powered on and now cannot communicate. This latter condition could indicate a hardware failure on one of the two boards.

5.1.4 Check that the PT-Link base board is communicating with the FieldServer module

Observe the LEDs on the PT-Link base board. In normal operation, LED 2 should be slowly flashing on and off, indicating the base board is successfully communicating with the FieldServer module. If this LED is not flashing, check the various LED operations as indicated in **Section 5.2 PT-Link Module LEDs**.

5.1.5 Check that the FieldServer module is communicating on the LON[®] network

Refer to **Section 5.2 PT-Link Module LEDs** for the specific location and operation of the module LEDs.

5.1.6 Troubleshoot configuration and communications

If all prior checks are good and communications are still failing, follow **Section 5.3 Verifying Communications** to verify communications within the PT-Link, and if necessary, follow the directions in **Section 5.4 Viewing Diagnostic Information** to view and capture information about the internal operations of the ProtoCessor module on the PT-Link.

5. TROUBLESHOOTING

5.2 Troubleshooting LEDs

PT-Link II Board LEDs

The PT-Link II LON-3® is equipped with LEDs that can be used for troubleshooting. There are eight LEDs on the PT-Link board. See Figure 16 for the locations of the LEDs on the PT-Link board. The LED descriptions and functions are listed in the following paragraphs.

POWER LED

When the PT-Link II LON-3® is powered up, the “**POWER**” LED should light up and stay on continuously. If it does not light up, check to be sure that you have 24 VAC power connected to the board, that the wiring connections are tight, and that they are wired for correct polarity. The 24 VAC power must be connected so that all ground wires remain common. If after making all these checks the “**POWER**” LED still does not light up, please call 1-866-918-1100 to speak to an AAON Controls Support Agent.

LOOP LED

When power is applied to the PT-Link II LON-3®, the “**LOOP**” LED will light up with 4 different levels of brightness as it tries different baud rates until it identifies the correct baud rate. When the unit controller is connected, the LED will turn off and on in brightness. Once the connection is established, the LED will stay lit to indicate communications to the unit controller. If the “**LOOP**” LED does not operate as indicated above, first power down the unit and then reapply power. If this does not work, please call 1-866-918-1100 to speak to an AAON Controls Support Agent.

LED 1

When power is first applied, “**LED 1**” will be off temporarily and then will blink one time for the unit controller it is communicating with. If the “**LED 1**” does not blink, check the unit controller’s “**COMM**” LED. The “**COMM**” LED should be solid and will flicker occasionally indicating communication with the PT-Link II LON-3®. If the “**COMM**” LED does not flicker, there is no communication with the unit controller.

LED 2

When power is first applied, “**LED 2**” will be off temporarily and then will blink slowly indicating that the PT-Link baseboard is communicating with the ProtoCessor Module. If “**LED 2**” does not blink, check that the ProtoCessor Module is installed correctly on the PT-Link baseboard and that the “**PWR**” LED is lit up on the ProtoCessor Module.

PROTO LED

When the PT-Link II is first powered up, the “**PROTO**” LED should blink rapidly and may appear to be on solid. This LED verifies communication with the board and the ProtoCessor. If the LED doesn’t light up, check that the ProtoCessor is installed correctly and firmly connected to the Base Board. The “**PWR**” LED should also be lit on the ProtoCessor Module.

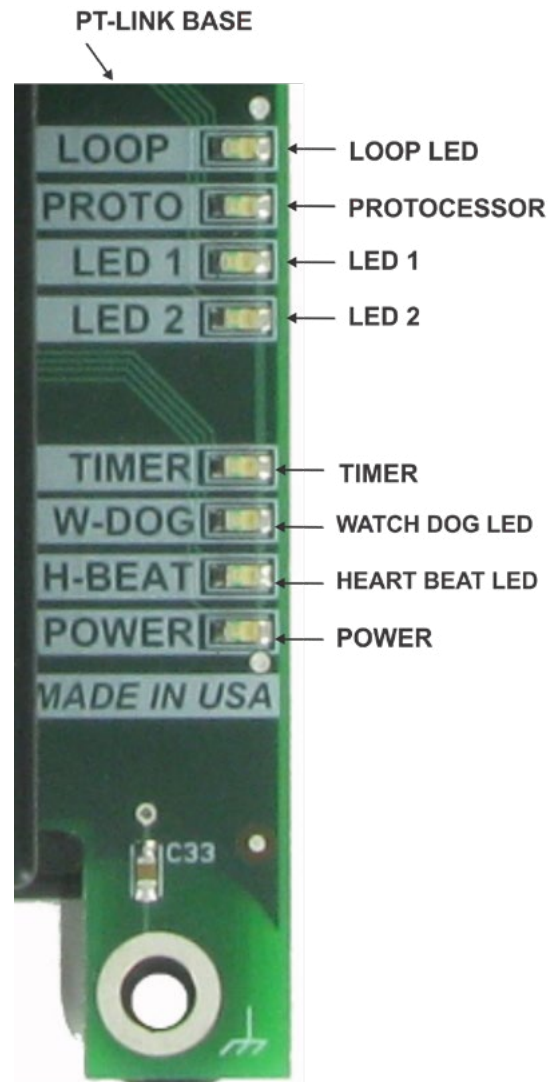


Figure 16: PT-Link II LON-3® LED Locations

TIMER LED

The “**TIMER**” LED is used for troubleshooting by AAON Controls Support. The “**TIMER**” LED should always be blinking steadily.

WATCH DOG LED

The “**W-DOG**” LED is used for troubleshooting by AAON Controls Support. The “**W-DOG**” LED should always be on solid.

HEARTBEAT LED

The “**H-BEAT**” LED blinks to show the PT-Link II board software is running. If the LED doesn’t light up, and all other checks have been made, please call 1-866-918-1100 to speak to an AAON Controls Support Agent.

PT-Link Module LEDs

Refer to **Figure 17** for LED locations.

PWR LED

When the PT-Link II is first powered up, the “PWR” green LED should light up and stay on continuously. If the LED doesn’t light up, check that the ProtoCessor is installed correctly and firmly connected to the Base Board.

LON LED

Once the unit is powered up, the “LON” LED will blink continuously until the PT-Link II has been commissioned. Once commissioned, the “LON” LED will remain off.

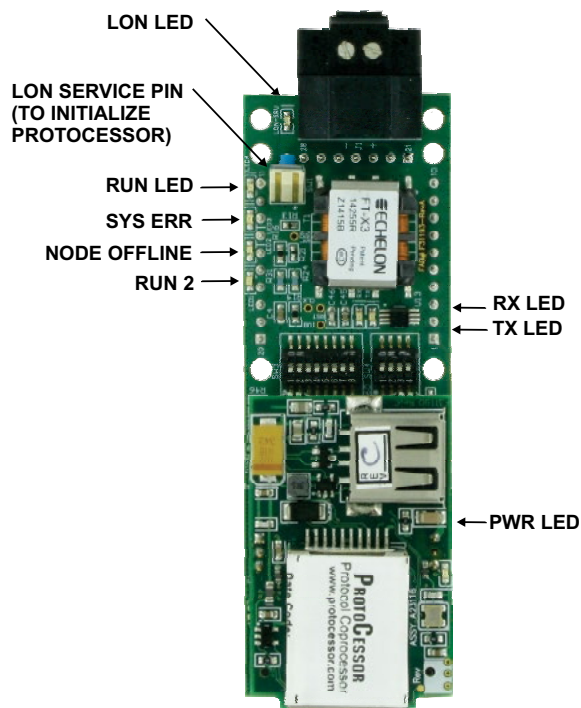


Figure 17: PT-Link II LON-3® LED Locations

RX & TX LEDs

During normal operation, the “RX” LED will flash when a message is received on the field port of the ProtoCessor and the “TX” LED will flash when a message is sent on the field port of the ProtoCessor. The “TX” and “RX” LEDs work together to indicate that communication is being established with the desired protocol network. If both LEDs are blinking, then communication is working properly. If not, check the protocol network wiring and the baud rate in the configuration file.

RUN LED

Upon powerup, the “RUN” LED should light up and stay solid for 15 seconds. It should then blink steadily, signifying normal operation. The ProtoCessor will be able to access RUINET once this LED starts flashing.

RUN2 LED

The “RUN2” LED should blink steadily after power up, signifying normal operation. The ProtoCessor will be able to access RUINET once this LED starts flashing.

SYS ERR LED

The “SYS ERR” LED will go on solid 15 seconds after power up and then shut off. A steady red light will indicate there is a system error on the ProtoCessor. If this occurs, immediately report the related “system error” shown in the error screen of the Remote User Interface to FieldServer Technologies for evaluation.

NODE OFFLINE LED

The “NODE OFFLINE” amber LED will go on solid 15 seconds after power up and then shut off. A steady amber light indicates the ProtoCessor is not communicating with a device that it is polling.

NOTE: If all of these tests are made and the controller still doesn’t operate, please call 1-866-918-1100 to speak to an AAON Controls Support Agent.



Figure 18: PT-Link II LON-3® Components

5. TROUBLESHOOTING

5.3 & 5.4 Verifying Communications & Viewing Diagnostic Information

5.3 Verifying Communications

1. Refer to **page 20** for instructions on installing the FieldServer Toolbox and accessing the FieldServer Graphical User Interface (FS-GUI).
2. In the *Navigation Window* on the left of the *FS-GUI Main Screen*, click **<View>** and then click **<Data Arrays>**. See **Figure 19**.

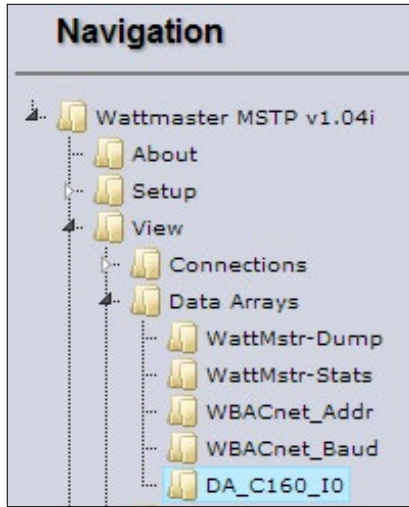


Figure 19: Navigation Window - View Data Arrays

3. Click on the Controller name. In this case, it is DA_C160_I0, a VCM-X Controller. The Controller's Data Array Table will display. See **Figure 20**.

Data Array						
Offset	0	1	2	3	4	5
0	133.000000	105.000000	40.000000	0.000000	0.000000	40.000000
10	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000
20	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
30	8.000000	1.000000	1.000000	1.000000	0.000000	0.000000
40	0.000000	0.000000	1.000000	0.000000	0.000000	50.000000
50	0.000000	75.000000	70.000000	30.000000	30.000000	55.000000
60	0.000000	0.000000	0.000000	45.000000	55.000000	50.000000
70	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
80	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
90	900.000000	10.000000	0.000000	0.000000	100.000000	0.000000
100	0.000000	0.000000	0.000000	0.100000	0.100000	0.000000
110	70.000000	70.000000	0.000000			

Figure 20: VCM-X Data Array Table

4. You can verify communications by verifying data within the fields. For example, the first field displays the current version, in this case 1.10.


5.4 Viewing Diagnostic Information

1. Type the IP address of the PT-Link into your web browser or use the FieldServer Toolbox to connect to the PT-Link
2. Click on **<Diagnostics and Debugging>** then click on **<View>**, and then click on **<Connections>**. See **Figure 21**.
3. If there are any errors showing in the *Connections Window*, please refer to the next section **Diagnostic Capture**.

Connections						
Overview						
Connections						
Index	Name	Tx Msg	Rx Msg	Tx Char	Rx Char	Errors
0	R2 - PCP-WMST	12,139,181	12,139,180	95,964,580	93,009,282	0
1	R1 - RACnet_MSTP	1	0	14	0	0

Figure 21: Connections Window

5.5 Diagnostic Capture Procedures

1. Once the Diagnostic Capture is complete, email it to controlssupport@aaon.com with the subject line "PT-Link LON Diagnostic Capture". The Diagnostic Capture will allow us to rapidly diagnose the problem.
2. Ensure that FieldServer Toolbox is Loaded on the PC that is currently being used, or download FieldServer-Toolbox.zip at <http://sierramonitor.com/customer-care/resource-center>
3. Extract the executable file and complete the installation.
4. Disable any wireless Ethernet adapters on the PC/Laptop. See **Figure 22**.
5. Disable firewall and virus protection software if possible.
6. Connect a standard Cat 5 Ethernet cable between the PC and ProtoNode.
7. *Double-click* on the FS Toolbox Utility. Refer to **Figure 26, page 16** for Toolbox components.
8. *Click* on the diagnose icon  of the desired device. See **Figure 23**.
9. *Select* Full Diagnostic. See **Figure 24**.

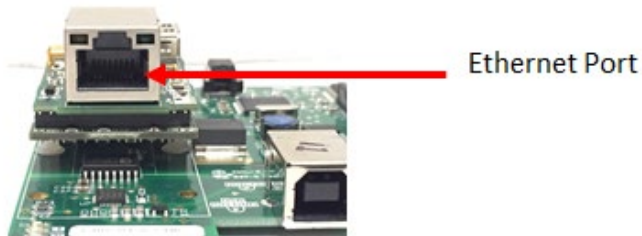


Figure 22: Ethernet Port Location



Figure 24: Full Diagnostic

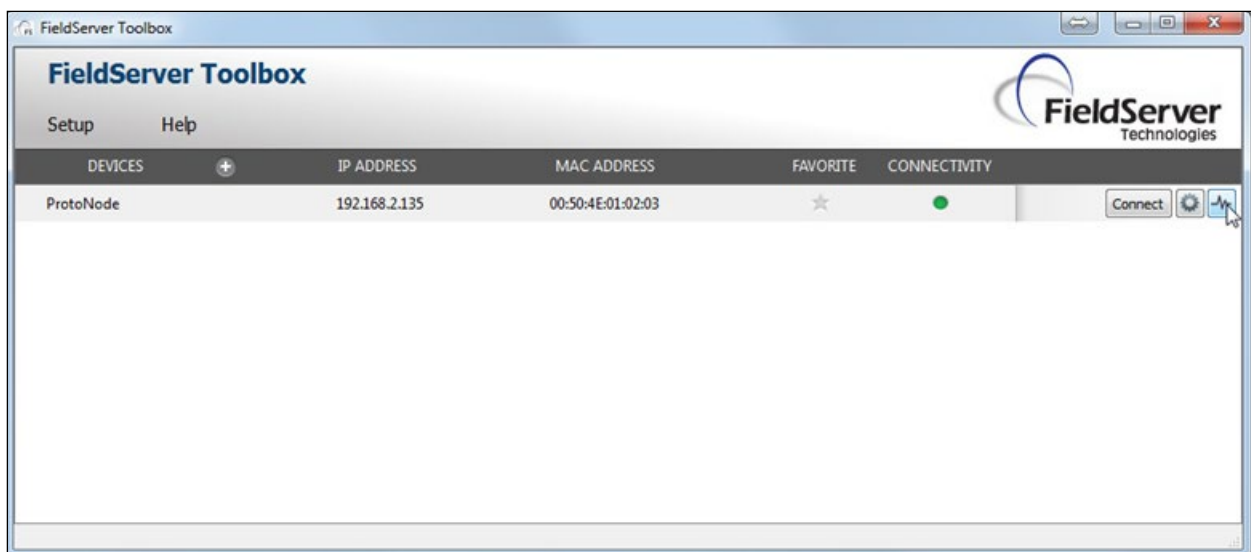


Figure 23: FieldServer Toolbox - Diagnostic Icon

5. TROUBLESHOOTING

5.5 FieldServer Diagnostic Utilities

10. If desired, the default capture period can be changed. See **Figure 25**.

11. Click on **<Start Diagnostic>**. **Figure 25**.



Figure 25: Set Capture Period and Start Diagnostic

12. Wait for the Capture period to finish. The *Diagnostic Test Complete Window* will appear. **Figure 27**.

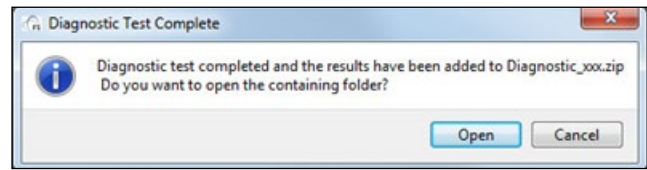


Figure 27: Diagnostic Test Complete Window

13. Once the Diagnostic test is complete, a .zip file will be saved on the PC.

14. Click **<Open>** in the *Diagnostic Test Complete Window* to launch explorer and have it point directly at the correct folder.

15. Send the Diagnostic zip file to controlsupport@aaon.com with the subject line "PT-Link LON Diagnostic Capture".

Access the help file for additional details.

The IP address of the device.

The MAC address of the device.

Favorite devices to ensure they stay on your device list whether they are connected or not.

Green: Full Connectivity
Yellow: Limited Connectivity
Red: Connection Lost

Configure device.

DEVICES	IP ADDRESS	MAC ADDRESS	FAVORITE	CONNECTIVITY	
HVAC System	10.0.0.25	00:50:4E:01:FF:01	☆	●	Connect
Lighting System	192.168.1.10	00:50:4E:01:FF:02	★	●	Lost Connect
Firepanel Interface	192.168.1.11	00:50:4E:01:FF:03	☆	●	New Connect

Platform Name	Restart Time	Firmware Version	Build Revision	Build Date	System Status	Hot Standby
FS-QS-010 Brain	Mon Apr 7 11:18:54 2014	B>V6.14b (A), MANU TEST:V1.01...			Normal	

A list of all devices on the network.

Add a remote device by IP.

Click on a device to view more details.

System Status indicates whether there are any problems on the device. This is useful when running diagnostics.

Connect to a device when available.

Diagnose problems. Generate a log file which can be sent to support.

* **Note:** A Blue circle under Connectivity means: Limited connectivity. You might have an older software version on the FieldServer ProtoCessor. You would need to run the RUINET setup instead of using the FS-GUI interface. Please contact AAON Controls Support for assistance.

Figure 26: FieldServer Toolbox Components

6. IP ADDRESS CONFIGURATION

6.1 PT-Link II Ethernet Connection

6.1 PT-Link II Ethernet Connection

Additional setup of the PT-Link requires connection of the PT-Link to a computer. It is recommended and required for some steps that the FieldServer Toolbox provided on the flash drive be utilized with this connection. Follow these instructions to connect the PT-Link II to your PC via Ethernet:

1. Using the supplied Ethernet crossover cable or similar cable, connect the Ethernet port of the ProtoCessor on the PT-Link to the Ethernet port of your computer.
2. Power up the PT-Link by plugging in the power cable. The PT-Link may take up to three minutes to power up completely.
3. Once the PT-Link is powered up, you should notice that the green RUN LED on the ProtoCessor Board is blinking continuously. See **Figure 17, page 13** for a diagram showing the location of the ProtoCessor RUN LED.

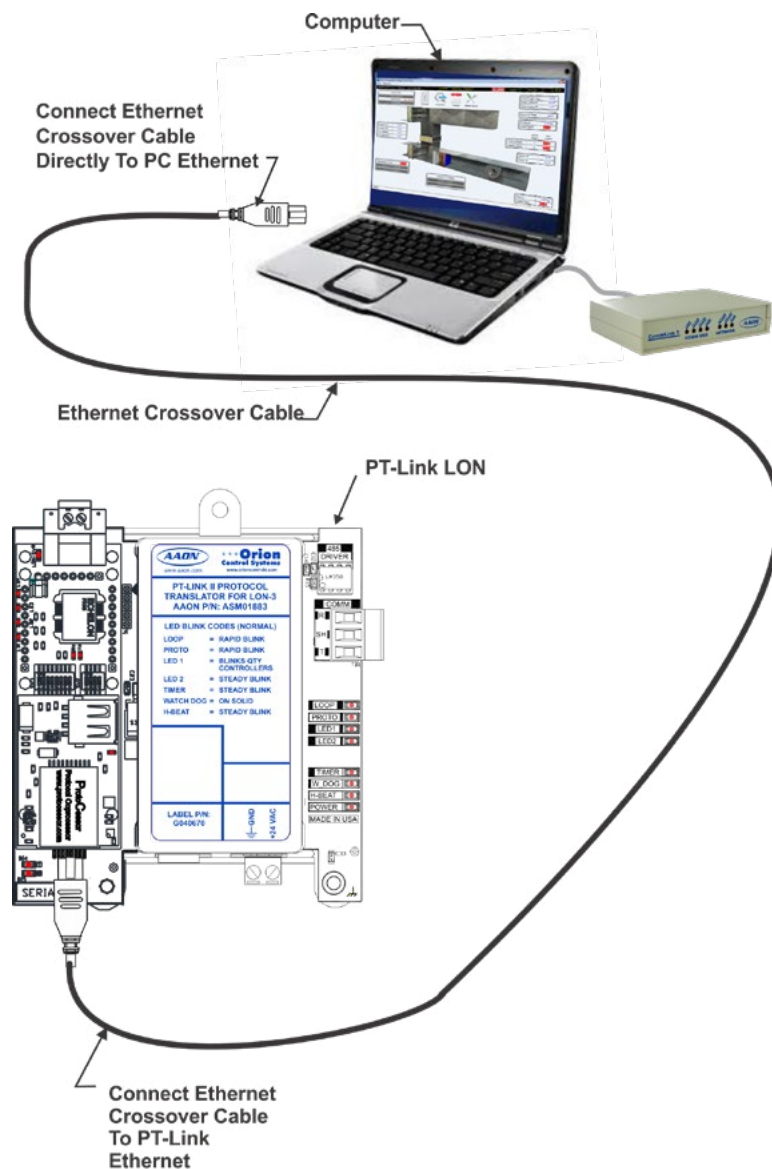


Figure 28: Connecting with a Crossover Cable

6. IP ADDRESS CONFIGURATION

6.2 IP Address Configuration

6.2 Computer IP Address Setup for Windows® 10

PT-Link to PC communications requires that the PC be set up on the same default network as the PT-Link. The network the PT-Link is operating on can be changed while in the PT-Link setup, but initially it is required that the PC be configured to the default network of the PT-Link. Follow the steps in the appropriate subsection to set your IP address to match the PT-Link default network.

NOTE: Consult your IT Specialist to ensure that your Firewall and anti-virus software are turned off before proceeding.

The following instructions explain how to change your computer's IP address.

- 1.) *Right click* the Windows icon or **<start>**; then *click* **<Network Connections>**.
- 2.) Then *click* **<Network and Sharing Center>**. The *Network and Sharing Center Window* will appear.

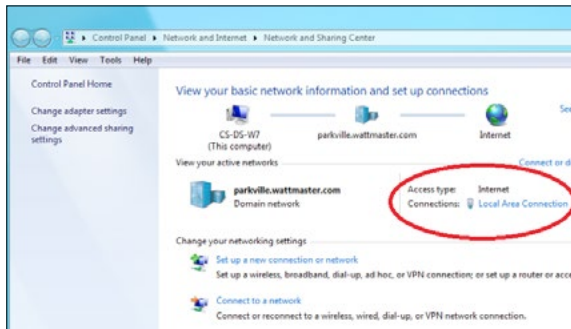


Figure 29: Network and Sharing Center Window

NOTE: If any wireless connections are listed, disable them by *right-clicking* the connection and *selecting* **<Disable>**.

- 3.) In the *Network and Sharing Center Window*, *select* the **Local Area Connection** entry. The *Local Area Connection Status Window* will appear.

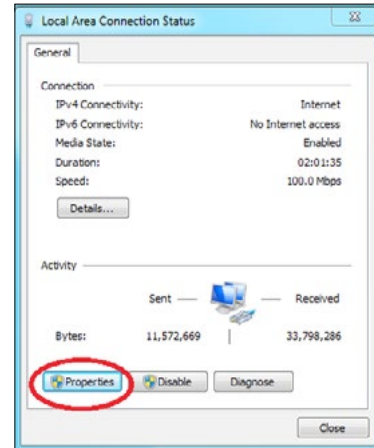


Figure 30: Local Area Connection Status Window

6. IP ADDRESS CONFIGURATION

6.2 IP Address Configuration

4.) Click the **<Properties>** button. The *Local Area Connection Properties Window* will appear.

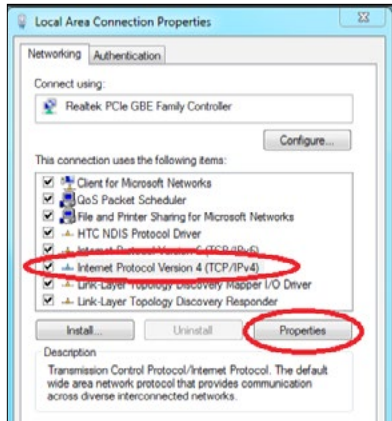


Figure 31: Local Area Connection Properties Window

5.) In the *Connection Items List Box* (**Figure 31**), be sure the Internet Protocol Version (TCP/IPv4) is checked. Click on Internet Protocol (TCP/IP v4) to highlight it and then click **<Properties>**. The *Internet Protocol Properties Window* will appear.

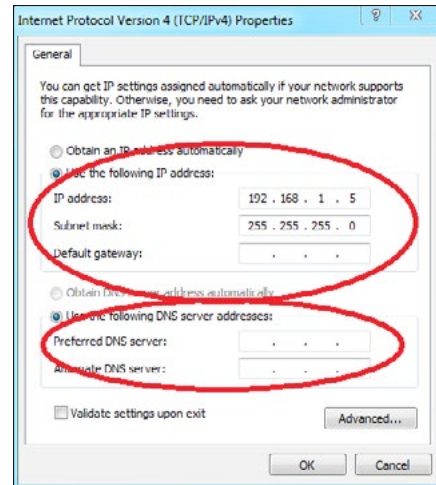


Figure 32: Internet Protocol Properties Window

- 6.) *Type in* the following information:
- Make the IP address 192.168.1.5
 - Make the Subnet mask 255.255.255.0
 - Blank out the Default gateway setting (leave the setting blank as shown in **Figure 32**).
 - Blank out the Preferred DNS server setting and the Alternate DNS server setting (see **Figure 32**).

7.) Select **<OK>** until all of the above windows are closed. You may have to *reboot* the computer before the new values are valid.

7. FIELD SERVER TOOLBOX

7.1 Installing the FieldServer Toolbox

The PT-Link is configured using a Graphic User Interface (GUI) which is a password protected web browser-based interface that uses a combination of technologies and devices to provide a platform from which you can gather and process information. The GUI allows you to do the following:

- Check the status and diagnostics of the PT-Link, such as network settings, connection information, node information, map descriptors, and error messages
- Monitor the PT-Link's internal data and parameters
- Change or update the PT-Link's internal data and parameters
- Restart the PT-Link

The following items are needed to be able to run the GUI:

- **PC Requirements**—a computer with a web browser that connects over the Ethernet on port 80*
***NOTE:** Computer and network firewalls must be opened for Port 80 to allow the GUI to function.
- **Software Requirements**—Chrome 19.0 and higher, Firefox 13.0 and higher, Opera 11.0 and higher, Microsoft Edge, and Safari 4.1 and higher
NOTE: Internet Explorer is not supported.

1. Refer to **Figure 28, page 17** for instructions on how to connect your PT-Link to your computer using an ethernet connection.
2. Locate the FieldServer Toolbox on Sierra Monitor's Customer Care site - http://www.sierramonitor.com/downloads/FieldServer_Toolbox.
3. *Click* on the *FieldServer Toolbox* to download it to your computer.
4. Unzip the file and install it onto your machine (you may use the default location on the C drive or another location.)

NOTE: Information on the Field Server interface can be found here: https://www.sierramonitor.com/downloads/FieldServer_Manual-FieldServer_Configuration_Manual

5. Once launched, the FieldServer Toolbox will automatically discover the attached PT-Link (this operation may take a minute). If the connected device does not display, review the section "IP Address Configuration" to make certain your PC is on the default network as required to communicate with the PT-Link. See **Figure 32**.

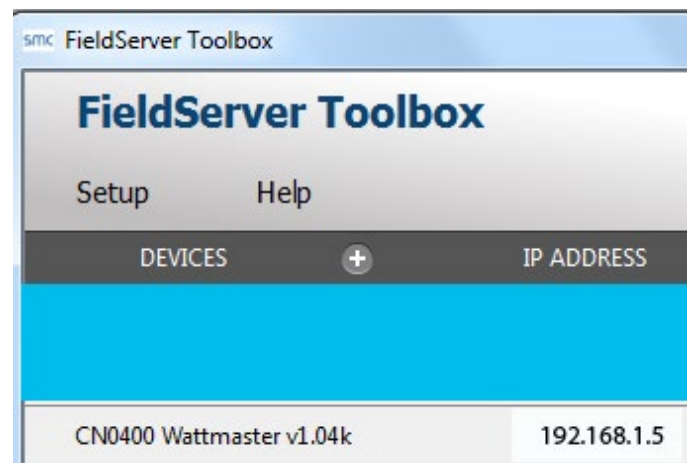


Figure 32: FieldServer Toolbox

6. To the right of the device entry are button options for "Connect", "Configure" and "Diagnose", all tools provided by the Toolbox. *Click* on the LON connection **<Connect>** button. See **Figure 33**.



Figure 33: Connect Button

8.1 VCC-X / VCCX2 Data Array Table

VCC-X / VCCX2 Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	CtrlMod	CtrlSts	HvacMode	CtrlTp	CISt	HtSt	SldAdOfs
8	SaTp	SaTpSt	CoilTpSt	SpCtp	InRh	RaTp	RaRH	OaTp
16	OaRh	OaWtbl	OaDewPt	SaStRt	DuctPr	FanVfdSg	BuildPr	RlfSgl
24	OaCFM	SaCFM	RaCFM	EtCFM	CO2	EcoPos	T24EcFb	RaDmp
32	RetBydmp	MdClSgl	MdHtSgl	Rt2Pos	MdGsVPos	A1Cmpr	A2Cmpr	A1Cndr
40	A2Cndr	A1SucPr	A2SucPr	A1HdPr	A2HdPr	A1SauTp	A2SauTp	A1SucTp
48	A2SucTp	A1SupHt	A2SupHt	A1ExpVv	A2ExpVv	A1DscTp	A2DscTp	A1LevWtr
56	B1Cmpr	B2Cmpr	B1Cndr	B2Cndr	B1SucPr	B2SucPr	B1HdPr	B2HdPr
64	B1SauTp	B2SauTp	B1SucTp	B2SucTp	B1SupHt	B2SupHt	B1ExpVv	B2ExpVv
72	B1DscTp	B2DscTp	B1LevWtr	C1Cmpr	C2Cmpr	C1Cndr	C2Cndr	C1SucPr
80	C2SucPr	C1HdPr	C2HdPr	C1SauTp	C2SauTp	C1SucTp	C2SucTp	C1SupHt
88	C2SupHt	C1ExpVv	C2ExpVv	C1DscTp	C2DscTp	C1LevWtr	D1Cmpr	D2Cmpr
96	D1Cndr	D2Cndr	D1SucPr	D2SucPr	D1HdPr	D2HdPr	D1SauTp	D2SauTp
104	D1SucTp	D2SucTp	D1SupHt	D2SupHt	D1ExpVv	D2ExpVv	D1DscTp	D2DscTp
112	D1LevWtr	AlmSts	PreHtLv1	PreHtLv2	PreHtEnt	PreHtRst	PreHtScr	PreHtPwm
120	ClEnbl	HtEnbl	EcoEnbl	AuxHtEn	EmHtEnbl	Pof	EtHood	RmOc
128	RmCl	RmHt	RmDhum	SaTpAlm	RaTpAlm	OaTpAlm	SpCtpAlm	CO2Alm
136	RefAlm	OaCfmAlm	EaCfmAlm	SaCfmAlm	RaCfmAlm	ClAlm	HtAlm	FanAlm
144	DrtFlAlm	EmerAlm	RlRnTm	EcoMs	EcoFlA	EcoFlB	EcoFlC	EcoFlD
152	EcoFlE	HiCfAlm	LoCfAlm	HiMdAlm	LoMdAlm	PreHtAlm	BadMod1	BadMod2
160	BadMod3	BadMod4	BadPreBd	BadRhtBd	BadMgsBd	BadEm1Bd	BadExRly	OnRly1
168	OnRly2	OnRly3	OnRly4	OnRly5	OnRly6	OnRly7	OnRly8	Em1Rly1
176	Em1Rly2	Em1Rly3	Em1Rly4	Em1Rly5	ExRly1	ExRly2	ExRly3	ExRly4
184	ExRly5	ExRly6	ExRly7	ExRly8	ExRly9	ExRly10	ExRly11	ExRly12
192	PreHtEn	PreHtEm	PreHtBi3	MdGsEn	RehtEnbl	A1CmpEn	A2CmpEn	A1Alm
200	A2Alm	ADfrSw	AWtrPf	M1Rly1	M1Rly2	M1Rly3	M1Rly4	M1Rly5
208	B1CmpEn	B2CmpEn	B1Alm	B2Alm	BDfrSw	BWtrPf	M2Rly1	M2Rly2
216	M2Rly3	M2Rly4	M2Rly5	C1CmpEn	C2CmpEn	C1Alm	C2Alm	CDfrSw
224	CWtrPf	M3Rly1	M3Rly2	M3Rly3	M3Rly4	M3Rly5	D1CmpEn	D2CmpEn
232	D1Alm	D2Alm	DDfrSw	DWtrPf	M4Rly1	M4Rly2	M4Rly3	M4Rly4
240	M4Rly5	OcpClSt	OcpHtSt	OaClSt	OaHtSt	UnClOst	UnHtOst	MdSelDb
248	HiClTpSt	LoClTpSt	SaClSt	SaHtSt	SaClRt	SaHtRt	SaClSgWd	SaHtSgWd
256	WmupSt	WmupSaSt	ClDnSaSp	ClLkOut	HtLkOut	LoSaCuOf	HiSaCuOf	PrHtClSt
264	PrHtVtSt	PrHtHtSt	DptSt	EcoEnbl1	HtWhDefr	PreHtSp	MaxSlDef	SpCtpOst
272	SaTpOst	RaTpOst	OaTpOst	CO2Ost	LWambnt	LoClRsSr	HiClRsSr	LoHtRsSr
280	HiHtRsSr	CTpHiAlO	CTpLoAlO	HpLkt	MaxVfd	VFDClMin	VFDHtMin	VFDVtMin
288	MaxEcoHt	MinEco	MaxEco	CO2MinLv	CO2MaxLv	InRhLoSt	InRhHiSt	DuctPrSt
296	DuctPrDb	RfPrSt	RlfPrDb	OACfmMin	OaCfmDb	SZVAVFnl	RlRnTmLm	HdPrCl

Table 2: VCC-X / VCCX2 Data Array For Field Server

8. DATA ARRAYS

8.2 VCB-X Data Array

VCC-X / VCCX2 Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
304	HdPrDhum	SupHtSp	HdPrCndr	SchdFrc	HvacMdOv	FanVfdOv	EcoOv	A1CondST
312	A2CondST	A1CondSH	A2CondSH	A1CondEV	A2CondEV	B1CondST	B2CondST	B1CondSH
320	B2CondSH	B2CondSH	B2CondEV	C1CondST	C2CondST	C1CondSH	C2CondSH	C1CondEV
328	C2CondEV	D1CondST	D2CondST	D1CondSH	D2CondSH	D1CondEV	D2CondEV	AEmShtDn
336	BEmShtDn	CEmShtDn	DEmShtDn	SaStOv	SpcTVal	SpcRhVal	Reserved	RelFanOV
344	RelPrVal	CO2Val	OaTVal	OaRhVal	HiLvIEtp	LoLvIEtp	MxPPRst	MnPPRst
352	EtpEnSp	EtpEnDb	MxStaRst	MnStaRst	StaRstlv	ClDnTgTp	WmUpOv	ClDnOv
360	RAHiLmtP	RALoLmtP	EFRAFPOF	-	-	-	-	-

Table 2, cont.: VCC-X / VCCX2 Data Array For Field Server

VCB-X Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	ClSt	HtSt	SpcTp	SaTp	OaTp	UnitMode	CtrlSts
8	ClEnbl	HtEnbl	EcoEnbl	FanDly	OnRlys	EcoPos	VfdBwPos	AlmSts
16	AlmGrp1	AlmGrp2	AlmGrp3	SaTpAlm	OaTpAlm	SpcTpAlm	MchClAlm	MchHtAlm
24	PofAlm	DrtFlAlm	SmokeAlm	LoSaAlm	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp
32	InRh	InRhStM	MdClPos	MdHtPos	OepClSt	OepHtSt	UnClOst	UnHtOst
40	SaClSt	SaHtSt	SpcTpOst	SaTpOst	OaTpOst	SchdFrc	OnRly1	OnRly2
48	OnRly3	OnRly4	OnRly5	OnRly6	MnExRly1	MnExRly2	MnExRly3	MnExRly4
56	MnExRly5	RIExRly1	RIExRly2	RIExRly3	RIExRly4	RIExRly5	RIExRly6	RIExRly7
64	RIExRly8	RIExRly9	RIExRly10	RIExRly11	RIExRly12	MinEcoSt	OaCFM	EtCFM
72	SaCFM	FrcHvacM	FrcFanSp	FrcEcono	SaTpStM	RaTp	OaRh	StaticPr
80	CO2	BuildPr	EtFnSpd	CoilTp	RaCFM	HeadPr	RtVlvPos	LvWtrTp
88	MdGsVPos	HeadPrSt	CdCtrSg1	OaClSt	OaHtSt	WmupTg	RhDewpSt	EcoEnbSt
96	RaTpOst	ColTpOfst	LWAmbnt	PreHtAmb	C02MinLv	C02MaxLv	InRhSt	StatPrSt
104	RfPrSt	OACfmMin	HiInRh	ClHdPrSt	HtHdPrSt	LoClTpSt	HiClTpSt	SaClRt
112	SaHtRt	ClLoRt	ClHiRt	HtLoRt	HtHiRt	CtrlMod	DschgTp	OaWtbl
120	OaDewPt	SucPr	CoilTpSt	RetBydmp	RaDmp	RaRH	SldAdOfs	MdSelDb
128	ClStgWdw	HtStgWdw	MchClLkt	MchHtLkt	LoSaCf	HiSaCf	DfrSt	LvH2Oost
136	CO2Ost	CTpHiAlm	CTpLoAlm	HpLkt	VFDClMin	VFDHtMin	VFDVtMin	MaxEcoHt
144	MaxEcoCO	HpDfrInt	AptDfr	DuctPfdB	RlfPrDb	OaCfmDb	SZVAVFnI	SaWmupSt
152	SaClDnSt	RehtEnbl	EmHtEnbl	RaTpAlm	MisEMI	ColPfAlm	CO2Alm	DschgAlm
160	OaCfmAlm	ExtCmSr	SaCfmSr	RaCfmSr	MisMHGRV	MisMDGAS	Mis12Rly	HiCtrlMd
168	LoCtrlMd	DigCmpCf	DigCmpLk	HiHedPr	H2OProf	LoSucPr	HiSucPr	-

Table 3: VCB-X Modular Data Array For Field Server

8.3 VCM-X Modular Data Array

VCM-X Modular Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	ClSt	HtSt	OaWtbl	TpDmnd	SpCtp	SaTp	RaTp
8	OaTp	DuctPr	OaRh	UnitMode	CtrlSts	ClEnbl	HtEnbl	EcoEnbl
16	FanDly	PofCfg	CO2Cfg	MdHt2Ins	Rt2Ins	OnRlys	ExRlys12	ExRlys34
24	EcoPos	VfdBwPos	VfdExPos	AlmSts	AlmGrp1	AlmGrp2	AlmGrp3	SaTpAlm
32	OaTpAlm	SpCtpAlm	MchClAlm	MchHtAlm	PofAlm	DrtFAlm	SmokeAlm	LoSaAlm
40	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp	InRh	InRhStM	DptStM	MdClPos
48	MdHtPos	MdHt2Pos	Rt2Pos	OcpClSt	OcpHtSt	UnClOst	UnHtOst	WtblSt
56	SaClSt	SaHtSt	WmupSt	SpCtpOst	SaTpOst	RaTpOst	OaTpOst	CoilTpSt
64	DptSt	InRhSt	DuctPrSt	RfPrSt	SchdFrc	OnRly1	OnRly2	OnRly3
72	OnRly4	OnRly5	ExRly1	ExRly2	ExRly3	ExRly4	ExRly5	ExRly6
80	ExRly7	ExRly8	ExRly9	ExRly10	ExRly11	ExRly12	ExRly13	ExRly14
88	ExRly15	ExRly16	CO2St	MinEcoSt	CO2Level	ByPasDmp	RaDmp	RfPr
96	OaDwpt	CoilTp	SaTpStM	PreHtSp	OaCFM	EtCFM	SaCFM	OACfmSt
104	OACfmRs	OACfmStM	MdCmp2	HdPr1	HdPr2	CdFan1	CdFan2	RmVFDPos
112	SaClRt	SaHtRt	ClLoRt	ClHiRt	HtLoRt	HtHiRt	T24EcFb	T24TpAlm
120	T24NEWS	T24EWISN	T24DpAlm	T24ExsOA	RaTpAlm	AlmGrp5	HdPr22	HdPr22
128	CdFan21	CdFan22	–	–	–	–	–	–

Table 4: VCM-X Modular Data Array For Field Server

8. DATA ARRAYS

8.4 VCM-X WSHP (Tulsa) Data Array

VCM-X WSHP (Tulsa) Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	CISt	HtSt	OaWtbl	TpDmnd	SpCtp	SaTp	RaTp
8	OaTp	DuctPr	OaRh	UnitMode	CtrlSts	CIEnbl	HtEnbl	EcoEnbl
16	FanDly	PofCfg	CO2Cfg	MdHt2Ins	Rt2Ins	OnRlys	ExRlys12	ExRlys34
24	EcoPos	VfdBwPos	VfdExPos	AlmSts	AlmGrp1	AlmGrp2	AlmGrp3	SaTpAlm
32	OaTpAlm	SpCtpAlm	MchClAlm	MchHtAlm	PofAlm	DrtFAlm	SmokeAlm	LoSaAlm
40	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp	InRh	InRhStM	DptStM	MdClPos
48	MdHtPos	MdHt2Pos	Rt2Pos	OcpClSt	OcpHtSt	UnClOst	UnHtOst	WtblSt
56	SaClSt	SaHtSt	WmupSt	SpCtpOst	SaTpOst	RaTpOst	OaTpOst	CoilTpSt
64	DptSt	InRhSt	DuctPrSt	RfPrSt	SchdFrc	OnRly1	OnRly2	OnRly3
72	OnRly4	OnRly5	ExRly1	ExRly2	ExRly3	ExRly4	ExRly5	ExRly6
80	ExRly7	ExRly8	ExRly9	ExRly10	ExRly11	ExRly12	ExRly13	ExRly14
88	ExRly15	ExRly16	CO2St	MinEcoSt	CO2Level	ByPasDmp	RaDmp	RfPr
96	OaDwpt	CoilTp	SaTpStM	PreHtSp	OaCFM	EtCFM	SaCFM	OACfmSt
104	OACfmRs	OACfmStM	MdCmp2	HdPr1	HdPr2	CdFan1	CdFan2	WaterTpA
112	WaterTpB	A1LSPAIm	A1LktAlm	A2LSPAIm	A2LktAlm	B1LSPAIm	B1LktAlm	B2LSPAIm
120	B2LktAlm	LWT1Alm	LWT2Alm	POWF1Alm	POWF2Alm	ComMAIm	RmVFDPos	SaClRt
128	SaHtRt	ClLoRt	ClHiRt	HtLoRt	HtHiRt	T24EcFb	T24TpAlm	T24NEWS
136	T24EWISN	T24DpAlm	T24ExsOA	RaTpAlm	AlmGrp5	HdPr22	HdPr22	CdFan21
144	CdFan22	–	–	–	–	–	–	–

Table 5: VCM-X WSHP (Tulsa) & RNE Data Array For Field Server

8.5 VCM-X WSHP (Coil) & 8.6 VCM-X Data Arrays

VCM-X WSHP (Coil) Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	ClSt	HtSt	OaWtbl	TpDmnd	SpCtp	SaTp	RaTp
8	OaTp	DuctPr	OaRh	UnitMode	CtrlSts	ClEnbl	HtEnbl	EcoEnbl
16	FanDly	PofCfg	CO2Cfg	MdHt2Ins	Rt2Ins	OnRlys	ExRlys12	ExRlys34
24	EcoPos	VfdBwPos	VfdExPos	AlmSts	AlmGrp1	AlmGrp2	AlmGrp3	SaTpAlm
32	OaTpAlm	SpCtpAlm	MchClAlm	MchHtAlm	PofAlm	DrtFAlm	SmokeAlm	LoSaAlm
40	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp	InRh	InRhStM	DptStM	MdClPos
48	MdHtPos	MdHt2Pos	Rt2Pos	OcpClSt	OcpHtSt	UnClOst	UnHtOst	WtblSt
56	SaClSt	SaHtSt	WmupSt	SpCtpOst	SaTpOst	RaTpOst	OaTpOst	CoilTpSt
64	DptSt	InRhSt	DuctPrSt	RfPrSt	SchdFrc	OnRly1	OnRly2	OnRly3
72	OnRly4	OnRly5	ExRly1	ExRly2	ExRly3	ExRly4	ExRly5	ExRly6
80	ExRly7	ExRly8	ExRly9	ExRly10	ExRly11	ExRly12	ExRly13	ExRly14
88	ExRly15	ExRly16	CO2St	MinEcoSt	CO2Level	ByPasDmp	RaDmp	RfPr
96	OaDwpt	CoilTp	SaTpStM	PreHtSp	OaCFM	EtCFM	SaCFM	OACfmSt
104	OACfmRs	OACfmStM	MdCmp2	HdPr1	HdPr2	CdFan1	CdFan2	WaterTpA
112	A1LSPAlm	A1LktAlm	B1LSPAlm	B1LktAlm	LWT1Alm	POWF1Alm	ComMAlm	RmVFDPos
120	SaClRt	SaHtRt	ClLoRt	ClHiRt	HtLoRt	HtHiRt	T24EcFb	T24TpAlm
128	T24NEWS	T24EWISN	T24DpAlm	T24ExsOA	RaTpAlm	-	-	-

Table 6: VCM-X WSHP (Coil) Data Array For Field Server

VCM-X Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	ClSt	HtSt	OaWtbl	TpDmnd	SpCtp	SaTp	RaTp
8	OaTp	DuctPr	OaRh	UnitMode	CtrlSts	ClEnbl	HtEnbl	EcoEnbl
16	FanDly	PofCfg	CO2Cfg	MdHt2Ins	Rt2Ins	OnRlys	ExRlys12	ExRlys34
24	EcoPos	VfdBwPos	VfdExPos	AlmSts	AlmGrp1	AlmGrp2	AlmGrp3	SaTpAlm
32	OaTpAlm	SpCtpAlm	MchClAlm	MchHtAlm	PofAlm	DrtFAlm	SmokeAlm	LoSaAlm
40	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp	InRh	InRhStM	DptStM	MdClPos
48	MdHtPos	MdHt2Pos	Rt2Pos	OcpClSt	OcpHtSt	UnClOst	UnHtOst	WtblSt
56	SaClSt	SaHtSt	WmupSt	SpCtpOst	SaTpOst	RaTpOst	OaTpOst	CoilTpSt
64	DptSt	InRhSt	DuctPrSt	RfPrSt	SchdFrc	OnRly1	OnRly2	OnRly3
72	OnRly4	OnRly5	ExRly1	ExRly2	ExRly3	ExRly4	ExRly5	ExRly6
80	ExRly7	ExRly8	ExRly9	ExRly10	ExRly11	ExRly12	ExRly13	ExRly14
88	ExRly15	ExRly16	CO2St	MinEcoSt	CO2Level	ByPasDmp	RaDmp	RfPr
96	OaDwpt	CoilTp	SaTpStM	PreHtSp	OaCFM	EtCFM	SaCFM	OACfmSt
104	OACfmRs	OACfmStM	SaClRt	SaHtRt	ClLoRt	ClHiRt	HtLoRt	HtHiRt

Table 7: VCM-X Data Array For Field Server

8. DATA ARRAYS

8.7 SA & 8.8 VCM Data Arrays

SA Controller Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	CISt	HtSt	TpDmnd	SpCtp	SaTp	DuctPr	UnitMode
8	CtrlSts	CIEnbl	HtEnbl	EcoEnbl	FanDly	MdHt2Ins	Rt2Ins	EcoPos
16	VfdBwPos	SaTpAlm	SpCtpAlm	MchClAlm	MchHtAlm	PofAlm	DrtFlAlm	LoSaAlm
24	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp	InRh	InRhStM	DptStM	MdClPos
32	MdHtPos	MdHt2Pos	Rt2Pos	OcpClSt	OcpHtSt	UnClOst	UnHtOst	SaClSt
40	SaHtSt	WmupSt	SpCtpOst	SaTpOst	CoilTpSt	DptSt	InRhSt	DuctPrSt
48	SchDFrc	OnRly1	OnRly2	OnRly3	OnRly4	OnRly5	ExRly1	ExRly2
56	ExRly3	ExRly4	ExRly5	ExRly6	ExRly7	ExRly8	ExRly9	ExRly10
64	ExRly11	ExRly12	ExRly13	ExRly14	ExRly15	ExRly16	CoilTp	SaTpStM
72	PreHtSp	EaTp	EwTp	EaRH	HdPr1	HdPr2	CoilTp2	EaDpt
80	WSEByp	WSEByp2	MdCmp2	CoilTpSt	CdPos1	CdPos2	EaTpAlm	EmerAlm
88	PoWFAIm	DrnAlm	EaTpOst	EwTpOst	SaClRt	SaHtRt	ClLoRt	ClHiRt
96	HtLoRt	HtHiRt	-	-	-	-	-	-

Table 8: SA Controller Data Array For Field Server

VCM Data Array For Field Server								
Offset	0	1	2	3	4	5	6	7
0	AppVer	CISt	HtSt	OaWtbl	TpDmnd	SpCtp	SaTp	RaTp
8	OaTp	DuctPr	OaRh	UnitMode	CtrlSts	ClDmnd	HtDmnd	DehmDmnd
16	CIEnbl	HtEnbl	EcoEnbl	FanDly	WmupDmnd	PofCfg	CO2Cfg	MdHt2Ins
24	Rt2Ins	OnRlys	ExRlys12	ExRlys34	EcoPos	VfdBwPos	VfdExPos	AlmSts
32	AlmGrp1	AlmGrp2	AlmGrp3	SaTpAlm	OaTpAlm	SpCtpAlm	MchClAlm	MchHtAlm
40	PofAlm	DrtFlAlm	SmokeAlm	LoSaAlm	HiSaAlm	CtrlTpCF	CtrlTpHF	CtrlTp
48	InRh	InRhStM	DptStM	MdClPos	MdHtPos	MdHt2Pos	Rt2Pos	OcpClSt
56	OcpHtSt	UnClOst	UnHtOst	WtblSt	SaClSt	SaHtSt	WmupSt	SpCtpOst
64	SaTpOst	RaTpOst	OaTpOst	CoilTpSt	DptSt	InRhSt	DuctPrSt	RfPrSt
72	SchDFrc	OnRly1	OnRly2	OnRly3	OnRly4	OnRly5	ExRly1	ExRly2
80	ExRly3	ExRly4	ExRly5	ExRly6	ExRly7	ExRly8	ExRly9	ExRly10
88	ExRly11	ExRly12	ExRly13	ExRly14	ExRly15	ExRly16	CO2St	MinEcoSt
96	CO2Level	ByPasDmp	RaDmp	RfPr	OaDwpt	CoilTp	SaTpStM	PreHtSp

Table 9: VCM Data Array For Field Server

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

NOTE: Analog Outputs and Binary Outputs are read-only. Only Analog Inputs are read/writeable. You cannot write directly to Sensor Inputs.

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Application Software Version	AppVer	Analog Output	Current version of the software in the unit.	
Control Mode	CtrlMod	Analog Output	Configured unit application.	See Control Mode Bits on page 45.
Control Status	CtrlSts	Analog Output	Current Occupied/Unoccupied status.	See Control Mode Bits on page 45.
Hvac Mode	HvacMode	Analog Output	Current operational status.	See HVAC Mode Bits on page 45.
Control Temperature	CtrlTp	Analog Output	Current value of the Control Temperature Sensor.	
Mode Cooling Setpoint	ClSt	Analog Output	Occupied Cooling Mode Enable Setpoint Mirror.	
Mode Heating Setpoint	HtSt	Analog Output	Occupied Heating Mode Enable Setpoint Mirror.	
Sensor Slide Adjust Effect	SldAdOfs	Analog Output	Amount Of Current Sensor Slide Offset.	
Supply Air Temperature	SaTp	Analog Output	Current value of the Supply Air Temperature sensor.	
Supply Air Setpoint	SaTpSt	Analog Output	Current SAT Cooling or Heating Setpoint if there is no reset source; Current calculated SAT setpoint with Reset Source.	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Controlling Coil Temp Setpoint	CoilTpSt	Analog Output	This is the current calculated Coil Suction Temperature target during Dehumidification Mode.	
Space Temperature	SpcTp	Analog Output	Current value of the Space Temperature Sensor.	
Space Humidity	InRh	Analog Output	Current value of the Space Humidity.	
Return Air Temperature	RaTp	Analog Output	Current value of the Return Temperature Sensor.	
Return Air Humidity	RaRH	Analog Output	Current value of the Return Air Humidity.	
Outdoor Air Temperature	OaTp	Analog Output	Current value of the Outdoor Air Temperature Sensor.	
Outdoor Air Humidity	OaRh	Analog Output	Current value of the Outdoor Humidity Sensor.	
Outdoor Air Wetbulb	OaWtbl	Analog Output	Current calculated Outdoor Wetbulb Temperature.	
Outdoor Air Dewpoint	OaDewPt	Analog Output	Current Calculated Outdoor Air Dewpoint Temperature.	
Supply Air Setpoint Reset Voltage	SaStRt	Analog Output	Supply Air Temp Setpoint Reset Input Signal.	
Duct Static Pressure	DuctPr	Analog Output	Current Duct Static Pressure.	
Duct Static Control Signal	FanVfdSg	Analog Output	Current Duct Static Control Signal (Fan VFD).	
Building Pressure	BuildPr	Analog Output	Current value of the Building Pressure Sensor.	
Building Pressure Control Signal	RlfSgl	Analog Output	Current Building Pressure Control Signal.	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Outdoor Airflow	OaCFM	Analog Output	Current Outdoor Airflow Measurement.	
Supply Airflow	SaCFM	Analog Output	Current Supply Airflow Measurement.	
Return Airflow	RaCFM	Analog Output	Current Return Airflow Measurement.	
Exhaust Airflow	EtCFM	Analog Output	Current Exhaust Airflow Measurement	
Carbon Dioxide	CO2	Analog Output	Current Indoor CO ₂ Level.	
Desired Economizer Position	EcoPos	Analog Output	Current Modulating Signal to the Economizer Damper.	
Economizer Feedback Position	T24EcFb	Analog Output	Title 24 current position of feedback from Economizer actuator.	
Return Damper Position	RaDmp	Analog Output	Current Signal to the Return Air Damper if using Return Air Bypass.	
Return Bypass Position	RetBydmp	Analog Output	Current Signal to the Return Air Bypass Damper if using Return Air Bypass.	
Modulating Cooling Position	MdClSgl	Analog Output	Current percentage of the Modulating Cooling Signal (Chilled Water or Digital Compressor).	
Modulating Heat Position	MdHtSgl	Analog Output	Current percentage of the Modulating Heating signal (Hot Water or SCR heat).	
Preheater Leaving Air Temp #1	PreHtLv1	Analog Output	Current Preheater Leaving Air Temperature #1	
Preheater Leaving Air Temp #2	PreHtLv2	Analog Output	Current Preheater Leaving Air Temperature #2	
Preheater Entering Air Temp	PreHtEnt	Analog Output	Current Entering Air Temp for Preheater.	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Preheater Setpoint Reset Voltage	PreHtRst	Analog Output	Current Voltage Reset Input Value for Preheater.	
Preheater SCR Output Signal	PreHtScr	Analog Output	Current Modulating Heat Signal for Preheater.	
Preheater PWM Output Signal	PreHtPwm	Analog Output	Current PWM Output Signal for Preheater.	
Mod Hot Gas Reheat Valve Position	Rt2Pos	Analog Output	Current position of MHGRV Modulating Hot Gas Reheat Valve.	
Mod Gas Heat Valve Position	MdGsVPos	Analog Output	Current position of MODGAS Modulating Gas Valve Control.	
A1 Compressor Signal	A1Cmpr	Analog Output	Current Compressor A1 Modulating Cooling Signal.	
A2 Compressor Signal	A2Cmpr	Analog Output	Current Compressor A2 Modulating Cooling Signal	
A1 Condenser Signal	A1Cndr	Analog Output	Current A1 Condenser Signal	
A2 Condenser Signal	A2Cndr	Analog Output	Current A2 Condenser Signal	
A1 Suction Pressure	A1SucPr	Analog Output	Current Compressor A1 Suction Pressure	
A2 Suction Pressure	A2SucPr	Analog Output	Current Compressor A2 Suction Pressure	
A1 Head Pressure	A1HdPr	Analog Output	Current Compressor A1 Head Pressure	
A2 Head Pressure	A2HdPr	Analog Output	Current Compressor A2 Head Pressure	
A1 Saturation Temperature	A1SauTp	Analog Output	Current Compressor A1 Coil Saturation Temperature	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
A2 Saturation Temperature	A2SauTp	Analog Output	Current Compressor A2 Coil Saturation Temperature	
A1 Suction Line Temperature	A1SucTp	Analog Output	Current Compressor A1 Suction Line Temperature	
A2 Suction Line Temperature	A2SucTp	Analog Output	Current Compressor A2 Suction Line Temperature	
A1 Superheat Temperature	A1SupHt	Analog Output	Current Compressor A1 Superheat Temperature	
A2 Superheat Temperature	A2SupHt	Analog Output	Current Compressor A2 Superheat Temperature	
A1 Expansion Valve Position	A1ExpVv	Analog Output	Current position of Compressor A1 Expansion Valve	
A2 Expansion Valve Position	A2ExpVv	Analog Output	Current position of Compressor A2 Expansion Valve	
A1 Discharge Temperature	A1DscTp	Analog Output	Current Compressor A1 Discharge Temperature	
A2 Discharge Temperature	A2DscTp	Analog Output	Current Compressor A2 Discharge Temperature	
A1 Leaving Water Temp	ALevWtr	Analog Output	Current A1 Leaving Water Temperature for WSHP	
B1 Compressor Signal	B1Cmpr	Analog Output	Current Compressor B1 Modulating Cooling Signal	
B2 Compressor Signal	B2Cmpr	Analog Output	Current Compressor B2 Modulating Cooling Signal	
B1 Condenser Signal	B1Cndr	Analog Output	Current B1 Condenser Signal	
B2 Condenser Signal	B2Cndr	Analog Output	Current B2 Condenser Signal	
B1 Suction Pressure	B1SucPr	Analog Output	Current Compressor B1 Suction Pressure	
B2 Suction Pressure	B2SucPr	Analog Output	Current Compressor B2 Suction Pressure	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
B1 Head Pressure	B1HdPr	Analog Output	Current Compressor B1 Head Pressure	
B2 Head Pressure	B2HdPr	Analog Output	Current Compressor B2 Head Pressure	
B1 Saturation Temperature	B1SauTp	Analog Output	Current Compressor B1 Coil Saturation Temperature	
B2 Saturation Temperature	B2SauTp	Analog Output	Current Compressor B2 Coil Saturation Temperature	
B1 Suction Line Temperature	B1SucTp	Analog Output	Current Compressor B1 Suction Line Temperature	
B2 Suction Line Temperature	B2SucTp	Analog Output	Current Compressor B2 Suction Line Temperature	
B1 Superheat Temperature	B1SupHt	Analog Output	Current Compressor B1 Superheat Temperature	
B2 Superheat Temperature	B2SupHt	Analog Output	Current Compressor B2 Superheat Temperature	
B1 Expansion Valve Position	B1ExpVv	Analog Output	Current position of Compressor B1 Expansion Valve	
B2 Expansion Valve Position	B2ExpVv	Analog Output	Current position of Compressor B2 Expansion Valve	
B1 Discharge Temperature	B1DscTp	Analog Output	Current Compressor B1 Discharge Temperature	
B2 Discharge Temperature	B2DscTp	Analog Output	Current Compressor B2 Discharge Temperature	
B1 Leaving Water Temp	BLevWtr	Analog Output	Current B1 Leaving Water Temperature for WSHP	
C1 Compressor Signal	C1Cmpr	Analog Output	Current Compressor C1 Modulating Cooling Signal	
C2 Compressor Signal	C2Cmpr	Analog Output	Current Compressor C2 Modulating Cooling Signal	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
C1 Condenser Signal	C1Cndr	Analog Output	Current C1 Condenser Signal	
C2 Condenser Signal	C2Cndr	Analog Output	Current C2 Condenser Signal	
C1 Suction Pressure	C1SucPr	Analog Output	Current Compressor C1 Suction Pressure	
C2 Suction Pressure	C1SucPr1	Analog Output	Current Compressor C2 Suction Pressure	
C1 Head Pressure	C1HdPr	Analog Output	Current Compressor C1 Head Pressure	
C2 Head Pressure	C2HdPr	Analog Output	Current Compressor C2 Head Pressure	
C1 Saturation Temperature	C1SauTp	Analog Output	Current Compressor C1 Coil Saturation Temperature	
C2 Saturation Temperature	C2SauTp	Analog Output	Current Compressor C2 Coil Saturation Temperature	
C1 Suction Line Temperature	C1SucTp	Analog Output	Current Compressor C1 Suction Line Temperature	
C2 Suction Line Temperature	C2SucTp	Analog Output	Current Compressor C2 Suction Line Temperature	
C1 Superheat Temperature	C1SupHt	Analog Output	Current Compressor C1 Superheat Temperature	
C2 Superheat Temperature	C2SupHt	Analog Output	Current Compressor C2 Superheat Temperature	
C1 Expansion Valve Position	C1ExpVv	Analog Output	Current position of Compressor C1 Expansion Valve	
C2 Expansion Valve Position	C2ExpVv	Analog Output	Current position of Compressor C2 Expansion Valve	
C1 Discharge Temperature	C1DscTp	Analog Output	Current Compressor C1 Discharge Temperature	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
C2 Discharge Temperature	C2DscTp	Analog Output	Current Compressor C2 Discharge Temperature	
C1 Leaving Water Temp	CLevWtr	Analog Output	Current C1 Leaving Water Temperature for WSHP	
D1 Compressor Signal	D1Cmpr	Analog Output	Current Compressor D1 Modulating Cooling Signal	
D2 Compressor Signal	D2Cmpr	Analog Output	Current Compressor D2 Modulating Cooling Signal	
D1 Condenser Signal	D1Cndr	Analog Output	Current D1 Condenser Signal	
D2 Condenser Signal	D2Cndr	Analog Output	Current D2 Condenser Signal	
D1 Suction Pressure	D1SucPr	Analog Output	Current Compressor D1 Suction Pressure	
D2 Suction Pressure	D2SucPr1	Analog Output	Current Compressor D2 Suction Pressure	
D1 Head Pressure	D1HdPr	Analog Output	Current Compressor D1 Head Pressure	
D2 Head Pressure	D2HdPr	Analog Output	Current Compressor D2 Head Pressure	
D1 Saturation Temperature	D1SauTp	Analog Output	Current Compressor D1 Coil Saturation Temperature	
D2 Saturation Temperature	D2SauTp	Analog Output	Current Compressor D2 Coil Saturation Temperature	
D1 Suction Line Temperature	D1SucTp	Analog Output	Current Compressor D1 Suction Line Temperature	
D2 Suction Line Temperature	D2SucTp	Analog Output	Current Compressor D2 Suction Line Temperature	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
D1 Superheat Temperature	D1SupHt	Analog Output	Current Compressor D1 Superheat Temperature	
D2 Superheat Temperature	D2SupHt	Analog Output	Current Compressor D2 Superheat Temperature	
D1 Expansion Valve Position	D1ExpVv	Analog Output	Current position of Compressor D1 Expansion Valve	
D2 Expansion Valve Position	D2ExpVv	Analog Output	Current position of Compressor D2 Expansion Valve	
D1 Discharge Temperature	D1DscTp	Analog Output	Current Compressor D1 Discharge Temperature	
D2 Discharge Temperature	D2DscTp	Analog Output	Current Compressor D2 Discharge Temperature	
D1 Leaving Water Temp	DLevWtr	Analog Output	Current D1 Leaving Water Temperature for WSHP	
Alarm Status	AlmSts	Analog Output	Indicates an alarm condition.	0 = No Alarms 1 = Alarm(s) Present.
A1 Condenser Suction Temp (Heat Pump)	A1CondST	Analog Output	Current Compressor A1 Suction Line Temperature (Heat Pump)	
A2 Condenser Suction Temp (Heat Pump)	A2CondST	Analog Output	Current Compressor A2 Suction Line Temperature (Heat Pump)	
Condenser A1 Superheat (Heat Pump)	A1CondSH	Analog Output	Current Compressor A1 Superheat Temperature (Heat Pump)	
Condenser A2 Superheat (Heat Pump)	A2CondSH	Analog Output	Current Compressor A2 Superheat Temperature (Heat Pump)	
Condenser A1 Expansion Valve Position	A1CondEV	Analog Output	Current position of Condenser A1 Expansion Valve	
Condenser A2 Expansion Valve Position	A2CondEV	Analog Output	Current position of Condenser A2 Expansion Valve	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
B1 Condenser Suction Temp (Heat Pump)	B1CondST	Analog Output	Current Compressor B1 Suction Line Temperature (Heat Pump)	
B2 Condenser Suction Temp (Heat Pump)	B2CondST	Analog Output	Current Compressor B2 Suction Line Temperature (Heat Pump)	
Condenser B1 Superheat (Heat Pump)	B1CondSH	Analog Output	Current Compressor B1 Superheat Temperature (Heat Pump)	
Condenser B2 Superheat (Heat Pump)	B2CondSH	Analog Output	Current Compressor B2 Superheat Temperature (Heat Pump)	
Condenser B1 Expansion Valve Position	B1CondEV	Analog Output	Current position of Condenser B1 Expansion Valve	
Condenser B2 Expansion Valve Position	B2CondEV	Analog Output	Current position of Condenser B2 Expansion Valve	
C1 Condenser Suction Temp (Heat Pump)	C1CondST	Analog Output	Current Compressor C1 Suction Line Temperature (Heat Pump)	
C2 Condenser Suction Temp (Heat Pump)	C2CondST	Analog Output	Current Compressor C2 Suction Line Temperature (Heat Pump)	
Condenser C1 Superheat (Heat Pump)	C1CondSH	Analog Output	Current Compressor C1 Superheat Temperature (Heat Pump)	
Condenser C2 Superheat (Heat Pump)	C2CondSH	Analog Output	Current Compressor C2 Superheat Temperature (Heat Pump)	
Condenser C1 Expansion Valve Position	C1CondEV	Analog Output	Current position of Condenser C1 Expansion Valve	
Condenser C2 Expansion Valve Position	C2CondEV	Analog Output	Current position of Condenser C2 Expansion Valve	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
D1 Condenser Suction Temp (Heat Pump)	D1CondST	Analog Output	Current Compressor D1 Suction Line Temperature (Heat Pump)	
D2 Condenser Suction Temp (Heat Pump)	D2CondST	Analog Output	Current Compressor D2 Suction Line Temperature (Heat Pump)	
Condenser D1 Superheat (Heat Pump)	D1CondSH	Analog Output	Current Compressor D1 Superheat Temperature (Heat Pump)	
Condenser D2 Superheat (Heat Pump)	D2CondSH	Analog Output	Current Compressor D2 Superheat Temperature (Heat Pump)	
Condenser D1 Expansion Valve Position	D1CondEV	Analog Output	Current position of Condenser D1 Expansion Valve	
Condenser D2 Expansion Valve Position	D2CondEV	Analog Output	Current position of Condenser D2 Expansion Valve	

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Occupied Cooling Setpoint	OcpClSt	Analog Input	If the control temperature rises one degree above this setpoint, the control will activate the cooling demand. If the control sensor is the Supply Air Sensor, then the cooling demand is always active.	1	110
Occupied Heating Setpoint	OcpHtSt	Analog Input	If the control temperature drops one degree below this setpoint, the control will activate the heating demand. If the control sensor is the Supply Air Sensor, then there is no heating demand.	1	110
Hood On Cooling Setpoint	OaClSt	Analog Input	This is the Cooling Mode Enable Setpoint used only in Hood On Mode or Space Temperature Control of High Percentage Outdoor Air Units or VAV Tempering.	1	110
Hood On Heating Setpoint	OaHtSt	Analog Input	This is the Heating Mode Enable Setpoint used only in Hood On Mode or Space Temperature Control of High Percentage Outdoor Air Units or VAV Tempering.	1	110

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Unoccupied Cooling Offset	UnClOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint offsets the Occupied Cooling Setpoint up by this user-adjustable amount. If you do not want Cooling to operate during the Unoccupied Mode, use the default setting of 30°F for this setpoint.	0	30
Unoccupied Heating Offset	UnHtOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint offsets the Occupied Heating Setpoint down by this user-adjustable amount. If you do not want Heating to operate during the Unoccupied Mode, use the default setting of 30°F for this setpoint.	0	30
Mode Select Deadband	MdSelDb	Analog Input	This value is added to and subtracted from the HVAC Mode Setpoints to create a control deadband range.	0	10
Max Coil Setpoint Reset Limit	HiClTpSt	Analog Input	This is the highest that the Coil Temperature will be reset to during Space Humidity Reset of the Coil Suction Temperature Setpoint. If no coil temperature reset is required, this value should be set the same as the Min Coil Reset Limit.	35	70

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Min Coil Setpoint Reset Limit	LoClTpSt	Analog Input	This is the lowest that the Coil Temperature will be reset to during Space Humidity Reset of the Coil Suction Temperature Setpoint. If no coil temperature reset is required, this value should be set the same as the Max Coil Reset Limit.	35	70
Supply Air Cooling Setpoint	SaClSt	Analog Input	Supply Air Cooling Setpoint. If Supply Air Reset is configured this is the Low SAT Cooling Reset Value.	30	80
Supply Air Heating Setpoint	SaHtSt	Analog Input	Supply Air Heating Setpoint. If Supply Air Reset is configured this is the Low SAT Heating Reset Value.	40	240
Max SAT Cooling Setpoint Reset Limit	SaClRt	Analog Input	If Supply Air Reset is configured this is the High SAT Cooling Reset Value.	0	100
Max SAT Heating Setpoint Reset Limit	SaHtRt	Analog Input	If Supply Air Reset is configured this is the High SAT Heating Reset Value.	0	250
Supply Air Cooling Staging Window	SaClSgWd	Analog Input	In Cooling Mode, if the Supply Air Temperature drops below the Active Supply Air Cooling Setpoint minus this Staging Window, a Cooling Stage will be deactivated after its Minimum Run Time.	1	30

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Supply Air Heating Staging Window	SaHtSgWd	Analog Input	In Heating Mode, if the Supply Air Temperature rises above the Active Supply Air Heating Setpoint plus this Staging Window, a Heating Stage will be deactivated after its Minimum Run Time.	1	50
Warm-Up Target Temperature	WmupSt	Analog Input	If Morning Warm-Up is configured then upon entering the occupied mode, the Warm-Up Mode will be activated if the return air is below this temperature by one degree.	50	90
Warm-Up Mode Supply Air Setpoint	WmupSaSt	Analog Input	During Morning Warm-Up, the Supply Air Temperature will be controlled to this Setpoint.	40	240
Cool-Down Mode Supply Air Setpoint	ClDnSaSp	Analog Input	During Morning Cool-Down, the Supply Air Temperature will be controlled to this Setpoint.	30	80
Mechanical Cooling Outdoor Air Lockout	CILkOut	Analog Input	Mechanical Cooling will be locked out when the Outdoor Air Temperature is below this Setpoint.	-30	100
Mechanical Heating Outdoor Air Lockout	HtLkOut	Analog Input	Mechanical Heating will be locked out when the Outdoor Air Temperature is above this Setpoint.	-30	150
Low Supply Temp Cutoff Alarm	LoSaCuOf	Analog Input	Cooling will be disabled if the Supply Air Temperature falls below this value. See sequence for more details.	0	100

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
High Supply Temp Cutoff Alarm	HiSaCuOf	Analog Input	Heating will be disabled if the Supply Air Temperature rises above this value. See sequence for more details.	0	250
Preheater Cooling Mode Setpoint	PrHtClSt	Analog Input	If the Preheater is enabled, and the unit is in the Cooling Mode, this setpoint will be sent to the Preheat-X Controller to control Leaving Air Temperature.	35	90
Preheater Venting Mode Setpoint	PrHtVtSt	Analog Input	If the Preheater is enabled, and the unit is in the Vent Mode, this setpoint will be sent to the Preheat-X Controller to control Leaving Air Temperature.	35	90
Preheater Heating Mode Setpoint	PrHtHtSt	Analog Input	If the Preheater is enabled, and the unit is in the Heating Mode, this setpoint will be sent to the Preheat-X Controller to control Leaving Air Temperature.	35	90
Outdoor Air Dewpoint Setpoint	DptSt	Analog Input	On an MUA unit, if the OA dewpoint rises above this setpoint, Dehumidification is initiated.	35	80
Economizer Enable Setpoint	EcoEnbl1	Analog Input	The economizer is enabled if the outdoor drybulb, dewpoint, or wetbulb temperature falls below this setpoint.	-30	80
Heat Wheel Defrost Enable Setpoint	HtWhDefr	Analog Input	The unit will go into Heat Wheel Defrost if the Outdoor Air is below this setpoint.	0	50

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
PreHeat Enable Setpoint	PreHtSp	Analog Input	If the Supply Fan is energized this is the temperature at which the Preheat Relay will activate or the Preheat-X Controller will activate. Operates only in the Occupied Mode.	-30	70
Sensor Slide Offset Max Effect	MaxSlidEf	Analog Input	If your space sensor has the optional slide adjustment feature, this is the maximum amount the slide can adjust the current heating and cooling setpoints up or down with full deflection of the slide.	0	10
Space Sensor Calibration Offset	SpcTpOst	Analog Input	If the Space Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Supply Air Sensor Calibration Offset	SaTpOst	Analog Input	If the Supply Air Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Return Air Sensor Calibration Offset	RaTpOst	Analog Input	If the Return Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Outdoor Air Sensor Calibration Offset	OaTpOst	Analog Input	If the Outdoor Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Carbon Dioxide Sensor Calibration Offset	CO2Ost	Analog Input	If the CO ₂ Sensor is reading incorrectly, you can use this option to enter an offset value to adjust the Sensor's CO ₂ reading.	-500	500
Low Ambient Protection Setpoint	LWAmbnt	Analog Input	Temperature at which the Low Ambient Relay will activate in the Occupied or Unoccupied Mode.	-30	70
SAT Cool Setpoint Reset Source Low Limit	LoClRsSr	Analog Input	If doing Supply Air Setpoint Reset, this is the Low Reset Source value in Cooling that will correspond to the Supply Air Cool High Reset Setpoint.	-30	150
SAT Cool Setpoint Reset Source High Limit	HiClRsSr	Analog Input	If doing Supply Air Setpoint Reset, this is the High Reset Source value in Cooling that will correspond to the Supply Air Cooling Setpoint (Low Reset).	0	150
SAT Heat Setpoint Reset Source Low Limit	LoHtRsSr	Analog Input	If doing Supply Air Setpoint Reset, this is the Low Reset Source value in Heating that will correspond to the Supply Air Heating High Reset Setpoint.	-30	150

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9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
SAT Heat Setpoint Reset Source High Limit	HiHtRsSr	Analog Input	If doing Supply Air Setpoint Reset, this is the High Reset Source value in Heating that will correspond to the Supply Air Heating Setpoint (Low Reset).	1	150
Control Temperature High Alarm Offset	CTpHiAIO	Analog Input	If the temperature of the controlling sensor rises above the Occupied Cooling Setpoint by this value, a High Control Temp Alarm will occur. Only applies if configured for Space or Return Air Temp Control, or as Single Zone VAV.	0	50
Control Temperature Low Alarm Offset	CTpLoAIO	Analog Input	If the temperature of the controlling sensor falls below the Occupied Heating Setpoint by this value, a Low Control Temp Alarm will occur. Only applies if configured for Space or Return Air Temp Control, or as Single Zone VAV.	0	50
Heat Pump Compressor Heat Lockout	HpLkt	Analog Input	Compressor Heat will be locked out below this setpoint.	-30	100
Maximum Main Fan VFD in SZ VAV Heating Mode	MaxVfd	Analog Input	In Single Zone VAV configuration, this is the max fan speed the VFD can modulate up to in Heat Mode.	0	100

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Minimum Main Fan VFD in Cooling Mode	VFDCImin	Analog Input	In Single Zone VAV configuration, this is the fan speed at which the VFD will start when Cooling is initiated. In a VAV configuration this is the lowest fan speed allowed in the Cooling Mode. In CAV and MUA configurations this should be set to 100%.	0	100
Minimum Main Fan VFD in Heating Mode	VFDHtMin	Analog Input	In Single Zone VAV configuration, this is the fan speed at which the VFD will start when Heating is initiated. In a VAV configuration this is the lowest fan speed allowed in the Heating Mode. In CAV and MUA configurations this should be set to 100%.	0	100
Minimum Main Fan VFD in Vent Mode	VFDVtMin	Analog Input	Speed at which the VFD will operate in the Vent Mode in Single Zone VAV.	0	100
Maximum Economizer in Heating Mode	MaxEcoHt	Analog Input	Max position the Economizer Damper can open to in Supply Air Tempering during Heating Mode. Takes priority over Max Position in High CO ₂ .	0	60
Minimum Economizer Position	MinEco	Analog Input	The minimum position of the Outdoor Air damper in the Occupied Mode. This can be reset upwards based on indoor CO ₂ levels.	0	100

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Maximum Economizer CO ₂ Reset Limit	MaxEco	Analog Input	The maximum value the Economizer Minimum Position can be reset up to during CO ₂ override.	0	100
Minimum Carbon Dioxide Setpoint	CO2MinLv	Analog Input	This is the threshold CO ₂ level at which the Economizer Min Damper Position Setpoint will begin to be reset higher.	0	2000
Maximum Carbon Dioxide Setpoint	CO2MaxLv	Analog Input	This is the CO ₂ level at which the Economizer Min Damper Position will be reset to the Economizer Max Position in High CO ₂ . In between the Min and Max CO ₂ levels the Economizer Min Damper Position will be proportionally reset between the configured Min Damper Position and the Max Position in High CO ₂ .	0	2000
Indoor Humidity Setpoint Low Reset Limit	InRhLoSt	Analog Input	On indoor controlled (non MUA) units, this is the Humidity setpoint that initiates Dehumidification. During Coil Temp Reset, this is the lowest Space RH value that corresponds to the High Coil Temp Setpoint.	0	100
Indoor Humidity Setpoint High Reset Limit	InRhHiSt	Analog Input	During Coil Temp Reset, this is the highest Space RH value that corresponds to the Low Coil Temp Setpoint.	0	100
Duct Static Pressure Setpoint	DuctPrSt	Analog Input	Current Static Pressure Setpoint.	.10	3.0

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Duct Static Pressure Control Deadband	DuctPrDb	Analog Input	Value above and below the Duct Static Pressure Setpoint where no control change occurs.	.01	.5
Building Pressure Control Setpoint	RfPrSt	Analog Input	Building Pressure Setpoint.	-.20	.20
Building Pressure Control Deadband	RfPrDb	Analog Input	Value above and below the Building Pressure Setpoint where no control change occurs.	.01	.1
Minimum Outdoor CFM Requirement	OACfmMin	Analog Input	Minimum Outdoor Airflow CFM Setpoint	.10K	200K
Outdoor CFM Control Deadband	OaCfmDb	Analog Input	Controls rate of change for damper signal. As OA CFM moves further from setpoint within this window, the damper makes a larger change.	10	1000
Single Zone VAV Fan Speed Integral	SZVAVFnI	Analog Input	The Integral Constant for Single Zone VAV Fan Control.	0	10
Relay Run-time Hours Warning Limit	RIRnTmLm	Analog Input	If any configured relay's run time exceeds this number of hours of operation, a warning alarm is generated so that periodic maintenance can be performed.	0	30000
Cooling Mode Head Pressure Setpoint	HdPrCl	Analog Input	Head Pressure Setpoint in the Cooling Mode.	250	450
Dehum Mode Head Pressure Setpoint	HdPrDhum	Analog Input	Head Pressure Setpoint in the Dehumidification Mode.	250	450
Superheat Setpoint	SupHtSp	Analog Input	Superheat Setpoint.	1	30
Maximum Outdoor CFM Requirement	OACfmMax	Analog Input	Maximum Outdoor Airflow CFM Setpoint in High CO ₂ .	.10K	200K

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Schedule Force	SchdFrc	Analog Input	0 = Auto (uses controller's schedule) 1 = Forced Occupied 2 = Forced Unoccupied	0	2
Hvac Mode Override	HvacMdOv	Analog Input	Overrides normal controller operation in order to force the unit into this desired mode. Configuring for "Auto" will restore normal unit control of the mode of operation.	0=Auto 1=Vent 2=Cool 3=Heat 4=Vent Dehum. 5=Cool Dehum. 6=Heat Dehum.	
Fan VFD Override	FanVfdOv	Analog Input	Override to force the VFD to this percentage speed. Configuring "Auto" will restore normal unit control of the VFD speed.	0%	100%
				Auto=65535	
Outdoor Air Damper Override	EcoOv	Analog Input	Overrides all other Outdoor Air Damper position commands so as to maintain this fixed position. Configuring for "Auto" will restore normal unit control of the Outdoor Air Damper/Economizer operation.	0%	100%
				Auto=65535	
Supply Setpoint Override (VCCX2 Only)	SaStOv	Analog Input	This will override whatever setpoint the Supply Air Temperature is currently being controlled to.	0	200
Space Temperature Value (VCCX2 Only)	SpcTVal	Analog Input	If the controller is configured for this operation, the user can write a Space Sensor value.	-40	100

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Space Humidity Value (VCCX2 Only)	SpeRhVal	Analog Input	If the controller is configured for this operation, the user can write a Space Humidity Sensor value.	0	100
Indoor RH Calibration Offset (Reserved)	Reserved	Analog Input			
Relief Fan VFD (VCCX2 Only)	RelFanOV	Analog Input	Override to force the VFD to this percentage speed. Configuring "Auto" will restore normal unit control of the VFD speed.	0%	100%
				Auto=65535	
Relief Pressure Value (VCCX2 Only)	RelPrVal	Analog Input	If the controller is configured for this operation, the user can write Building Pressure Sensor value.	-.25	.25
Carbon Dioxide Value (VCCX2 Only)	CO2Val	Analog Input	If the controller is configured for this operation, the user can write a CO ₂ Sensor value.	0	2000
Outdoor Air Temperature Value (VCCX2 Only)	OaTVal	Analog Input	If the controller is configured for this operation, the user can write an Outdoor Sensor value.	-40	120
Outdoor Air Humidity Value (VCCX2 Only)	OaRhVal	Analog Input	If the controller is configured for this operation, the user can write an Outdoor Humidity Sensor value.	0	100
High Level Enthalpy	HiLvlEtp	Analog Input	Reserved	10	50
Low Level Enthalpy	LoLvlEtp	Analog Input	Reserved	10	50

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9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Max Plenum Pressure Setpoint Reset Limit	MxPPrRst	Analog Input	Reserved	0.1	0.2
Min Plenum Pressure Setpoint Reset Limit	MnPPrRst	Analog Input	Reserved	0.1	0.2
Enthalpy Enable Setpoint	EtpEnSp	Analog Input	If configured for Comparative Enthalpy Economizer Control, the OA Enthalpy must be below this setpoint by the Enthalpy Enable Deadband before the OA/RA Enthalpy comparison will be utilized to enable the Economizer.	25 BTU/lb.	35 BTU/lb.
Enthalpy Enable Deadband	EtpEnDb	Analog Input	The OA Enthalpy must be below the Enthalpy Enable Setpoint by this amount, and the OA Enthalpy must be below the RA Enthalpy by this amount to utilize the Economizer.	0.3 BTU/lb.	1.5 BTU/lb.
Maximum Static Setpoint Reset Limit	MxStaRst	Analog Input	As the most open VAV damper rises above 80%, the static setpoint will reset up to this maximum limit.	0.01 "WG	3.00 "WG
Minimum Static Setpoint Reset Limit	MnStaRst	Analog Input	As the most open VAV damper drops below 80%, the static setpoint will reset down to this minimum reset limit.	0.01 "WG	3.00 "WG

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Static Setpoint Reset Interval	StaRstlv	Analog Input	The Reset Interval is how often the setpoint reset calculation occurs. This must be an infrequent event so the default is 15 minutes.	10 Min	60 Min
Cool-Down Target Temperature	CIDnTgTp	Analog Input	If Morning Cool-Down is configured, then upon entering occupied mode, the Cool-Down Mode will be activated if the return air is above this temperature by one degree.	50°F 10°C	90°F 32.2°C
Warm-up Override	WmUpOv	Analog Input	Commands the unit into Morning Warm-Up Mode.	1=Command Warm-Up Mode	
Cool-Down Override	CIDnOv	Analog Input	Commands the unit into Morning Cool-Down Mode	1=Command Cool-Down Mode	
Return Air High Limit Protection (for Voting Units or CV Units Only)	RAHiLmtP	Analog Input	If the Return Air Temperature goes above this limit, the unit will revert to Return Air Control.	60	100
Return Air Low Limit Protection (for Voting Units or CV Units Only)	RALoLmtP	Analog Input	If the Return Air Temperature goes below this limit, the unit will revert to Return Air Control.	45	70
Cooling Enabled Status	ClEnbl	Binary Output	Status that indicates Mechanical Cooling is enabled based on the Cooling Lockout.		
Heating Enabled Status	HtEnbl	Binary Output	Status that indicates that Mechanical Heating is enabled based on the Heating Lockout.		

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9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Economizer Enabled Status	EcoEnbl	Binary Output	Status that indicates the Economizer is enabled based on the Economizer Enable Setpoint.	
Aux Heat Enabled Status	AuxHtEn	Binary Output	Heat Pump Auxiliary Heat enabled.	
Emergency Heat Enabled Status	EmHtEnbl	Binary Output	Shows the Emergency Heat is enabled based on the Compressor Heating Lockout.	
Fan Proof of Airflow Status	Pof	Binary Output	Proof of Airflow Binary Input Status	
Exhaust Hood On/Off Status	EtHood	Binary Output	Exhaust Hood On/Off Binary Input Status	
Remote Forced Occupied Status	RmOc	Binary Output	Remote Forced Occupied Mode Binary Input Status	
Remote Forced Cooling Status	RmCl	Binary Output	Remote Forced Cooling Mode Binary Input Status	
Remote Forced Heating Status	RmHt	Binary Output	Remote Forced Heating Mode Binary Input Status	
Remote Force Dehum Status	RmDhum	Binary Output	Remote Force Dehumidification Mode Binary Input Status	
Bad Supply Air Sensor	SaTpAlm	Binary Output	Alarm that indicates a failure of the Supply Air Sensor.	
Bad Return Air Sensor	RaTpAlm	Binary Output	Alarm that indicates a failure of the Return Air Sensor.	
Bad Outdoor Air Sensor	OaTpAlm	Binary Output	Failure of the Outdoor Air Temperature Sensor.	
Bad Space Temp Sensor	SpcTpAlm	Binary Output	Failure of the Space Temperature Sensor. If Space is the controlling sensor, the unit will shut down.	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Bad Carbon Dioxide Sensor	CO2Alm	Binary Output	Failure of the CO ₂ Sensor.	
Bad Building Pressure Sensor	RefAlm	Binary Output	Alarm indicating missing or failed Building Pressure Sensor.	
Bad Outdoor Airflow Sensor	OaCfmAlm	Binary Output	An Outdoor Airflow Sensor is configured, but not detected.	
Bad Exhaust Airflow Sensor	EaCfmAlm	Binary Output	An Exhaust Airflow Sensor is configured, but not detected.	
Bad Supply Airflow Sensor	SaCfmAlm	Binary Output	A Supply Airflow Sensor is configured, but not detected.	
Bad Return Airflow Sensor	RaCfmAlm	Binary Output	A Return Airflow Sensor is configured, but not detected.	
Mechanical Cooling Alarm	CIAlm	Binary Output	Compressor Relays are enabled but the Supply Air Temperature has not fallen 5°F w/in a user-adjustable time period. This does not apply for Modulating Cooling.	
Mechanical Heating Alarm	HtAlm	Binary Output	Heating Mode has been initiated but the Supply Air Temperature has not risen 5°F w/in a user-adjustable time period. This does not apply for Modulating Heating.	
Fan Proving Alarm	FanAlm	Binary Output	Alarm that indicates an Airflow failure from the Main Fan. Heating and Cooling will be disabled.	
Dirty Filter Alarm	DrtFlAlm	Binary Output	Alarm that indicates the filters are dirty.	

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9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Emergency Shutdown Alarm	EmerAlm	Binary Output	Alarm that indicates that Emergency Shutdown has been activated. Will shut the unit down.		
Relay Runtime Warning	RIRnTm	Binary Output	Indicates when any of the configured relays exceeds a configured number of hours of runtime. Can be used to schedule service, etc.		
Economizer Missing Alarm	EcoMs	Binary Output	Title 24 operation indicates missing economizer feedback.		
Economizer Title 24 Failure A	EcoFIA	Binary Output	Title 24 Air Temperature Sensor Failure.		
Economizer Title 24 Failure B	EcoFIB	Binary Output	Title 24 Not Economizing when it should.		
Economizer Title 24 Failure C	EcoFIC	Binary Output	Title 24 Economizing when it should not.		
Economizer Title 24 Failure D	EcoFID	Binary Output	Title 24 Damper Not Modulating.		
Economizer Title 24 Failure E	EcoFIE	Binary Output	Title 24 Excess Outdoor Air.		
High Supply Temp Cutoff	HiCfAlm	Binary Output	The Supply Air has risen above the Hi SAT Cutoff Setpoint. Heating stages begin to deactivate and the fan continues to run.		
Low Supply Temp Cutoff	LoCfAlm	Binary Output	The Supply Air has fallen below the Low SAT Cutoff Setpoint and cooling stages will begin to deactivate. If the unit is in Economizer, Vent, or Heating Mode the Supply Fan will shut off.		

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
High Control Mode Alarm	HiMdAlm	Binary Output	Occurs when the Controlling Sensor Temperature rises above the Cooling Mode Enable Setpoint plus the Control Mode High Alarm Offset. Applies only to Space or Return Air Temperature controlled units.		
Low Control Mode Alarm	LoMdAlm	Binary Output	Occurs when the Controlling Sensor Temperature falls below the Heating Mode Enable Setpoint minus the Control Mode Low Alarm Offset. Applies only to Space or Return Air Temperature controlled units.		
Preheat Alarm	PreHtAlm	Binary Output	Preheater Alarm Indicator		
Missing Refrigeration Module #1	BadMod1	Binary Output	Refrigeration Module #1 is bad or missing.		
Missing Refrigeration Module #2	BadMod2	Binary Output	Refrigeration Module #2 is bad or missing.		
Missing Refrigeration Module #3	BadMod3	Binary Output	Refrigeration Module #3 is bad or missing.		
Missing Refrigeration Module #4	BadMod4	Binary Output	Refrigeration Module #4 is bad or missing.		
Missing Preheater Board	BadPreBd	Binary Output	Preheater Module is bad or missing.		
Missing Reheat Board	BadRhtBd	Binary Output	The MHGR board is configured but not detected.		
Missing Mod Gas Board	BadMgsBd	Binary Output	The MODGAS board is configured but not detected.		

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9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Missing EM1 Board	BadEm1Bd	Binary Output	EM1 Expansion Board is bad or missing.	
Missing 12 Relay Expansion Board	BadExRly	Binary Output	The 12 Relay Expansion Board is configured but not detected.	
On Board Relay 1 Main Fan	OnRly1	Binary Output	Current Status of Main Fan Relay #1 on Main Board	
On Board Relay 2	OnRly2	Binary Output	Current Status of Configurable Relay #2 on Main Board	
On Board Relay 3	OnRly3	Binary Output	Current Status of Configurable Relay #3 on Main Board	
On Board Relay 4	OnRly4	Binary Output	Current Status of Configurable Relay #4 on Main Board	
On Board Relay 5	OnRly5	Binary Output	Current Status of Configurable Relay #5 on Main Board	
On Board Relay 6	OnRly6	Binary Output	Current Status of Configurable Relay #6 on Main Board	
On Board Relay 7	OnRly7	Binary Output	Current Status of Configurable Relay #7 on Main Board	
On Board Relay 8	OnRly8	Binary Output	Current Status of Configurable Relay #8 on Main Board	
Expansion Board EM1 Relay 1	Em1Rly1	Binary Output	Current Status of Configurable Relay #1 on EM1 Board	
Expansion Board EM1 Relay 2	Em1Rly2	Binary Output	Current Status of Configurable Relay #2 on EM1 Board	
Expansion Board EM1 Relay 3	Em1Rly3	Binary Output	Current Status of Configurable Relay #3 on EM1 Board	
Expansion Board EM1 Relay 4	Em1Rly4	Binary Output	Current Status of Configurable Relay #4 on EM1 Board	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Expansion Board EM1 Relay 5	Em1Rly5	Binary Output	Current Status of Configurable Relay #5 on EM1 Board	
12 Relay Expansion Board Relay 1	ExRly1	Binary Output	Current Status of Configurable Relay #1 on 12 Relay Board	
12 Relay Expansion Board Relay 2	ExRly2	Binary Output	Current Status of Configurable Relay #2 on 12 Relay Board	
12 Relay Expansion Board Relay 3	ExRly3	Binary Output	Current Status of Configurable Relay #3 on 12 Relay Board	
12 Relay Expansion Board Relay 4	ExRly4	Binary Output	Current Status of Configurable Relay #4 on 12 Relay Board	
12 Relay Expansion Board Relay 5	ExRly5	Binary Output	Current Status of Configurable Relay #5 on 12 Relay Board	
12 Relay Expansion Board Relay 6	ExRly6	Binary Output	Current Status of Configurable Relay #6 on 12 Relay Board	
12 Relay Expansion Board Relay 7	ExRly7	Binary Output	Current Status of Configurable Relay #7 on 12 Relay Board	
12 Relay Expansion Board Relay 8	ExRly8	Binary Output	Current Status of Configurable Relay #8 on 12 Relay Board	
12 Relay Expansion Board Relay 9	ExRly9	Binary Output	Current Status of Configurable Relay #9 on 12 Relay Board	
12 Relay Expansion Board Relay 10	ExRly10	Binary Output	Current Status of Configurable Relay #10 on 12 Relay Board	
12 Relay Expansion Board Relay 11	ExRly11	Binary Output	Current Status of Configurable Relay #11 on 12 Relay Board	
12 Relay Expansion Board Relay 12	ExRly12	Binary Output	Current Status of Configurable Relay #12 on 12 Relay Board	
Preheater Enable Status	PreHtEn	Binary Output	Status of Preheater Enable Input	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Preheater Emergency Shutdown	PreHtEm	Binary Output	Status of Preheater Emergency Shutdown Input	
Preheater Spare Binary Input #3	PreHtBi3	Binary Output	Status of Preheater Binary Input #3	
MODGAS Enable Status	MdGsEn	Binary Output	Status of MODGAS Controller	
Exhaust Fan/ Return Fan Proof of Flow Alarm	EFRAFPOF	Binary Output	Exhaust Fan / Return Fan Proof of Flow Alarm	
MHGR Enable Status	RehtEnbl	Binary Output	Status of MHGRV Controller	
A1 Compressor Enable	A1CmpEn	Binary Output	Current Status of Enable Signal to Compressor A1	
A2 Compressor Enable	A2CmpEn	Binary Output	Current Status of Enable Signal to Compressor A2	
A1 Compressor Alarms	A1Alm	Binary Output	Compressor A1 Not Running. This RSM alarm occurs when a compressor relay is on, but there is not 24VAC at the Comp Status input for the compressor.	
A2 Compressor Alarms	A2Alm	Binary Output	Compressor A2 Not Running. This RSM alarm occurs when a compressor relay is on, but there is not 24VAC at the Comp Status input for the compressor.	
A1-2 Defrost Switch	ADfrSw	Binary Output	Outside Coil A1/ A2 Temp Switch for Defrost Mode	
A1-2 Water Proof of Flow	AWtrPf	Binary Output	A1/A2 Water Proof of Flow Switch	
Refrigeration Module 1 Relay 1	M1Rly1	Binary Output	Current Status of Compressor A1 Enable	
Refrigeration Module 1 Relay 2	M1Rly2	Binary Output	Current Status of Compressor A2 Enable	

SNVTs for the VCC-X / VCCX2 Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Refrigeration Module 1 Relay 3	M1Rly3	Binary Output	Current Status of Condenser 1 Enable	
Refrigeration Module 1 Relay 4	M1Rly4	Binary Output	Current Status of Relay #4	
Refrigeration Module 1 Relay 5	M1Rly5	Binary Output	Current Status of Relay #5	
B1 Compressor Enable	B1CmpEn	Binary Output	Current Status of Enable Signal to Compressor B1	
B2 Compressor Enable	B2CmpEn	Binary Output	Current Status of Enable Signal to Compressor B2	
B1 Compressor Alarms	B1Alm	Binary Output	Compressor B1 Not Running. This RSM alarm occurs when a compressor relay is on, but there is not 24VAC at the Comp Status input for the compressor.	
B2 Compressor Alarms	B2Alm	Binary Output	Compressor B2 Not Running. This RSM alarm occurs when a compressor relay is on, but there is not 24VAC at the Comp Status input for the compressor.	
B1-2 Defrost Switch	BDfrSw	Binary Output	Outside Coil B1/ B2 Temp Switch for Defrost Mode	
B1-2 Water Proof of Flow	BWtrPf	Binary Output	B1/B2 Switch for Water Proof of Flow	
Refrigeration Module 2 Relay 1	M2Rly1	Binary Output	Current Status of Compressor B1 Enable	
Refrigeration Module 2 Relay 2	M2Rly2	Binary Output	Current Status of Compressor B2 Enable	
Refrigeration Module 2 Relay 3	M2Rly3	Binary Output	Current Status of Condenser 1 Enable	

9. PARAMETER TABLES

9.1 VCC-X / VCCX2 LON Parameters

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Refrigeration Module 2 Relay 4	M2Rly4	Binary Output	Current Status of Relay #4		
Refrigeration Module 2 Relay 5	M2Rly5	Binary Output	Current Status of Relay #5		
C1 Compressor Enable	C1CmpEn	Binary Output	Current Status of Enable Signal to Compressor C1		
C2 Compressor Enable	C2CmpEn	Binary Output	Current Status of Enable Signal to Compressor C2		
C1 Compressor Alarms	C1Alm	Binary Output	Compressor C1 High Pressure Alarm. Stops Compressor.		
C2 Compressor Alarms	C2Alm	Binary Output	Compressor C2 High Pressure Alarm. Stops Compressor.		
C1-2 Defrost Switch	CDfrSw	Binary Output	Outside Coil C1/ C2Temp Switch for Defrost Mode		
C1-2 Water Proof of Flow	CWtrPf	Binary Output	C1/C2 Switch for Water Proof of Flow		
Refrigeration Module 3 Relay 1	M3Rly1	Binary Output	Current Status of Compressor C1 Enable		
Refrigeration Module 3 Relay 2	M3Rly2	Binary Output	Current Status of Compressor C2 Enable		
Refrigeration Module 3 Relay 3	M3Rly3	Binary Output	Current Status Condenser 1 Enable		
Refrigeration Module 3 Relay 4	M3Rly4	Binary Output	Current Status of Relay #4		
Refrigeration Module 3 Relay 5	M3Rly5	Binary Output	Current Status of Relay #5		
D1 Compressor Enable	D1CmpEn	Binary Output	Current Status of Enable Signal to Compressor D1		
D2 Compressor Enable	D2CmpEn	Binary Output	Current Status of Enable Signal to Compressor D2		

SNVTs for the VCC-X / VCCX2 Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
D1 Compressor Alarms	D1Alm	Binary Output	Compressor D1 High Pressure Alarm. Stops Compressor.		
D2 Compressor Alarms	D2Alm	Binary Output	Compressor D2 High Pressure Alarm. Stops Compressor.		
D1-2 Defrost Switch	DDfrSw	Binary Output	Outside Coil D1/ D2 Temp Switch for Defrost Mode		
D1-2 Water Proof of Flow	DWtrPf	Binary Output	D1/D2 Switch for Water Proof of Flow		
Refrigeration Module 4 Relay 1	M4Rly1	Binary Output	Current Status of Compressor D1 Enable		
Refrigeration Module 4 Relay 2	M4Rly2	Binary Output	Current Status of Compressor D2 Enable		
Refrigeration Module 4 Relay 3	M4Rly3	Binary Output	Current Status of Condenser 1 Enable		
Refrigeration Module 4 Relay 4	M4Rly4	Binary Output	Current Status of Relay #4		
Refrigeration Module 4 Relay 5	M4Rly5	Binary Output	Current Status of Relay #5		
A1-4 Emergency Shutdown (RSM-D)	AEmShtDn	Binary Output	Emergency Shutdown Input on Module A		
B1-4 Emergency Shutdown (RSM-D)	BEmShtDn	Binary Output	Emergency Shutdown Input on Module B		
C1-4 Emergency Shutdown (RSM-D)	CEmShtDn	Binary Output	Emergency Shutdown Input on Module C		
D1-4 Emergency Shutdown (RSM-D)	DEmShtDn	Binary Output	Emergency Shutdown Input on Module D		

9.1.1 VCC-X PT-Link II LON®

Property Identifier:

The PT-Link II LON® Link amends the following property identity to the LON® property identifier.

LONPropertyIdentifier :

VccxControlModeBits ::= ENUMERATED {
 Supply Air Cooling Only (0),
 Supply Air Tempering (1),
 Outdoor Temperature Control (2),
 Return Air Constant Volume Mode (3),
 Space Temp Constant Volume Mode (4),
 Space Temp w/ High OA Content (5),
 Single Zone VAV (6)
}

VccxControlStatusBits ::= ENUMERATED {
 Unoccupied (0)
 Occupied (1),
 Override Mode (2),
 Holiday Unoccupied (3),
 Holiday Occupied (4),
 Forced Occupied (5),
 Forced Unoccupied (6),
 Remote Contact Occupied (7)
}

VccxHVACModeStatusBits ::= ENUMERATED {
 Off (0),
 Vent Mode (1),
 Cooling Mode (2),
 Heating Mode (3),
 Vent RH Mode (4),
 Cooling RH Mode (5),
 Heating RH Mode (6),
 Warm Up Mode (7),
 Purge Mode (8),
 Defrost Mode (9),
 Cool Down Mode (10)
}

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

NOTE: Analog Outputs and Binary Outputs are read-only. Only Analog Inputs are read/writeable. You cannot write directly to Sensor Inputs.

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Bad or Missing 12 Relay Expansion Board.	Mis12Rly	Binary Output	The 12 Relay Expansion Board is configured but not detected.	
Alarm Group 1	AlmGrp1	Analog Output		See Alarm Group Bits on page 57.
Alarm Group 2	AlmGrp2	Analog Output		See Alarm Group Bits on page 57.
Alarm Group 3	AlmGrp3	Analog Output		See Alarm Group Bits on page 57.
Alarm Status	AlmSts	Analog Output	Indicates that there is an alarm.	0 = Off 1 = On See Alarm Group Bits on page 57.
Application Software Version	AppVer	Analog Output	Current version of the software in the unit.	
Unit Mode	UnitMode	Analog Output		See Unit Mode Bits on page 56.
Building Pressure	BuildPr	Analog Output	Current value of the building pressure sensor.	
Building Pressure Setpoint	RfPrSt	Analog Input	Current Building Pressure Setpoint.	-.20 .20
Building Pressure Control Deadband	RfPrDb	Analog Input	Value above and below the Building Pressure Setpoint where no control change occurs.	.01 0.1

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
CO ₂	CO2	Analog Output	Current CO ₂ Level.	
CO ₂ Sensor Calibration Deadband Offset	CO2Ost	Analog Input	If the CO ₂ Sensor is reading incorrectly, you can use this option to enter an offset value to adjust the Sensor's CO ₂ reading.	-500 ppm 500 ppm
CO ₂ Minimum Setpoint	CO2MinLv	Analog Input	This is the threshold CO ₂ level at which the Economizer Min Damper Position Setpoint will begin to be reset higher.	0 2000
CO ₂ Maximum Setpoint	CO2MaxLv	Analog Input	This is the CO ₂ level at which the Economizer Min Damper Position will be reset to the Economizer Max Position in High CO ₂ . In between the Min and Max CO ₂ levels the Economizer Min Damper Position will be proportionally reset between the configured Min Damper Position and the Max Position in High CO ₂ .	0 2000
Bad CO ₂ Sensor	CO2Alm	Binary Output	Failure of the CO ₂ Sensor.	
Coil Temperature	CoilTp	Analog Output	Current coil temperature reading.	
Coil Temperature Offset	CoilTpOfst	Analog Input	If the Coil Temperature Sensor is reading incorrectly, use this offset to adjust the Sensor's Temperature.	-100 100

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Bad Coil Pressure Sensor	ColPrAlm	Binary Output	Failure of the Coil Pressure Sensor. Will shut unit down.		
Coil Temperature Setpoint	CoITpSt	Analog Output	This is the current calculated Coil Suction Temperature target during Dehumidification Mode.		
High Coil Temperature Setpoint Limit	HiClTpSt	Analog Input	This is the highest that the Coil Temperature will be reset to during Space Humidity Reset of the Coil Suction Temperature Setpoint. If no coil temperature reset is required, this value should be set the same as the Low Coil Temperature Setpoint.	35	70
Low Coil Temperature Setpoint Limit	LoClTpSt	Analog Input	This is the lowest that the Coil Temperature will be reset to during Space Humidity Reset of the Coil Suction Temperature Setpoint. If no coil temperature reset is required, this value should be set the same as the High Coil Temperature Setpoint.	35	70
Compressor Discharge Temperature	DschgTp	Analog Output	Current value of the Compressor Discharge Temperature Sensor.		
Bad Compressor Discharge Sensor	DschgAlm	Binary Output	Failure of the Digital Compressor Discharge Temperature Sensor.		

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Control Mode	CtrlMod	Analog Output		1=Constant Volume 2=Supply Air Cooling Only 3=Outdoor Temp Control 4=Single Zone VAV 5=Supply Air Tempering 6=Space Temp Control w/ High OA Content Unoccupied
Control Temperature Cooling Failure	CtrlTpCF	Binary Output	Activated if the control temperature does not get within 5°F to the occupied cooling setpoint in an hour in the cooling mode. This alarm is not used in 100% outside air units or supply air control.	
Control Temperature Heating Failure	CtrlTpHF	Binary Output	Activated if the control temperature does not get within 5°F to the occupied heating setpoint in an hour in the heating mode. This alarm is not used in 100% outside air units or supply air control.	
High Control Mode Temperature	HiCtrlMd	Binary Output	Occurs when the Controlling Sensor Temperature rises above the Cooling Mode Enable Setpoint plus the Control Mode High Alarm Offset. Applies only to Space or Return Air Temperature controlled units.	

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Low Control Mode Temperature	LoCtrlMd	Binary Output	Occurs when the Controlling Sensor Temperature falls below the Heating Mode Enable Setpoint minus the Control Mode Low Alarm Offset. Applies only to Space or Return Air Temperature controlled units.		
Cooling Low Reset Source	ClLoRt	Analog Input	If doing Supply Air Setpoint Reset, this is the Low Reset Source value in Cooling that will correspond to the Supply Air Cool High Reset Setpoint.	1	150
Cooling High Reset Source	ClHiRt	Analog Input	If doing Supply Air Setpoint Reset, this is the High Reset Source value in Cooling that will correspond to the Supply Air Cooling Setpoint (Low Reset).	1	150
Condenser Control Signal	CdCtrSg1	Analog Output	Condenser Fan Signal 1 Status.		
Controlling Sensor High Alarm Offset	CTpHiAlm	Analog Input	If the temperature of the controlling sensor rises above the Occupied Cooling Setpoint by this value, a High Control Temp Alarm will occur. Only applies if configured for Space or Return Air Temp Control, or as Single Zone VAV.	0	50

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Controlling Sensor Low Alarm Offset	CTpLoAlm	Analog Input	If the temperature of the controlling sensor falls below the Occupied Heating Setpoint by this value, a Low Control Temp Alarm will occur. Only applies if configured for Space or Return Air Temp Control, or as Single Zone VAV.	0	50
Control Status	CtrlSts	Analog Output	Current operational status.	See Control Status Bits on page 56.	
Control Temperature	CtrlTp	Analog Output	Current value of the control temperature sensor.		
Cooling Enabled	ClEnbl	Analog Output	Status that indicates mechanical cooling is enabled.		
Mechanical Cooling Lockout	MchCILkt	Analog Input	The VCB-X will Lockout Mechanical Cooling when the Outdoor Air Temperature is below this Setpoint.	-30	100
Mechanical Cooling Alarm	MchClAlm	Binary Output	Compressor Relays are enabled but the Supply Air Temperature has not fallen 5°F within a user-adjustable time period. This does not apply for Modulating Cooling.		
Cooling Setpoint Mirror	ClSt	Analog Output	Occupied Cooling Mode Enable Setpoint.		

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Cool Staging Window	ClStgWdw	Analog Input	In Cooling Mode, if the Supply Air Temperature drops below the Active Supply Air Cooling Setpoint minus this Staging Window, a Cooling Stage will be deactivated after its Minimum Run Time.	1	30
Adaptive Defrost Interval Adjustment	AptDfr	Analog Input	Adjustment to the Heat Pump Defrost Interval depending on whether the Defrost Mode lasts 10 minutes or less than 10 minutes.	0 Min	30 Min
Dewpoint Setpoint	RhDewpSt	Analog Input	On a MUA unit, if the outdoor dewpoint rises above this setpoint, the unit will activate Dehumidification.	35	80
Digital Compressor Cutoff	DigCmpCf	Binary Output	Occurs if the digital compressor discharge temperature rises above 268°F or the sensor is shorted. The compressor is disabled.		
Digital Compressor Lockout	DigCmpLk	Binary Output	Occurs if five Digital Compressor Cutoffs occur within four hours. The compressor will be locked out.		
Dirty Filter Alarm	DrtFlAlm	Binary Output	Alarm that indicates the filters are dirty.		
Economizer Enabled	EcoEnbl	Analog Output	Status that indicates the economizer is enabled.		

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Economizer Enable Setpoint	EcoEnbSt	Analog Input	The economizer is enabled if the outdoor drybulb, dewpoint, or wetbulb temperature falls below this setpoint.	-30	80
Economizer Position	EcoPos	Analog Output	Current position of the economizer damper.		
Max Economizer in Heat Mode	MaxEcoHt	Analog Input	Max position the Economizer Damper can open in the Heating Mode. Takes priority over Max Position in High CO ₂ .	0%	100%
Max Economizer in High CO ₂ Mode	MaxEcoCO	Analog Input	The maximum value the Economizer Minimum Position can be reset up to during CO ₂ override.	0%	100%
Minimum Economizer Position	MinEcoSt	Analog Input	Minimum position of the economizer in the occupied mode.	0	100
Force Economizer	FrcEcono	Analog Input	Overrides all other Outdoor Air Damper position commands so as to maintain this fixed position. Configuring for "Auto" will restore normal unit control of the Outdoor Air Damper/Economizer operation.	0%	100%
Emergency Heat Enabled	EmHtEnbl	Binary Output	Shows the Emergency Heat is enabled based on the Compressor Heating Lockout.		

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Exhaust Fan CFM	EtCFM	Analog Output	Current Exhaust Airflow Measurement	
Exhaust Fan Speed	EtFnSpd	Analog Output	Current value of the VFD relief fan signal.	
Missing Exhaust CFM Sensor	ExtCfmSr	Binary Output	Indicates that the Exhaust CFM Sensor is not detected.	
Missing EM1 Expansion Module	MisEM1	Binary Output	Indicates that the EM1 Expansion Module is not communicating with the VCB-X Controller.	
Fan Starting Delay	FanDly	Analog Output	Indicates the current fan status related to request to run, fan starting delay or POF failure.	0=No Request 1=Fan Running 2=Fan Start Delay 3=POF Failure
Force HVAC Mode	FrcHvacM	Analog Input	Overrides normal controller operation in order to force the unit into this desired mode. Configuring for "Auto" will restore normal unit control of the mode of operation.	0=Auto 1=Vent 2=Cool 3=Heat 4=Vent Dehum. 5=Cool Dehum. 6=Heat Dehum.
Leaving H2O Offset	LvH2Oost	Analog Input	If the Leaving Water Temperature Sensor is reading incorrectly, use this to enter an offset to adjust the Sensor's Temperature.	-100 100
Water Proof of Flow Failure	H2OProf	Binary Output	Indicates no Proof of Water Flow.	
Head Pressure	HeadPr	Analog Output	Current value of the Head Pressure Reading.	

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Head Pressure Setpoint	HeadPrSt	Analog Output	Current Head Pressure Setpoint.	
Head Pressure Setpoint in Cooling Mode	CIHdPrSt	Analog Input	This is the Head Pressure Setpoint the unit will control to in the Cooling Mode.	240 PSI 420 PSI
Head Pressure Setpoint in Reheat Mode	HtHdPrSt	Analog Input	This is the Head Pressure Setpoint the unit will control to in the Dehumidification Reheat Mode.	240 PSI 420 PSI
High Head Pressure	HiHedPr	Binary Output	Indicates the Head Pressure is too high.	
Heating Enabled	HtEnbl	Analog Output	Status that indicates that mechanical heating is enabled to operate.	
SAT Heating Low Reset Source	HtLoRt	Analog Input	If doing Supply Air Setpoint Reset, this is the Low Reset Source value in Heating that will correspond to the Supply Air Heating High Reset Setpoint.	1 150
SAT Heating High Reset Source	HtHiRt	Analog Input	If doing Supply Air Setpoint Reset, this is the High Reset Source value in Cooling that will correspond to the Supply Air Cooling Setpoint (Low Reset).	1 150
Heating Setpoint Mirror	HtSt	Analog Output	Occupied Heating Mode Enable Setpoint.	

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Heat Staging Window	HtStgWdw	Analog Input	In the Heating Mode, if the Supply Air Temperature rises above the Active Supply Air Heating Setpoint plus the Heating Stage Off Window value, a Heating stage will be deactivated after its Minimum Run Time.	1	50
Mechanical Heating Lockout	MchHtLkt	Analog Input	The VCB-X will Lockout Mechanical Heating when the Outdoor Air Temperature is above this Setpoint.	-30	150
Mechanical Heating Alarm	MchHtAlm	Binary Output	Heating Mode has been initiated but the Supply Air Temperature has not risen 5°F within a user-adjustable time period. This does not apply for Modulating Heating.		
Heat Pump Compressor Heating Outdoor Lockout	HpLkt	Analog Input	Compressor Heating will be locked out when the Outdoor Air Temperature is below this Setpoint.	-30	100
Heat Pump Defrost Interval	HpDfrInt	Analog Input	The Heat Pump Defrost Interval is the length of time that must be met between Defrost Modes.	10 Min	120 Min
Heat Wheel Defrost Setpoint	Dfrst	Analog Input	The unit will go into Heat Wheel Defrost Mode when the Outdoor Air is below this setpoint.	0	50

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Indoor Humidity	InRh	Analog Output	Current value of the indoor humidity sensor.		
Indoor Humidity Setpoint	InRhSt	Analog Input	If Coil Temp Reset is being used this is also the lowest Space RH value that corresponds to the Hi Coil Temp Setpoint.	0	100
High Indoor Humidity Reset Limit	HiInRh	Analog Input	During Coil Temp Reset, this is the highest Space RH value that corresponds to the Low Coil Temp Setpoint.	0	100
Indoor Humidity Setpoint Mirror	InRhStM	Analog Output	Mirror of the InRhSt "read only."		
Leaving Water Temperature	LvWtrTp	Analog Output	Leaving Water Temperature Value		
Low Ambient Relay Setpoint	LWAmbnt	Analog Input	Temperature at which the Low Ambient Relay will activate in the Occupied or Unoccupied Mode.	-30	70
Mode Select Deadband	MdSelDb	Analog Input	This Setpoint is added to and subtracted from the HVAC Mode Setpoints to determine when the unit enters and leaves a mode of operation.	1	10
Modulating Cooling Position	MdClPos	Analog Output	Current position of the modulating cooling signal (Chilled water or digital compressor).		
Modulating Gas Valve Position	MdGsVPos	Analog Output	Current position of MODGAS modulating gas valve control.		

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Modulating Heating Position	MdHtPos	Analog Output	Current position of the modulating heating signal (hot water or SCR heat).	
Missing MODGAS Module	MisMDGAS	Binary Output	Alarm that indicates that the MODGAS module is not communicating with the VCB-X Controller.	
Morning Warm-Up Return Air Target Setpoint	WmupTg	Analog Input	If configured, upon entering the occupied mode, the Warm-up Demand will be activated if the return air temperature is one degree below this setpoint.	50 90
Occupied Cooling Setpoint	OcpClSt	Analog Input	If the control temperature rises one degree above this setpoint, the control will activate the cooling demand. If the control temperature is the Supply Air Sensor, then the cooling demand is always active.	1 110
Occupied Heating Setpoint	OcpHtSt	Analog Input	If the control temperature drops one degree below this setpoint, the control will activate the heating demand. If the control temperature is the Supply Air Sensor, then there is no heating demand.	1 110

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Hood On Outdoor Air Cooling Setpoint	OaClSt	Analog Input	This is the Cooling Mode Enable Setpoint used only in Hood On Mode.	1 110
Hood On Outdoor Air Heating Setpoint	OaHtSt	Analog Input	This is the Heating Mode Enable Setpoint used only in Hood On Mode.	1 110
Outdoor Air CFM	OaCFM	Analog Output	Current Outdoor Airflow Measurement	
Minimum Desired Outdoor Air CFM	OACfmMin	Analog Input	Minimum Outdoor Airflow CFM Setpoint	.10K 200K
Missing Outdoor Air CFM Sensor	OaCfmAlm	Binary Output	Indicates Outdoor Air CFM Sensor is not detected.	
Outdoor Humidity	OaRh	Analog Output	Current value of the Outdoor Humidity Sensor.	
Outdoor Air Dewpoint	OaDewPt	Analog Output	Current calculated Outdoor Air Dewpoint.	
Outdoor Air Temperature	OaTp	Analog Output	Current value of the outdoor temperature sensor.	
Outdoor Air Temperature Offset	OaTpOst	Analog Input	If the Outdoor Temperature Sensor is reading incorrectly, use this to enter an offset to adjust the Sensor's Temperature.	-100 100
Minimum Outside Air CFM Deadband	OacfmDb	Analog Input	The Deadband is used both above and below the Outdoor Air CFM setpoint to help prevent hunting.	10 1000
Outdoor Air Temperature Sensor Lost	OaTpAlm	Binary Output	Indicates a failure of the Outdoor Air Temperature Sensor.	

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Outdoor Wetbulb	OaWtbl	Analog Output	Current calculated value of the outdoor wetbulb temperature.	
Preheat Relay Setpoint	PreHtAmb	Analog Input	If the Supply Fan is energized this is the temperature at which the Preheat Relay will activate. Operates only in the Occupied Mode.	-30 70
Proof of Flow Alarm	PofAlm	Binary Output	Indicates no Proof of Water Flow.	
Reheat Enabled	RehtEnbl	Binary Output	Modulating Hotgas Reheat Enabled.	
Reheat Valve Position	RtVlvPos	Analog Output	Current position of MHGRV modulating hot gas reheat valve.	
Missing Reheat Module	MisMH-GRV	Binary Output	Indicates that the MHGRV Module is not communicating with the VCB-X Controller.	
Return Air CFM	RaCFM	Analog Output	Current Return Airflow Measurement.	
Missing Return Air CFM Sensor	RaCfmSr	Binary Output	Indicates that the Return Air CFM Sensor is not detected.	
Return Air Damper Position	RaDmp	Analog Output	Current Return Air Damper position.	
Return Air Humidity	RaRH	Analog Output	Current value of the Return Air Humidity Sensor.	
Return Air Temperature	RaTp	Analog Output	Current value of the return temperature sensor.	

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Return Air Temperature Sensor Offset	RaTpOst	Analog Input	If the Return Temperature Sensor is reading incorrectly, use this to enter an offset to adjust the Sensor's Temperature.	-100 100
Bad Return Air Sensor	RaTpAlm	Binary Output	Indicates a failure of the Return Air Sensor.	
Return Bypass Damper Position	RetBydmp	Analog Output	Current Return Bypass Damper position.	
Schedule Force	SchdFrc	Analog Input	0 = Auto (uses controller's schedule) 1 = Forced Occupied 2 = Forced Unoccupied	0 2
Current Slide Adjust Offset	SldAdOfs	Analog Output	Current Slide Adjust Offset value.	
Smoke Alarm / Emergency Shutdown	SmokeAlm	Binary Output	Indicates the Smoke sensor has been activated. This will shut down the unit.	
Space Temperature	SpcTp	Analog Output	Current value of the space temperature sensor.	
Space Temperature Offset	SpcTpOst	Analog Input	If the Space Temperature Sensor is reading incorrectly, use this option to enter an offset to adjust the Sensor's Temperature.	-100 100
Space Temperature Sensor Lost	SpcTpAlm	Binary Output	Indicates a failure of the Space Temperature Sensor.	
Static Pressure	StaticPr	Analog Output	Current Static Pressure.	
Static Pressure Setpoint	StatPrSt	Analog Input	Current Static Pressure Setpoint.	.10 3.0

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Static Pressure Setpoint Deadband	DuctPrDb	Analog Input	Value above and below the Duct Static Pressure Setpoint where no control change occurs.		
Suction Pressure	SucPr	Analog Output	Current Suction Pressure value.		
High Suction Pressure Alarm	HiSucPr	Binary Output	Indicates Suction Pressure is above the High Suction Pressure Cooling (Heating) Setpoint.		
Low Suction Pressure Alarm	LoSucPr	Binary Output	Indicates Suction Pressure is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Supply Air CFM	SaCFM	Analog Output	Current Supply Airflow Measurement.		
High Supply Air Temperature Alarm	HiSaAlm	Binary Output	The Supply Air has risen above the High SAT Cutoff Setpoint. Heating stages begin to deactivate and the fan continues to run.		
Low Supply Air Temperature Alarm	LoSaAlm	Binary Output	The Supply Air has fallen below the Low SAT Cutoff Setpoint and cooling stages will begin to deactivate. If the unit is in Economizer, Vent, or Heating Mode the Supply Fan will shut off.		
Supply Air Cooling Setpoint	SaClSt	Analog Input	Supply Air Cooling Setpoint. If Supply Air Reset is configured, this is the Low SAT Cooling Reset Value.	30	80

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Supply Air Heating Setpoint	SaHtSt	Analog Input	Supply Air Heating Setpoint. If Supply Air Reset is configured, this is the Low SAT Heating Reset Value.	40	240
Supply Air Cool High Reset	SaClRt	Analog Input	If Supply Air Reset is configured, this is the High SAT Cooling Reset Value.	0	100
Supply Air Heat High Reset	SaHtRt	Analog Input	If Supply Air Reset is configured, this is the High SAT Heating Reset Value.	0	250
Supply Air Temperature	SaTp	Analog Output	Current value of the supply air temperature sensor.		
Bad Supply Air Temperature Sensor	SaTpAlm	Binary Output	Indicates a failure of the Supply Air Temperature Sensor.		
Low Supply Air Temp Cutoff	LoSaCf	Analog Input	Cooling will be disabled if the Supply Air Temperature falls below this value. See sequence for more details.	0	100
High Supply Air Temp Cutoff	HiSaCf	Analog Input	Heating will be disabled if the Supply Air Temperature rises above this value. See sequence for more details.	0	250
Supply Air Temperature Offset	SaTpOst	Analog Input	If the Supply Air Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Current Supply Air Temperature Setpoint	SaTpStM	Analog Output	Current SAT Cooling or Heating setpoint if there is no reset source; Current calculated SAT setpoint with Reset Source.		
Cooldown Mode Supply Air Setpoint	SaClDnSt	Analog Input	Cooling will be controlled to this Supply Air Setpoint during Cool-Down.	30	80
Missing Supply Air CFM Sensor	SaCfmSr	Binary Output	Indicates the Supply Air CFM Sensor is not detected.		
Warmup Mode Supply Air Setpoint	SaWmupSt	Analog Input	Heating will be controlled to this Supply Air Setpoint during Morning Warm-Up.	40	240
SZ VAV Integral Constant	SZVAVFnI	Analog Input	This is the Integral Constant for controlling the SZ VAV Fan Speed.	0	10
Title 24 Economizer Feedback	T24EcFb	Analog Output	Current position of feedback from Economizer actuator.		
Title 24 Sensor Alarm	T24TpAlm	Binary Output	Outside Air or Supply Air Temperature Sensor is shorted or missing.		
Title 24 Not Economizing When It Should	T24NEWS	Binary Output	Economizer is enabled but not following the desired Economizer position commanded.		
Title 24 Economizing When It Should Not	T24EWISN	Binary Output	Economizer is not enabled but the feedback signal indicates a position more open than the minimum.		

SNVTs for the VCB-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Title 24 Damper Failure	T24DpAlm	Binary Output	Economizer is enabled but not within 10% of desired position within 150 seconds.		
Title 24 Excess Outdoor Air	T24ExsOA	Binary Output	Economizer feedback is lost or Economizer is not following commanded position.		
Unoccupied Cooling Offset	UnClOst	Analog Input	In Unoccupied Mode, this offsets the Occupied Cooling Setpoint by this user adjustable amount. If no Unoccupied Cooling is desired, use the default setting of 30°F for this setpoint.	0	30
Unoccupied Heating Offset	UnHtOst	Analog Input	In Unoccupied Mode, this offsets the Occupied Heating Setpoint by this user adjustable amount. If no Unoccupied Heating is desired, use the default setting of 30°F for this setpoint.	0	30
VFD Position	VfdBwPos	Analog Output	Current position of the VFD blower fan signal.		
Remote VFD Position Setpoint	FrcFanSp	Analog Input	Override to force the VFD to this percentage speed. Configuring "Auto" will restore normal unit control of the VFD speed.	0% 100%	Auto=65535
OnBoard Relay Status	OnRlys	Analog Output			See page 38.

9. PARAMETER TABLES

9.2 VCB-X LON Parameters

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
On Board Relay 1	OnRly1	Binary Output	Current status of VCB-X Main Board relay 1.	
On Board Relay 2	OnRly2	Binary Output	Current status of VCB-X Main Board relay 2.	
On Board Relay 3	OnRly3	Binary Output	Current status of VCB-X Main Board relay 3.	
On Board Relay 4	OnRly4	Binary Output	Current status of VCB-X Main Board relay 4.	
On Board Relay 5	OnRly5	Binary Output	Current status of VCB-X Main Board relay 5.	
On Board Relay 6	OnRly6	Binary Output	Current status of VCB-X Main Board relay 6.	
Expansion Module Relay 1	MnExRly1	Binary Output	Current status of Relay 1 on the EM1 Expansion Module.	
Expansion Module Relay 2	MnExRly2	Binary Output	Current status of Relay 2 on the EM1 Expansion Module.	
Expansion Module Relay 3	MnExRly3	Binary Output	Current status of Relay 3 on the EM1 Expansion Module.	
Expansion Module Relay 4	MnExRly4	Binary Output	Current status of Relay 4 on the EM1 Expansion Module.	
Expansion Module Relay 5	MnExRly5	Binary Output	Current status of Relay 5 on the EM1 Expansion Module.	
12 Relay Expansion Module Relay 1	RIExRly1	Binary Output	Current status of Relay 1 on the 12 Relay Expansion Module.	

SNVTs for the VCB-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
12 Relay Expansion Module Relay 2	RIExRly2	Binary Output	Current status of Relay 2 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 3	RIExRly3	Binary Output	Current status of Relay 3 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 4	RIExRly4	Binary Output	Current status of Relay 4 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 5	RIExRly5	Binary Output	Current status of Relay 5 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 6	RIExRly6	Binary Output	Current status of Relay 6 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 7	RIExRly7	Binary Output	Current status of Relay 7 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 8	RIExRly8	Binary Output	Current status of Relay 8 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 9	RIExRly9	Binary Output	Current status of Relay 9 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 10	RIExRly10	Binary Output	Current status of Relay 10 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 11	RIExRly11	Binary Output	Current status of Relay 11 on the 12 Relay Expansion Module.	
12 Relay Expansion Module Relay 12	RIExRly12	Binary Output	Current status of Relay 12 on the 12 Relay Expansion Module.	

9.2.1 VCB-X PT-Link II LON®

Property Identifier:

The PT-Link II LON® Link amends the following property identity to the LON® property identifier.

LONPropertyIdentifier :

VcbxUnitMode ::= ENUMERATED {

Unoccupied	(0)
Occupied	(1),
Override Mode	(2),
Holiday Unoccupied	(3),
Holiday Occupied	(4),
Forced Occupied	(5),
Forced Unoccupied	(6),
}	

VcbxControlStatusBits ::= ENUMERATED {

Off	(0),
Vent Mode	(1),
Cooling Mode	(2),
Heating Mode	(3),
Vent RH Mode	(4),
Cooling RH Mode	(5),
Heating RH Mode	(6),
Warm Up Mode	(7),
Defrost Mode	(8),
Purge Mode	(9),
Cool Down Mode	(10),
Remote Cooling Mode	(11),
Remote Heating Mode	(12),
Remote Vent Dehum	(13),
Remote Cool Dehum	(14),
Remote Heat Dehum	(15)
}	

VcbxAlarmGroup1Bits ::= BIT STRING {

Bad Supply Air Sensor	(0),
Bad Return Air Sensor	(1),
Bad Outside Air Sensor	(2),
Bad Space Sensor	(3),
Bad Main Expansion Board	(4),
Bad Coil Temp Sensor	(5),
Bad Co2 Sensor	(6),
Bad Discharge Sensor	(7),
Bad OA CFM Sensor	(8),
Bad Exhaust CFM Sensor	(9),
Bad Supply CFM Sensor	(10),

Bad Return CFM Sensor	(11),
Bad Reheat Module	(12),
Bad ModGas Module	(13),
Bad Relay Expansion Module	(14),
Missing EM2 Expansion Board	(15)
}	

VcbxAlarmGroup2Bits ::= BIT STRING {

Mechanical Cooling Failure	(0),
Mechanical Heating Failure	(1),
Fan Proving Alarm	(2),
Dirty Filter Alarm	(3),
Emergency Shutdown Alarm	(4),
Economizer Air Temperature Failure	(5),
Not Economizing When It Should	(6),
Economizing When It Should Not	(7),
Economizer Damper Failure	(8),
Economizer Excess Outdoor Air	(9)
}	

VcbxAlarmGroup3Bits ::= BIT STRING {

High Supply Air Cutoff	(0),
Low Supply Air Cutoff	(1),
High Control Mode Signal Alarm	(2),
Low Control Mode Signal Alarm	(3),
Digital Compressor Cutoff Alarm	(4),
Digital Compressor Lockout Alarm	(5),
High Head Pressure	(6),
Loop Water Proof of Flow	(7),
Low Suction Pressure	(8),
Unsafe Suction Pressure	(9),
Low Leaving Water Temp	(10)
}	

VcbxOnBoardRelaysBits ::= BIT STRING {

On Board Relay 1	(0),
On Board Relay 2	(1),
On Board Relay 3	(2),
On Board Relay 4	(3),
On Board Relay 5	(4)
On Board Relay 6	(5)
}	

9. PARAMETER TABLES

9.3 VCM-X Modular & WSHP LON Parameters

NOTE: Analog Outputs and Binary Outputs are read-only. Only Analog Inputs are read/writeable. You cannot write directly to Sensor Inputs.

NOTE: The following points for the VCM-X Modular & VCM-X WSHP Controllers are additional points. All points and property identifiers in the VCM-X Controller table (pages 62-67) also apply to the VCM-X Modular & VCM-X WSHP Controllers.

NOTE: When a new setpoint is received from LON, it is maintained and used in temporary memory until the unit goes unoccupied. It is then stored in permanent memory and will become the new default setpoint even if power is cycled. Therefore, if power is cycled prior to the unit going unoccupied, the setpoint will not have been stored in permanent memory.

SNVTs for the VCM-X Modular

Binary Output SNVTs are SNVT_lev_disc

all other SNVTs are SNVT_count_inc_f

Parameter	Name	Object	Description	Limits	
Remote VFD Reset	RmVFDPos	Analog Input	Remote VFD Position Reset	-1	100
Modulating Compressor 2	MdCmp2	Analog Output	Current position of the 2nd Stage of Compressor Modulation.		
Head Pressure Signal 1 on Head Pressure Module 1	HdPr1	Analog Output	Head Pressure Signal 1 on Head Pressure Module 1		
Head Pressure Signal 2 on Head Pressure Module 1	HdPr2	Analog Output	Head Pressure Signal 2 on Head Pressure Module 1		
Condenser Fan Signal 1 On Head Pressure Module 1	CdFan1	Analog Output	Condenser Fan Signal 1 On Head Pressure Module 1		
Condenser Fan Signal 2 On Head Pressure Module 1	CdFan2	Analog Output	Condenser Fan Signal 2 On Head Pressure Module 1		
Condenser Fan Signal 1 On Head Pressure Module 2	CdFan21	Analog Output	Condenser Fan Signal 1 On Head Pressure Module 2		
Condenser Fan Signal 2 On Head Pressure Module 2	CdFan22	Analog Output	Condenser Fan Signal 2 On Head Pressure Module 2		

SNVTs for the VCM-X Modular

Binary Output SNVTs are SNVT_lev_disc

all other SNVTs are SNVT_count_inc_f

Parameter	Name	Object	Description	Limits	
Head Pressure Signal 1 on Head Pressure Module 2	HdPr21	Analog Output	Head Pressure Signal 1 on Head Pressure Module 2		
Head Pressure Signal 2 on Head Pressure Module 2	HdPr22	Analog Output	Head Pressure Signal 2 on Head Pressure Module 2		
Title 24 Economizer Feedback	T24EcFb	Analog Output	Current position of feedback from Economizer actuator.		
Title 24 Economizer Alarms	AlmGrp5	Analog Output	Alarms for the 24 Title Economizer		
Title 24 Sensor Alarm	T24TpAlm	Binary Output	Outside Air or Supply Air Temperature Sensor is shorted or missing.		
Title 24 Not Economizing When It Should	T24NEWS	Binary Output	Economizer is enabled but not following the desired Economizer position commanded.		
Title 24 Economizing When It Should Not	T24EWISN	Binary Output	Economizer is not enabled but the feedback signal indicates a position more open than the minimum.		
Title 24 Damper Failure	T24DpAlm	Binary Output	Economizer is enabled but not within 10% of desired position within 150 seconds.		
Title 24 Excess Outdoor Air	T24ExsOA	Binary Output	Economizer feedback is lost or Economizer is not following commanded position.		
Bad Return Air Sensor	RaTpAlm	Binary Output	Alarm that indicates a failure in the Return Air Sensor.		

9. PARAMETER TABLES

9.4 VCM-X WSHP Tulsa LON Parameters

NOTE: Analog Inputs and Binary Outputs are read-only. Only Analog Values are read/writeable.

SNVTs for the VCM-X WSHP (Tulsa)					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Modulating Compressor 2	MdCmp2	Analog Output	Current position of the 2nd Stage of Compressor Modulation.		
Head Pressure Signal 1 on Head Pressure Module 1	HdPr1	Analog Output	Head Pressure Signal 1 on Head Pressure Module 1		
Head Pressure Signal 2 on Head Pressure Module 1	HdPr2	Analog Output	Head Pressure Signal 2 on Head Pressure Module 1		
Condenser Fan Signal 1 On Head Pressure Module 1	CdFan1	Analog Output	Condenser Fan Signal 1 On Head Pressure Module 1		
Condenser Fan Signal 2 On Head Pressure Module 1	CdFan2	Analog Output	Condenser Fan Signal 2 On Head Pressure Module 1		
Water Temp. A	WaterTpA	Analog Output	Current water temperature of refrigerant for System A.		
Condenser Fan Signal 1 On Head Pressure Module 2	CdFan21	Analog Output	Condenser Fan Signal 1 On Head Pressure Module 2		
Condenser Fan Signal 2 On Head Pressure Module 2	CdFan22	Analog Output	Condenser Fan Signal 2 On Head Pressure Module 2		
Head Pressure Signal 1 on Head Pressure Module 2	HdPr21	Analog Output	Head Pressure Signal 1 on Head Pressure Module 2		
Head Pressure Signal 2 on Head Pressure Module 2	HdPr22	Analog Output	Head Pressure Signal 2 on Head Pressure Module 2		
Water Temp. B	WaterTpB	Analog Output	Current water temperature of refrigerant for System B.		
Remote VFD Reset	RmVFDPos	Analog Input	Remote VFD Position Reset	-1	100

SNVTs for the VCM-X WSHP (Tulsa)					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Compressor A1 Low Suction Pressure Alarm	A1LSPAlm	Binary Output	Alarm that indicates Suction Pressure for Compressor A1 is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Compressor A1 Lockout Alarm	A1LktAlm	Binary Output	Alarm that indicates Compressor A1 is locked out.		
Compressor A2 Low Suction Pressure Alarm	A2LSPAlm	Binary Output	Alarm that indicates Suction Pressure for Compressor A2 is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Compressor A2 Lockout Alarm	A2LktAlm	Binary Output	Alarm that indicates Compressor A2 is locked out.		
Compressor B1 Low Suction Pressure Alarm	B1LSPAlm	Binary Output	Alarm that indicates Suction Pressure for Compressor B1 is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Compressor B1 Lockout Alarm	B1LktAlm	Binary Output	Alarm that indicates Compressor B1 is locked out.		
Compressor B2 Low Suction Pressure Alarm	B2LSPAlm	Binary Output	Alarm that indicates Suction Pressure for Compressor B2 is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Compressor 4 Lockout Alarm	B2LktAlm	Binary Output	Alarm that indicates Compressor B2 is locked out.		

9. PARAMETER TABLES

9.4 VCM-X WSHP Tulsa LON Parameters

SNVTs for the VCM-X WSHP (Tulsa)					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Low Water Temperature 1 Alarm	LWT1Alm	Binary Output	Alarm that indicates water temperature is below the Leaving Water Safety Setpoint (Heating only) for System A.		
Low Water Temperature 2 Alarm	LWT2Alm	Binary Output	Alarm that indicates water temperature is below the Leaving Water Safety Setpoint (Heating only) for System B		
Proof of Water 1 Flow Alarm	POWF1Alm	Binary Output	Alarm that indicates no Proof of Water Flow for System A (A1/A2)		
Proof of Water 2 Flow Alarm	POWF2Alm	Binary Output	Alarm that indicates no Proof of Water Flow for System B (B1/B2)		
Module Communications Alarm	ComMAIm	Binary Output	Alarm that indicates that one or more Modules are not communicating with the VCM-X WSHP Controller.		
Bad Return Air Sensor	RaTpAlm	Binary Output	Alarm that indicates a failure in the Return Air Sensor.		
Title 24 Economizer Alarms	AlmGrp5	Analog Output	Alarms for the 24 Title Economizer		
Title 24 Economizer Feedback	T24EcFb	Analog Output	Current position of feedback from Economizer actuator.		

SNVTs for the VCM-X WSHP (Tulsa)					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Title 24 Sensor Alarm	T24TpAlm	Binary Output	Outside Air or Supply Air Temperature Sensor is shorted or missing.		
Title 24 Not Economizing When It Should	T24NEWS	Binary Output	Economizer is enabled but not following the desired Economizer position commanded.		
Title 24 Economizing When It Should Not	T24EWSN	Binary Output	Economizer is not enabled but the feedback signal indicates a position more open than the minimum.		
Title 24 Damper Failure	T24DpAlm	Binary Output	Economizer is enabled but not within 10% of desired position within 150 seconds.		
Title 24 Excess Outdoor Air	T24ExsOA	Binary Output	Economizer feedback is lost or Economizer is not following commanded position.		

9. PARAMETER TABLES

9.5 VCM-X WSHP (Coil) LON Parameters

SNVTs for the VCM-X WSHP (Coil)					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Modulating Compressor 2	MdCmp2	Analog Output	Current position of the 2nd Stage of Compressor Modulation.		
Head Pressure 1	HdPr1	Analog Output	Head Pressure for 1st Compressor		
Head Pressure 2	HdPr2	Analog Output	Head Pressure for 2nd Compressor		
Condenser Fan 1	CdFan1	Analog Output	Condenser Fan 1 Signal Status		
Condenser Fan 2	CdFan2	Analog Output	Condenser Fan 2 Signal Status		
Water Temp. A	WaterTpA	Analog Output	Current water temperature.		
Remote VFD Reset	RmVFDPoS	Analog Input	Remote VFD Position Reset	-1	100
Compressor A Low Suction Pressure Alarm	A1LSPAIm	Binary Output	Alarm that indicates Suction Pressure for Circuit A is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Compressor A Lockout Alarm	A1LktAlm	Binary Output	Alarm that indicates Circuit A Compressors are locked out.		
Compressor B Low Suction Pressure Alarm	B1LSPAIm	Binary Output	Alarm that indicates Suction Pressure for Circuit B is below the Low Suction Pressure Cooling (Heating) Setpoint.		
Compressor B Lockout Alarm	B1LktAlm	Binary Output	Alarm that indicates Circuit B Compressors are locked out.		
Low Water Temperature Alarm	LWT1Alm	Binary Output	Alarm that indicates water temperature is below the Leaving Water Safety Setpoint (Heating only).		

SNVTs for the VCM-X WSHP (Coil)					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Proof of Water Flow Alarm	POWF1Alm	Binary Output	Alarm that indicates no Proof of Water Flow.		
Module Communications Alarm	ComMAIm	Binary Output	Alarm that indicates that one or more Modules are not communicating with the VCM-X WSHP Controller.		
Bad Return Air Sensor	RaTpAlm	Binary Output	Alarm that indicates a failure in the Return Air Sensor.		
Title 24 Economizer Feedback	T24EcFb	Analog Output	Current position of feedback from Economizer actuator.		
Title 24 Sensor Alarm	T24TpAlm	Binary Output	Outside Air or Supply Air Temperature Sensor is shorted or missing.		
Title 24 Not Economizing When It Should	T24NEWS	Binary Output	Economizer is enabled but not following the desired Economizer position commanded.		
Title 24 Economizing When It Should Not	T24EWISN	Binary Output	Economizer is not enabled but the feedback signal indicates a position more open than the minimum.		
Title 24 Damper Failure	T24DpAlm	Binary Output	Economizer is enabled but not within 10% of desired position within 150 seconds.		
Title 24 Excess Outdoor Air	T24ExsOA	Binary Output	Economizer feedback is lost or Economizer is not following commanded position.		

9. PARAMETER TABLES

9.6 VCM-X LON Parameters

NOTE: Analog Outputs and Binary Outputs are read-only. Only Analog Inputs are read/writeable. You cannot write directly to Sensor Inputs.

NOTE: When a new setpoint is received from LON, it is maintained and used in temporary memory until the unit goes unoccupied. It is then stored in permanent memory and will become the new default setpoint even if power is cycled. Therefore, if power is cycled prior to the unit going unoccupied, the setpoint will not have been stored in permanent memory.

SNVTs for the VCM-X Controller

Binary Output SNVTs are SNVT_lev_disc

all other SNVTs are SNVT_count_inc_f

Parameter	Name	Object	Description	Limits
Alarm Status	AlmSts	Analog Output		See page 67.
Control Status	CtrlSts	Analog Output	Current operational status.	
Occupied Mode Enable Cooling Setpoint Mirror	ClSt	Analog Output	Occupied Mode Enable Cooling Setpoint Mirror.	
Control Temperature	CtrlTp	Analog Output	Current value of the control temperature sensor.	
Duct Static Pressure	DuctPr	Analog Output	Current value of the duct static pressure sensor.	
Economizer Position	EcoPos	Analog Output	Current position of the economizer damper.	
Occupied Mode Enable Heating Setpoint Mirror	HtSt	Analog Output	Occupied Mode Enable Heating Setpoint Mirror.	
Modulating Gas Valve Position	MdHt-2Pos	Analog Output	Current position of MODGAS II modulating gas valve control.	
On Board Relays	OnRlys	Analog Output		See page 67.
Outdoor Air Dewpoint	OaDwpt	Analog Output	Current calculated outdoor air dewpoint added on version 1.09.	
Outdoor Air Humidity	OaRh	Analog Output	Current value of the outdoor humidity sensor.	
Outdoor Air Temperature	OaTp	Analog Output	Current value of the outdoor temperature sensor.	
Outdoor Air Wetbulb	OaWtbl	Analog Output	Current calculated value of the outdoor wetbulb temperature.	

SNVTs for the VCM-X Controller

Binary Output SNVTs are SNVT_lev_disc

all other SNVTs are SNVT_count_inc_f

Parameter	Name	Object	Description	Limits
Reheat Value Position	Rt2Pos	Analog Output	Current position of MHGRV modulating hot gas reheat valve control.	
Relief Pressure	RfPr	Analog Output	Current value of the building pressure sensor.	
Return Air Temperature	RaTp	Analog Output	Current value of the return temperature sensor.	
Indoor Humidity	InRh	Analog Output	Current value of the indoor humidity sensor.	
Space Temperature	SpcTp	Analog Output	Current value of the space temperature sensor.	
Current Supply Air Setpoint	SaTp-StM	Analog Output	Current SAT Cooling or Heating setpoint if there is no reset source; Current calculated SAT setpoint with Reset Source.	
Supply Air Temperature	SaTp	Analog Output	Current value of the supply air temperature sensor.	
Temperature Demand	TpD-mnd	Analog Output	Based on the comparison between the current Control Temperature and the Heating or Cooling Setpoint Temperatures. Does not work for supply air control	
VFD Blower Fan	VfdBw-Pos	Analog Output	Current position of the VFD blower fan signal.	
VFD Relief Fan	VfdEx-Pos	Analog Output	Current position of the VFD relief fan signal.	
Application Software Version	AppVer	Analog Output	Current version of the software in the unit.	
Alarm Group 1	Alr-mGrp1	Analog Output		See page 67.
Alarm Group 2	Alr-mGrp2	Analog Output		See page 67.
Alarm Group 3	Alr-mGrp3	Analog Output		See page 67.
Dewpoint Setpoint Mirror	DptStM	Analog Output	Mirror of the DPtSt "read only."	
External Relays 1-2	ExR-lys12	Analog Output		See page 67.
External Relays 3-4	ExR-lys34	Analog Output		See page 67.

9. PARAMETER TABLES

9.6 VCM-X LON Parameters

SNVTs for the VCM-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Indoor Rh Setpoint Mirror	InRhStM	Analog Output	Mirror of the InRhSt “read only.”	
Modulating Cool Position	MdClPos	Analog Output	Current position of the modulating cooling signal (Chilled water or digital compressor).	
Modulating Heat Position	MdHtPos	Analog Output	Current position of the modulating heating signal (hot water or SCR heat).	
Unit Mode	UnitMode	Analog Output		See page 67.
Return Air CO ₂ Level	CO2Level	Analog Output	Current value of the CO ₂ sensor.	
Bypass Damper Position	ByPas-Dmp	Analog Output	Current position of the bypass damper signal.	
Return Damper Position	RaDmp	Analog Output	Current position of the return damper signal.	
Coil Temperature	CoilTp	Analog Output	Current coil temperature reading added on version 1.09.	
Outdoor Air CFM	OaCFM	Analog Output	Current Outdoor Airflow Measurement	
Exhaust CFM	EtCFM	Analog Output4	Current Exhaust Airflow Measurement	
Supply Air CFM	SaCFM	Analog Output	Current Supply Airflow Measurement	
Current Calculated OA CFM setpoint	OACfm-StM	Analog Output	Current calculated Outdoor Air CFM based on CO ₂ level.	
Dewpoint Setpoint	DptSt	Analog Input	If the outdoor dewpoint rises above this setpoint, the unit will activate the Dehumidification Demand.	35 80
Occupied-Mode Enable Cooling Setpoint	OcpClSt	Analog Input	If the control temperature rises one degree above this setpoint, the control will activate the cooling demand. If the control temperature is the Supply Air Sensor, then the cooling demand is always active.	0 99

SNVTs for the VCM-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Occupied Mode Enable Heating Setpoint	OcpHtSt	Analog Input	If the control temperature drops one degree below this setpoint, the control will activate the heating demand. If the control temperature is the Supply Air Sensor, then there is no heating demand.	99
Outdoor Air Sensor Offset	OaTpOst	Analog Input	If the Outdoor Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor’s Temperature.	-100 100
Return Air Sensor Offset	RaTpOst	Analog Input	If the Return Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor’s Temperature.	-100 100
Schedule Force	SchdFrc	Analog Input	0 = Auto/ Unoccupied Mode 1 = Forced On 2 = Forced Off	0 2
Space Sensor Offset	SpcTpOst	Analog Input	If the Space Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor’s Temperature.	-100 100
SAT Cooling Setpoint	SaClSt	Analog Input	Supply Air Setpoint in Cooling Mode.	40 80
SAT Heating Setpoint	SaHtSt	Analog Input	Supply Air setpoint in Heating Mode.	40 200
Supply Air Sensor Offset	SaTpOst	Analog Input	If the Supply Air Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor’s Temperature.	-100 100

9. PARAMETER TABLES

9.6 VCM-X LON Parameters

SNVTs for the VCM-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Supply Air Cool High Reset	SaClRt	Analog Input	High Supply Air Cooling Reset Limit	40	150
Supply Air Heat High Reset	SaHtRt	Analog Input	High Supply Air Heating Reset Limit	40	150
Cooling Low Reset Source	ClLoRt	Analog Input	Low Cool Reset Source Setpoint	1	150
Cooling High Reset Source	ClHiRt	Analog Input	High Cool Reset Source Setpoint	1	150
Heating Low Reset Source	HtLoRt	Analog Input	Low Heat Reset Source Setpoint	1	150
Heating High Reset Source	HtHiRt	Analog Input	High Heat Reset Source Setpoint	1	150
Warm Up Setpoint	WmupSt	Analog Input	In a VAV application, upon entering the occupied mode, the Warm-up Demand will be activated if the return air temperature falls one degree below this setpoint.		
Wet Bulb Setpoint	WtblSt	Analog Input	The economizer is enabled if the outdoor temperature or wetbulb falls below this setpoint.	0	80
Coil Temperature Setpoint	CoilTpSt	Analog Input	This is the coil suction temperature target during dehumidification mode. Produces dewpoint in the supply air approximately 10°F above this setpoint.	35	70
Relief Pressure Setpoint	RfPrSt	Analog Input	This is the target building pressure to be maintained by the VFD Relief signal.	-0.2	0.2
Indoor Humidity Setpoint	InRhSt	Analog Input	If the indoor humidity rises above this setpoint, the unit will activate the Dehumidification Demand.	0	100

SNVTs for the VCM-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Unoccupied Cooling Offset	UnClOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint spreads the Occupied Cooling Setpoint out by a user adjustable amount. If you do not want Cooling to operate during the Unoccupied Mode, use the default setting of 30°F for these setpoints.	0	30
Unoccupied Heating Offset	UnHtOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint spreads the Occupied Heating Setpoint out by a user adjustable amount. If you do not want Heating to operate during the Unoccupied Mode, use the default setting of 30°F for these setpoints.	0	30
CO ₂ Setpoint	CO2St	Analog Input	When the CO ₂ level rises above the CO ₂ Protection Limit Max Level, the Economizer's Minimum Position will begin to reset open proportionally between the CO ₂ Protection Limit Max Level Setpoint and the Reset Range Setpoint.	0	3000
Minimum Outside Air Setpoint	MinEcoSt	Analog Input	This is the minimum position of the economizer in the occupied modes.	1	100
Static Pressure Setpoint	DuctPrSt	Analog Input	This is the target duct pressure to be maintained by the VFD blower signal.	0.01	3
Preheater Setpoint	PreHtSp	Analog Input	Low Outside Air Ambient Protection Setpoint	0	100

9. PARAMETER TABLES

9.6 VCM-X LON Parameters

SNVTs for the VCM-X Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Outdoor Air CFM Setpoint	OACfmSt	Analog Input	Minimum desired Outdoor Air CFM.	0.10 K	200 K
Outdoor Air CFM Reset Limit	OACfmRs	Analog Input	Maximum desired Outdoor Air CFM when CO ₂ reaches its reset limit.	0.10 K	200 K
Bad Supply Air Sensor	SaTpAlm	Binary Output	Alarm that indicates a failure in the supply air sensor.		
CO ₂ Sensor Installed	CO2Cfg	Binary Output	Status that indicates the CO ₂ function has been configured.		
Cooling Enabled	ClEnbl	Binary Output	Status that indicates mechanical cooling is enabled.		
Economizer Enabled	EcoEnbl	Binary Output	Status that indicates the economizer is enabled.		
Fan Start Up Delay	FanDly	Binary Output	Status that indicates the fan is commanded to run, but it is in the start up delay mode.		
Fan Proving Alarm	PofAlm	Binary Output	Alarm that indicates a failure in the flow of the VFD blower.		
Heating Enabled	HtEnbl	Binary Output	Status that indicates that mechanical heating is enabled.		
High Supply Air Temperature Alarm	HiSaAlm	Binary Output	The Supply Air has risen above the Hi SAT Cutoff Setpoint. Heating stages begin to deactivate and the fan continues to run.		
Low Supply Air Temperature Alarm	LoSaAlm	Binary Output	The Supply Air has fallen below the Hi SAT Cutoff Setpoint and cooling stages will begin to deactivate. If the unit is in Economizer, Vent, or Heating Mode the Supply Fan will shut off.		
MODGAS II Connected	MdHt2Ins	Binary Output	Status that indicates the MODGAS II controller is connected.		

SNVTs for the VCM-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Proof of Flow Configured	PofCfg	Binary Output	Status that indicates the proof of flow function has been configured.	
REHEAT II Connected	Rt2Ins	Binary Output	Status that indicates the MHGRV controllers is connected to the system.	
Mechanical Cooling Alarm	MchClAlm	Binary Output	Compressor Relays are enabled but the Supply Air Temperature has not fallen 5°F w/in a user-adjustable time period. This does not indicate compressors are active and will not shut the unit down.	
Mechanical Heating Alarm	MchHtAlm	Binary Output	Heating Mode has been initiated but the Supply Air Temperature has not risen 5°F w/in a user-adjustable time period. This does not indicate heat stages are active and will not shut the unit down.	
Dirty Filter Detected	DrtFlAlm	Binary Output	Alarm that indicates the filters are dirty.	
Control Temperature Cool Failure	CtrlTpCF	Binary Output	This alarm is activated if the control temperature does not get within 5°F to the occupied cooling setpoint in an hour in the cooling mode. This alarm is not used in 100% outside air units or supply air control.	
Control Temperature Heat Failure	CtrlTpHF	Binary Output	This alarm is activated if the control temperature does not get within 5°F to the occupied heating setpoint in an hour in the heating mode. This alarm is not used in 100% outside air units or supply air control.	

9. PARAMETER TABLES

9.6 VCM-X LON Parameters

SNVTs for the VCM-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Outdoor Air Temperature Lost	OaTpAlm	Binary Output	Alarm that indicates a failure in the outdoor air temperature.	
Smoke Detector Alarm	SmokeAlm	Binary Output	Alarm that indicates the Smoke sensor has been activated.	
Space Temperature Sensor Lost	SpcTpAlm	Binary Output	Alarm that indicates a failure in the space temperature sensor.	
On Board Relay 1	OnRly1	Binary Output	Current status of relay 1.	
On Board Relay 2	OnRly2	Binary Output	Current status of relay 2.	
On Board Relay 3	OnRly3	Binary Output	Current status of relay 3.	
On Board Relay 4	OnRly4	Binary Output	Current status of relay 4.	
On Board Relay 5	OnRly5	Binary Output	Current status of relay 5.	
Expansion Relay 1	ExRly1	Binary Output	Current status of relay 6.	
Expansion Relay 2	ExRly2	Binary Output	Current status of relay 7.	
Expansion Relay 3	ExRly3	Binary Output	Current status of relay 8.	
Expansion Relay 4	ExRly4	Binary Output	Current status of relay 9.	
Expansion Relay 5	ExRly5	Binary Output	Current status of relay 10.	

SNVTs for the VCM-X Controller				
Binary Output SNVTs are SNVT_lev_disc				
all other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Expansion Relay 6	ExRly6	Binary Output	Current status of relay 11.	
Expansion Relay 7	ExRly7	Binary Output	Current status of relay 12.	
Expansion Relay 8	ExRly8	Binary Output	Current status of relay 13.	
Expansion Relay 9	ExRly9	Binary Output	Current status of relay 14.	
Expansion Relay 10	ExRly10	Binary Output	Current status of relay 15.	
Expansion Relay 11	ExRly11	Binary Output	Current status of relay 16.	
Expansion Relay 12	ExRly12	Binary Output	Current status of relay 17.	
Expansion Relay 13	ExRly13	Binary Output	Current status of relay 18.	
Expansion Relay 14	ExRly14	Binary Output	Current status of relay 19.	
Expansion Relay 15	ExRly15	Binary Output	Current status of relay 20.	
Expansion Relay 16	ExRly16	Binary Output	Current status of relay 21.	

7.6.1 VCM-X PT-Link II LON®

Property Identifier:

The PT-Link II LON® Link amends the following property identity to the LON® property identifier.

LONPropertyIdentifier :

```
WattLONScheduleForce ::= ENUMERATED {
    NormalOperation          (0),
    ForceOccupied            (1),
    ForceUnoccupied          (2)
}
```

```
VcmxUnitMode ::= ENUMERATED {
    Unoccupied                (0),
    RemoteContactOccupied    (1),
    NormalScheduleOccupied   (2),
    PushButtonOrZoneOverride (3),
    HolidayModeActive        (4),
    UnoccupiedZoneDemand     (5),
    RemoteScheduleOverride   (6),
    CurrentOutputForceMode   (7),
    SATHighOrLowCutOff       (8),
    CO2OverrideInProgress    (9),
    PurgeModeActive          (10)
}
```

```
VcmxControlStatusBits ::= ENUMERATED {
    Off                        (0),
    Vent                      (1),
    Cool                      (2),
    Heat                      (3),
    Dehum                     (4),
    Dehum Cool                (5),
    Dehum Heat                (6),
    Warm Up Mode              (7)
}
```

```
VcmxOnBoardRelaysBits ::= BIT STRING {
    OnBoardRelay1            (0),
    OnBoardRelay2            (1),
    OnBoardRelay3            (2),
    OnBoardRelay4            (3),
    OnBoardRelay5            (4)
}
```

```
VcmxExternal Relays1-2Bits ::= BIT STRING {
    ExpansionBoard1Relay1    (0),
    ExpansionBoard1Relay2    (1),
    ExpansionBoard1Relay3    (2),
    ExpansionBoard1Relay4    (3),
    ExpansionBoard2Relay1    (4),
    ExpansionBoard2Relay2    (5),
    ExpansionBoard2Relay3    (6),
    ExpansionBoard2Relay4    (7)
}
```

```
VcmxExternal Relays2-4Bits ::= BIT STRING {
    ExpansionBoard3Relay1    (0),
    ExpansionBoard3Relay2    (1),
    ExpansionBoard3Relay3    (2),
    ExpansionBoard3Relay4    (3),
    ExpansionBoard4Relay1    (4),
    ExpansionBoard4Relay2    (5),
    ExpansionBoard4Relay3    (6),
    ExpansionBoard4Relay4    (7)
}
```

```
VcmxAlarmStatusBits ::= BIT STRING {
    Alarm Group1              (0),
    Alarm Group2              (1),
    Alarm Group3              (2),
    Alarm Group4              (3),
    Alarm Group5              (4)
}
```

```
VcmxAlarmGroup1Bits ::= BIT STRING {
    SupplyTempSensorFailure  (0),
    LostOutdoorTempSensorSignal (1),
    LostSpaceTempSensorSignal (2),
    ModuleAlarm               (3),
    DemandVentilationAlarm    (4),
    OutdoorCFMSensorFailure   (5),
    ReturnTempSensorFailure   (6)
}
```

```
VcmxAlarmGroup2Bits ::= BIT STRING {
    MechanicalCoolingAlarm    (0),
    MechanicalHeatingAlarm    (1),
    FanProvingAlarm           (2),
    DirtyFilterDetected        (3),
    SmokeDetected              (4)
}
```

```
VcmxAlarmGroup3Bits ::= BIT STRING {
    LowSupplyAirTempAlarm     (0),
    HighSupplyAirTempAlarm    (1),
    LowControlTempAlarm       (2),
    HighControlTempAlarm      (3)
}
```

```
VcmxAlarmGroup5Bits ::= BIT STRING {
    AirTempSensorFailure      (0),
    NoEconWhenItShould        (1),
    EconWhenItShouldNot       (2),
    DamperFailure              (3),
    ExcessOutdoorAir           (4)
}
```

9. PARAMETER TABLES

9.7 SA Controller LON Parameters

NOTE: Analog Outputs and Binary Outputs are read-only. Only Analog Inputs are read/writeable. You cannot write directly to Sensor Inputs.

NOTE: When a new setpoint is received from LON, it is maintained and used in temporary memory until the unit goes unoccupied. It is then stored in permanent memory and will become the new default setpoint even if power is cycled. Therefore, if power is cycled prior to the unit going unoccupied, the setpoint will not have been stored in permanent memory.

SNVTs for the SA Controller			
Binary Output SNVTs are SNVT_lev_disc			
all other SNVTs are SNVT_count_inc_f			
Parameter	Name	Object	Description
Control Status	CtrlSts	Analog Output	Current operational status. See page 71.
Occupied Mode Enable Cooling Setpoint Mirror	ClSt	Analog Output	Occupied Mode Enable Cooling Setpoint Mirror.
Control Temperature	CtrlTp	Analog Output	Current value of the control temperature sensor.
Duct Static Pressure	DuctPr	Analog Output	Current value of the duct static pressure sensor.
Economizer Position	EcoPos	Analog Output	Current position of the waterside economizer valve.
Occupied Mode Enable Heating Setpoint Mirror	HtSt	Analog Output	Occupied Mode Enable Heating Setpoint Mirror.
Modulating Gas Valve Position	MdHt-2Pos	Analog Output	Current position of MODGAS II modulating gas valve control.
Reheat Value Position	Rt2Pos	Analog Output	Current position of MHGRV modulating hot gas reheat valve control.
Indoor Humidity	InRh	Analog Output	Current value of the indoor humidity sensor.
Space Temperature	SpcTp	Analog Output	Current value of the space temperature sensor.
Current Supply Air Setpoint	SaTpStM	Analog Output	Current SAT Cooling or Heating setpoint if there is no reset source; Current calculated SAT setpoint with Reset Source.
Supply Air Temperature	SaTp	Analog Output	Current value of the supply air temperature sensor.
Temperature Demand	TpDmnd	Analog Output	Based on the comparison between the current Control Temperature and the Heating or Cooling Setpoint Temperatures. Does not work for supply air control.
VFD Blower Fan	VfdBw-Pos	Analog Output	Current position of the VFD blower fan signal.

SNVTs for the SA Controller			
Binary Output SNVTs are SNVT_lev_disc			
all other SNVTs are SNVT_count_inc_f			
Parameter	Name	Object	Description
Application Software Version	AppVer	Analog Output	Current version of the software in the unit.
Coil Temperature Setpoint	CoilTpSt	Analog Output	Current Coil Temperature Setpoint.
Dewpoint Setpoint Mirror	DptStM	Analog Output	Mirror of the DPTst “read only.”
Indoor RH Setpoint Mirror	InRhStM	Analog Output	Mirror of the InRhSt “read only.”
Modulating Cool Position	MdClPos	Analog Output	Current position of the modulating cooling signal (Chilled water or digital compressor).
Modulating Heat Position	MdHtPos	Analog Output	Current position of the modulating heating signal (hot water or SCR heat).
Unit Mode	UnitMode	Analog Output	See page 71.
Coil Temperature	CoilTp	Analog Output	Current coil temperature reading added on version 1.09.
Modulating Compressor 2 Position	MdCmp2	Analog Output	Current position of the 2nd Stage of Compressor Modulation.
Head Pressure 1	HdPr1	Analog Output	Head Pressure for 1st unit.
Head Pressure 2	HdPr2	Analog Output	Head Pressure for 2nd unit.
Entering Air Temperature	EaTp	Analog Output	Temperature of the air that is entering the unit.
Entering Water Temperature	EwTp	Analog Output	Temperature of the water that is entering the unit.
Entering Air Humidity	EaRh	Analog Output	Relative Humidity of the Entering Air.
Coil Temperature 2	CoilTp2	Analog Output	Current Coil Temperature for 2nd unit.
Entering Air Dewpoint	EaDpt	Analog Output	Current Entering Air Dewpoint
Water Side Economizer Bypass	WSEByp	Analog Output	Current Water Side Economizer Bypass Position for 1st unit.
Water Side Economizer Bypass 2	WSEByp2	Analog Output	Current Water Side Economizer Bypass Position for 2nd unit.
Condenser Position 1	CdPos1	Analog Output	Current Condenser Position for 1st unit.
Condenser Position 2	CdPos2	Analog Output	Current Condenser Position for 2nd unit.

9. PARAMETER TABLES

9.7 SA Controller LON Parameters

SNVTs for the SA Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Dewpoint Setpoint	DptSt	Analog Input	If the outdoor dewpoint rises above this setpoint, the unit will activate the Dehumidification Demand.	35	80
Occupied Mode Enable Cooling Setpoint	OcpClSt	Analog Input	If the control temperature rises one degree above this setpoint, the control will activate the cooling demand. If the control temperature is the Supply Air Sensor, then the cooling demand is always active.	0	99
Occupied Mode Enable Heating Setpoint	OcpHtSt	Analog Input	If the control temperature drops one degree below this setpoint, the control will activate the heating demand. If the control temperature is the Supply Air Sensor, then there is no heating demand.		99
Schedule Force	SchdFre	Analog Input	0 = Auto/ 1 = Forced On 2 = Forced Off	0	2
Space Sensor Offset	SpcTpOst	Analog Input	If the Space Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
SAT Cooling Setpoint	SaClSt	Analog Input	Supply Air Setpoint in Cooling Mode.	40	80
SAT Heating Setpoint	SaHtSt	Analog Input	Supply Air Setpoint in Heating Mode.	40	200
Supply Air Cool High Reset	SaClRt	Analog Input	High Supply Air Cooling Reset Limit	40	150
Supply Air Heat High Reset	SaHtRt	Analog Input	High Supply Air Heating Reset Limit	40	150
Cooling Low Reset Source	ClLoRt	Analog Input	Low Cool Reset Source Setpoint	1	150

SNVTs for the SA Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Cooling High Reset Source	ClHiRt	Analog Input	High Cool Reset Source Setpoint	1	150
Heating Low Reset Source	HtLoRt	Analog Input	Low Heat Reset Source Setpoint	1	150
Heating High Reset Source	HtHiRt	Analog Input	High Heat Reset Source Setpoint	1	150
Supply Air Sensor Offset	SaTpOst	Analog Input	If the Supply Air Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Warm Up Setpoint	WmupSt	Analog Input	In a VAV application, upon entering the occupied mode, the Warm-up Demand will be activated if the return air temperature falls one degree below this setpoint.	50	90
Coil Temperature Setpoint	CoilTpSt	Analog Input	This is the coil suction temperature target during dehumidification mode. Produces dewpoint in the supply air approximately 10°F above this setpoint.	35	70
Indoor Humidity Setpoint	InRhSt	Analog Input	If the indoor humidity rises above this setpoint, the unit will activate the Dehumidification Demand.	0	100
Unoccupied Cooling Offset	UnClOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint spreads the Occupied Cooling Setpoint out by a user adjustable amount. If you do not want Cooling to operate during the Unoccupied Mode, use the default setting of 30°F for these setpoints.	0	30

9. PARAMETER TABLES

9.7 SA Controller LON Parameters

SNVTs for the SA Controller					
Binary Output SNVTs are SNVT_lev_disc					
all other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Unoccupied Heating Offset	UnHtOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint spreads the Occupied Heating Setpoint out by a user adjustable amount. If you do not want Heating to operate during the Unoccupied Mode, use the default setting of 30°F for these setpoints.	0	30
Static Pressure Setpoint	DuctPrSt	Analog Input	This is the target duct pressure to be maintained by the VFD blower signal.	0.01	3
Preheater Setpoint	PreHtSp	Analog Input	Low Outside Air Ambient Protection Setpoint	0	100
Entering Air Offset Setpoint	EaTpOst	Analog Input	If the Entering Air Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.		
Entering Water Offset Setpoint	EwTpOst	Analog Input	If the Entering Water Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.		
Bad Supply Air Sensor	SaTpAlm	Binary Output	Alarm that indicates a failure in the supply air sensor.		
Cooling Enabled	ClEnbl	Binary Output	Status that indicates mechanical cooling is enabled.		
Economizer Enabled	EcoEnbl	Binary Output	Status that indicates the economizer is enabled.		
Fan Start Up Delay	FanDly	Binary Output	Status that indicates the fan is commanded to run, but it is in the start up delay mode.		

SNVTs for the SA Controller			
Binary Output SNVTs are SNVT_lev_disc			
all other SNVTs are SNVT_count_inc_f			
Parameter	Name	Object	Description
Fan Proving Alarm	PofAlm	Binary Output	Alarm that indicates a failure in the flow of the VFD blower.
Heating Enabled	HtEnbl	Binary Output	Status that indicates that mechanical heating is enabled.
High Supply Air Temperature Alarm	HiSaAlm	Binary Output	The Supply Air has risen above the Hi SAT Cutoff Setpoint. Heating stages begin to deactivate and the fan continues to run.
Low Supply Air Temperature Alarm	LoSaAlm	Binary Output	The Supply Air has fallen below the Hi SAT Cutoff Setpoint and cooling stages will begin to deactivate. If the unit is in Economizer, Vent, or Heating Mode the Supply Fan will shut off.
MODGAS II Connected	MdHt2Ins	Binary Output	Status that indicates the MODGAS II controller is connected.
REHEAT II Connected	Rt2Ins	Binary Output	Status that indicates the MHGRV controllers is connected to the system.
Mechanical Cooling Alarm	MchClAlm	Binary Output	Compressor Relays are enabled but the Supply Air Temperature has not fallen 5°F w/in a user-adjustable time period. This does not indicate compressors are active and will not shut the unit down.
Mechanical Heating Alarm	MchHtAlm	Binary Output	Heating Mode has been initiated but the Supply Air Temperature has not risen 5°F w/in a user-adjustable time period. This does not indicate heat stages are active and will not shut the unit down.
Dirty Filter Detected	DrtFlAlm	Binary Output	Alarm that indicates the filters are dirty.
Control Temperature Cool Failure	CtrlTpCF	Binary Output	This alarm is activated if the control temperature does not get within 5°F to the occupied cooling setpoint in an hour in the cooling mode. This alarm is not used in 100% outside air units or supply air control.
Control Temperature Heat Failure	CtrlTpHF	Binary Output	This alarm is activated if the control temperature does not get within 5°F to the occupied heating setpoint in an hour in the heating mode. This alarm is not used in 100% outside air units or supply air control.

9.7 SA Controller LON Parameters

SNVTs for the SA Controller			
Binary Output SNVTs are SNVT_lev_disc			
all other SNVTs are SNVT_count_inc_f			
Parameter	Name	Object	Description
Space Temperature Sensor Lost	SpcTpAlm	Binary Output	Alarm that indicates a failure in the space temperature sensor.
On Board Relay 1	OnRly1	Binary Output	Current status of relay 1.
On Board Relay 2	OnRly2	Binary Output	Current status of relay 2.
On Board Relay 3	OnRly3	Binary Output	Current status of relay 3.
On Board Relay 4	OnRly4	Binary Output	Current status of relay 4.
On Board Relay 5	OnRly5	Binary Output	Current status of relay 5.
Expansion Relay 1	ExRly1	Binary Output	Current status of relay 6.
Expansion Relay 2	ExRly2	Binary Output	Current status of relay 7.
Expansion Relay 3	ExRly3	Binary Output	Current status of relay 8.
Expansion Relay 4	ExRly4	Binary Output	Current status of relay 9.
Expansion Relay 5	ExRly5	Binary Output	Current status of relay 10.
Expansion Relay 6	ExRly6	Binary Output	Current status of relay 11.
Expansion Relay 7	ExRly7	Binary Output	Current status of relay 12.
Expansion Relay 8	ExRly8	Binary Output	Current status of relay 13.
Expansion Relay 9	ExRly9	Binary Output	Current status of relay 14.
Expansion Relay 10	ExRly10	Binary Output	Current status of relay 15.
Expansion Relay 11	ExRly11	Binary Output	Current status of relay 16.
Expansion Relay 12	ExRly12	Binary Output	Current status of relay 17.
Expansion Relay 13	ExRly13	Binary Output	Current status of relay 18.
Expansion Relay 14	ExRly14	Binary Output	Current status of relay 19.
Expansion Relay 15	ExRly15	Binary Output	Current status of relay 20.
Expansion Relay 16	ExRly16	Binary Output	Current status of relay 21.
Emergency Shutdown Alarm	EmerAlm	Binary Output	Alarm that indicates Emergency Shutdown.
Drain Pan Overflow	DrnAlm	Binary Output	Alarm that indicates overflow of the drain pan.

SNVTs for the SA Controller			
Binary Output SNVTs are SNVT_lev_disc			
all other SNVTs are SNVT_count_inc_f			
Parameter	Name	Object	Description
Proof of Water Flow Alarm	PoWFAlm	Binary Output	Alarm that indicates no Proof of Water Flow.
Entering Air Temperature Alarm	EaTpAlm	Binary Output	Alarm that indicates failure in the Entering Air Temperature Sensor.

9.7.1 SA Controller PT-Link II LON® Property Identifier:

The PT-Link II LON® Link amends the following property identity to the LON® property identifier.

LONPropertyIdentifier :

```
SAUnitMode ::= ENUMERATED {
    Unoccupied (0),
    RemoteContactOccupied (1),
    NormalScheduleOccupied (2),
    PushButtonOrZoneOverride (3),
    HolidayModeActive (4),
    UnoccupiedZoneDemand (5),
    RemoteScheduleOverride (6),
    CurrentOutputForceMode (7),
    SATHighOrLowCutOff (8),
    CO2OverrideInProgress (9),
    PurgeModeActive (10)
}
```

```
SAControlStatusBits ::= ENUMERATED {
    Off (0),
    Vent (1),
    Cool (2),
    Heat (3),
    Dehum (4),
    Dehum Cool (5),
    Dehum Heat (6),
    Warm Up Mode (7)
}
```

9. PARAMETER TABLES

9.8 VCM LON Parameters

NOTE: Analog Outputs and Binary Outputs are read-only. Only Analog Inputs are read/writeable. You cannot write directly to Sensor Inputs.

NOTE: When a new setpoint is received from LON, it is maintained and used in temporary memory until the unit goes unoccupied. It is then stored in permanent memory and will become the new default setpoint even if power is cycled. Therefore, if power is cycled prior to the unit going unoccupied, the setpoint will not have been stored in permanent memory.

SNVTs for the VCM Controller				
Binary Output SNVTs are SNVT_lev_disc				
All other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Application Software Version	AppVer	Analog Output	Current version of the software in the unit.	
Alarm Status	AlrmSts	Analog Output		See page 77.
Unit Mode	UnitMode	Analog Output		See page 77.
Control Status	CtrlSts	Analog Output	Current operational status.	
Control Temperature	CtrlTp	Analog Output	Current value of the control temperature sensor.	
Occupied Mode Enable Cooling Setpoint Mirror	ClSt	Analog Output	Occupied Mode Enable Cooling Setpoint Mirror.	
Duct Static Pressure	DuctPr	Analog Output	Current value of the duct static pressure sensor.	
Economizer Position	EcoPos	Analog Output	Current position of the economizer damper.	
External Relays 1-2	ExRlys12	Analog Output		See page 77.
External Relays 3-4	ExRlys34	Analog Output		See page 77.
Indoor Humidity	InRh	Analog Output	Current value of the indoor humidity sensor.	
Occupied Mode Enable Heating Setpoint Mirror	HtSt	Analog Output	Occupied Mode Enable Heating Setpoint Mirror.	
On Board Relay	OnRlys	Analog Output		See page 77.
Outdoor Air Humidity	OaRh	Analog Output	Current value of the outdoor humidity sensor.	

SNVTs for the VCM Controller				
Binary Output SNVTs are SNVT_lev_disc				
All other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Outdoor Air Temperature	OaTp	Analog Output	Current value of the outdoor temperature sensor.	
Outdoor Air Wetbulb	OaWtbl	Analog Output	Current calculated value of the outdoor wetbulb temperature.	
Relief Pressure	RfPr	Analog Output	Current value of the building pressure sensor.	
Return Air CO ₂ Level	CO2Level	Analog Output	Current value of the CO ₂ sensor.	
Return Air Temperature	RaTp	Analog Output	Current value of the return temperature sensor.	
Space Temperature	SpcTp	Analog Output	Current value of the space temperature sensor.	
Supply Air Temperature	SaTp	Analog Output	Current value of the supply air temperature sensor.	
Temperature Demand	TpDmnd	Analog Output	Based on the comparison between the current Control Temperature and the Heating or Cooling Setpoint Temperatures. Does not work for supply air control.	
VFD Blower Fan	VfdBwPos	Analog Output	Current position of the VFD blower fan signal.	
VFD Relief Fan	VfdExPos	Analog Output	Current position of the VFD relief fan signal.	
Modulating Gas Valve Position	MdHt2Pos	Analog Output	Current position of MODGAS II modulating gas valve control.	
Reheat Value Position	Rt2Pos	Analog Output	Current position of MHGRV modulating hot gas reheat valve control.	
Alarm Group 1	AlrmGrp1	Analog Output		See page 77.
Alarm Group 2	AlrmGrp2	Analog Output		See page 77.
Alarm Group 3	AlrmGrp3	Analog Output		See page 77.
Dewpoint Setpoint Mirror	DptStM	Analog Output	Mirror of the DPtSt "read only."	
Indoor RH Setpoint Mirror	InRhStM	Analog Output	Mirror of the InRhSt "read only."	

9. PARAMETER TABLES

9.8 VCM LON Parameters

SNVTs for the VCM Controller					
Binary Output SNVTs are SNVT_lev_disc					
All other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Modulating Cool Position	MdClPos	Analog Output	Current position of the modulating cooling signal (Chilled water or digital compressor).		
Modulating Heat Position	MdHtPos	Analog Output	Current position of the modulating heating signal (hot water or SCR heat).		
Bypass Damper Position	ByPasDmp	Analog Output	Current position of the bypass damper signal.		
Return Damper Position	RaDmp	Analog Output	Current position of the return damper signal.		
Outdoor Air Dewpoint	OaDwpt	Analog Output	Current calculated outdoor air dewpoint added on version 1.09.		
Current Supply Air Setpoint	SaTpStM	Analog Output	Current SAT Cooling or Heating setpoint if there is no reset source; Current calculated SAT setpoint with Reset Source.		
Coil Temperature	CoilTp	Analog Output	Current coil temperature reading added on version 1.09.		
Preheater Setpoint	PreHtSp	Analog Input	Low Outside Air Ambient Protection Setpoint	0	100
CO ₂ Setpoint	CO2St	Analog Input	When the CO ₂ level rises above the CO ₂ Protection Limit Max Level, the Economizer's Minimum Position will begin to reset open proportionally between the CO ₂ Protection Limit Max Level Setpoint and the Reset Range Setpoint.	0	3000
Static Pressure Setpoint	DuctPrSt	Analog Input	This is the target duct pressure to be maintained by the VFD blower signal.	0.01	3
Minimum Outside Air Setpoint	MinEcoSt	Analog Input	This is the minimum position of the economizer in the occupied modes.	1	100

SNVTs for the VCM Controller					
Binary Output SNVTs are SNVT_lev_disc					
All other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Occupied Mode Enable Cooling Setpoint	OcpClSt	Analog Input	If the control temperature rises one degree above this setpoint, the control will activate the cooling demand. If the control temperature is the Supply Air Sensor, then the cooling demand is always active.	0	99
Occupied Mode Enable Heating Setpoint	OcpHtSt	Analog Input	If the control temperature drops one degree below this setpoint, the control will activate the heating demand. If the control temperature is the Supply Air Sensor, then there is no heating demand.	0	99
Outdoor Air Sensor Offset	OaTpOst	Analog Input	If the Outdoor Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Relief Pressure Setpoint	RfPrSt	Analog Input	This is the target building pressure to be maintained by the VFD Relief signal.	-0.2	0.2
Return Air Sensor Offset	RaTpOst	Analog Input	If the Return Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Schedule Force	SchdFrc	Analog Input	0 = Auto Unoccupied Mode 1 = Forced On 2 = Forced Off	0	2
Space Sensor Offset	SpcTpOst	Analog Input	If the Space Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100

9. PARAMETER TABLES

9.8 VCM LON Parameters

SNVTs for the VCM Controller					
Binary Output SNVTs are SNVT_lev_disc					
All other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
SAT/Reset Source Cooling Setpoint	SaClSt	Analog Input	Supply Air setpoint or Reset Source target temperature in Cooling Mode.	40	80
SAT/Reset Source Heating Setpoint	SaHtSt	Analog Input	Supply Air setpoint or Reset Source target temperature in Heating Mode.	40	200
Supply Air Sensor Offset	SaTpOst	Analog Input	If the Supply Air Temperature Sensor is reading incorrectly, you can use this option to enter an offset temperature to adjust the Sensor's Temperature.	-100	100
Unoccupied Cooling Offset	UnClOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint spreads the Occupied Cooling Setpoint out by a user adjustable amount. If you do not want Cooling to operate during the Unoccupied Mode, use the default setting of 30°F for these setpoints.	0	30
Unoccupied Heating Offset	UnHtOst	Analog Input	During the Unoccupied Mode of Operation, this Setpoint spreads the Occupied Heating Setpoint out by a user adjustable amount. If you do not want Heating to operate during the Unoccupied Mode, use the default setting of 30°F for these setpoints.	0	30
Dewpoint Setpoint	DptSt	Analog Input	If the outdoor dewpoint rises above this setpoint, the unit will activate the Dehumidification Demand.	35	80

SNVTs for the VCM Controller					
Binary Output SNVTs are SNVT_lev_disc					
All other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Indoor Humidity Setpoint	InRhSt	Analog Input	If the indoor humidity rises above this setpoint, the unit will activate the Dehumidification Demand.	0	100
Warm Up Setpoint	WmupSt	Analog Input	In a VAV application, upon entering the occupied mode, the Warm-up Demand will be activated if the return air temperature falls one degree below this setpoint.	50	90
Wet Bulb Setpoint	WtblSt	Analog Input	The economizer is enabled if the outdoor temperature or wetbulb falls below this setpoint.	0	80
Bad Supply Air Sensor	SaTpAlm	Binary Output	Alarm that indicates a failure in the supply air sensor.		
CO ₂ Sensor Installed	CO2Cfg	Binary Output	Status that indicates the CO ₂ function has been configured.		
Cooling Demand	ClDmnd	Binary Output	Status that indicates a demand for cooling.		
Cooling Enabled	ClEnbl	Binary Output	Status that indicates mechanical cooling is enabled.		
Economizer Enabled	EcoEnbl	Binary Output	Status that indicates the economizer is enabled.		
Fan Start Up Delay	FanDly	Binary Output	Status that indicates the fan is commanded to run, but it is in the start up delay mode.		
Fan Proving Alarm	PofAlm	Binary Output	Alarm that indicates a failure in the flow of the VFD blower.		
Heating Demand	HtDmnd	Binary Output	Status that indicates a demand for heating.		

9. PARAMETER TABLES

9.8 VCM LON Parameters

SNVTs for the VCM Controller					
Binary Output SNVTs are SNVT_lev_disc					
All other SNVTs are SNVT_count_inc_f					
Parameter	Name	Object	Description	Limits	
Coil Temperature Setpoint	CoilTpSt	Analog Input	This is the coil suction temperature during dehumidification mode. Produces dewpoint in the supply air approximately 10°F above this setpoint.	35	70
Heating Enabled	HtEnbl	Binary Output	Status that indicates that mechanical heating is enabled.		
High Supply Air Temperature Alarm	HiSaAlm	Binary Output	The Supply Air has risen above the Hi SAT Cutoff Setpoint. Heating stages begin to deactivate and the fan continues to run.		
Low Supply Air Temperature Alarm	LoSaAlm	Binary Output	The Supply Air has fallen below the Hi SAT Cutoff Setpoint and cooling stages will begin to deactivate. If the unit is in Economizer, Vent, or Heating Mode the Supply Fan will shut off.		
MODGAS II Connected	MdHt2Ins	Binary Output	Status that indicates the MODGAS II controller is connected.		
Proof of Flow Configured	PofCfg	Binary Output	Status that indicates the proof of flow function has been configured.		
REHEAT II Connected	Rt2Ins	Binary Output	Status that indicates the MHGRV controllers is connected to the system.		
Warm Up Mode Active	WmupDmnd	Binary Output	Status that indicates the control is in the Warm-up mode.		
Mechanical Cooling Alarm	MchClAlm	Binary Output	Compressor Relays are enabled but the Supply Air Temperature has not fallen 5°F w/in a user-adjustable time period. This does not indicate compressors are active and will not shut the unit down.		

SNVTs for the VCM Controller				
Binary Output SNVTs are SNVT_lev_disc				
All other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Mechanical Heating Alarm	MchHtAlm	Binary Output	Heating Mode has been initiated but the Supply Air Temperature has not risen 5°F w/in a user-adjustable time period. This does not indicate heat stages are active and will not shut the unit down.	
Dirty Filter Detected	DrtFlAlm	Binary Output	Alarm that indicates the filters are dirty.	
Control Temperature Cool Failure	CtrlTpCF	Binary Output	This alarm is activated if the control temperature does not get within 5°F to the occupied cooling setpoint in an hour in the cooling mode. This alarm is not used in 100% outside air units or supply air control.	
Control Temperature Heat Failure	CtrlTpHF	Binary Output	This alarm is activated if the control temperature does not get within 5°F to the occupied heating setpoint in an hour in the heating mode. This alarm is not used in 100% outside air units or supply air control.	
Dehumidification Demand	DehmDmnd	Binary Output	Status that indicates a demand for dehumidification.	
Outdoor Air Temperature Lost	OaTpAlm	Binary Output	Alarm that indicates a failure in the outdoor air temperature.	
Smoke Detector Alarm	SmokeAlm	Binary Output	Alarm that indicates the Smoke sensor has been activated.	
Space Temperature Sensor Lost	SpcTpAlm	Binary Output	Alarm that indicates a failure in the space temperature sensor.	
On Board Relay 1	OnRly1	Binary Output	Current status of relay 1.	
On Board Relay 2	OnRly2	Binary Output	Current status of relay 2.	
On Board Relay 3	OnRly3	Binary Output	Current status of relay 3.	
On Board Relay 4	OnRly4	Binary Output	Current status of relay 4.	
On Board Relay 5	OnRly5	Binary Output	Current status of relay 5.	

9. PARAMETER TABLES

9.8 VCM LON Parameters

SNVTs for the VCM Controller				
Binary Output SNVTs are SNVT_lev_disc				
All other SNVTs are SNVT_count_inc_f				
Parameter	Name	Object	Description	Limits
Expansion Relay 1	ExRly1	Binary Output	Current status of relay 6.	
Expansion Relay 2	ExRly2	Binary Output	Current status of relay 7.	
Expansion Relay 3	ExRly3	Binary Output	Current status of relay 8.	
Expansion Relay 4	ExRly4	Binary Output	Current status of relay 9.	
Expansion Relay 5	ExRly5	Binary Output	Current status of relay 10.	
Expansion Relay 6	ExRly6	Binary Output	Current status of relay 11.	
Expansion Relay 7	ExRly7	Binary Output	Current status of relay 12.	
Expansion Relay 8	ExRly8	Binary Output	Current status of relay 13.	
Expansion Relay 9	ExRly9	Binary Output	Current status of relay 14.	
Expansion Relay 10	ExRly10	Binary Output	Current status of relay 15.	
Expansion Relay 11	ExRly11	Binary Output	Current status of relay 16.	
Expansion Relay 12	ExRly12	Binary Output	Current status of relay 17.	
Expansion Relay 13	ExRly13	Binary Output	Current status of relay 18.	
Expansion Relay 14	ExRly14	Binary Output	Current status of relay 19.	
Expansion Relay 15	ExRly15	Binary Output	Current status of relay 20.	
Expansion Relay 16	ExRly16	Binary Output	Current status of relay 21.	

9.8.1 VCM PT-Link II LON® Property Identifier:

The PT-Link II LON® Link amends the following property identity to the LON® property identifier.

LONPropertyIdentifier :

```
WattLONScheduleForce ::= ENUMERATED {
    NormalOperation          (0),
    ForceOccupied            (1),
    ForceUnoccupied          (2)
}
```

```
VcmUnitMode ::= ENUMERATED {
    Unoccupied                (0),
    RemoteContactOccupied    (1),
    NormalScheduleOccupied   (2),
    PushButtonOrZoneOverride (3),
    HolidayModeActive        (4),
    UnoccupiedZoneDemand     (5),
    RemoteScheduleOverride   (6),
    CurrentOutputForceMode   (7),
    SATHighOrLowCutOff       (8),
    CO2OverrideInProgress    (9),
    PurgeModeActive          (10)
}
```

```
VcmControlStatusBits ::= BIT STRING {
    AhuControlEconomizer     (0),
    NoOutdoorAirTempSensor   (1),
    CarbonDioxideSensorPresent (2),
    HeatCoolStagingDisabled  (3),
    DehumidificationMode     (4),
    ModGasIIConnected        (5),
    ReheatIIConnected        (6)
}
```

```
VcmOnBoardRelaysBits ::= BIT STRING {
    OnBoardRelay1            (0),
    OnBoardRelay2            (1),
    OnBoardRelay3            (2),
    OnBoardRelay4            (3),
    OnBoardRelay5            (4)
}
```

```
VcmExternal Relays1-2Bits ::= BIT STRING {
    ExpansionBoard1Relay1    (0),
    ExpansionBoard1Relay2    (1),
    ExpansionBoard1Relay3    (2),
    ExpansionBoard1Relay4    (3),
}
```

```
VcmExternal Relays1-2Bits ::= BIT STRING {
    ExpansionBoard1Relay1    (0),
    ExpansionBoard1Relay2    (1),
    ExpansionBoard1Relay3    (2),
    ExpansionBoard1Relay4    (3),
    ExpansionBoard2Relay1    (4),
    ExpansionBoard2Relay2    (5),
    ExpansionBoard2Relay3    (6),
    ExpansionBoard2Relay4    (7)
}
```

```
VcmExternal Relays2-4Bits ::= BIT STRING {
    ExpansionBoard3Relay1    (0),
    ExpansionBoard3Relay2    (1),
    ExpansionBoard3Relay3    (2),
    ExpansionBoard3Relay4    (3),
    ExpansionBoard4Relay1    (4),
    ExpansionBoard4Relay2    (5),
    ExpansionBoard4Relay3    (6),
    ExpansionBoard4Relay4    (7)
}
```

```
VcmAlarmStatusBits ::= BIT STRING {
    Alarm Group1              (0),
    Alarm Group2              (1),
    Alarm Group3              (2)
}
```

```
VcmAlarmGroup1Bits ::= BIT STRING {
    SupplyTempSensorFailure   (0),
    LostOutdoorTempSensorSignal (1),
    LostSpaceTempSensorSignal  (2)
}
```

```
VcmAlarmGroup2Bits ::= BIT STRING {
    MechanicalCoolingAlarm    (0),
    MechanicalHeatingAlarm    (1),
    FanProvingAlarm           (2),
    DirtyFilterDetected        (3),
    SmokeDetected              (4)
}
```

```
VcmAlarmGroup3Bits ::= BIT STRING {
    LowSupplyAirTempAlarm     (0),
    HighSupplyAirTempAlarm    (1),
    LowControlTempAlarm       (2),
    HighControlTempAlarm      (3)
}
```

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AAON Factory Technical Support: 918-382-6450
techsupport@aaon.com

AAON Controls Support: 866-918-1100
Monday through Friday, 7:00 AM to 5:00 PM
central standard time.

NOTE: Before calling Technical Support, please have the model and serial number of the unit available.

PARTS: For replacement parts please contact your local AAON Representative.



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