GEN V

VOTE BASED AUTO CHANGEOVER *VVT*

A MODULATING SYSTEM

COMMERCIAL ZONING - SIMPLIFIED

Installation and Applications Manual

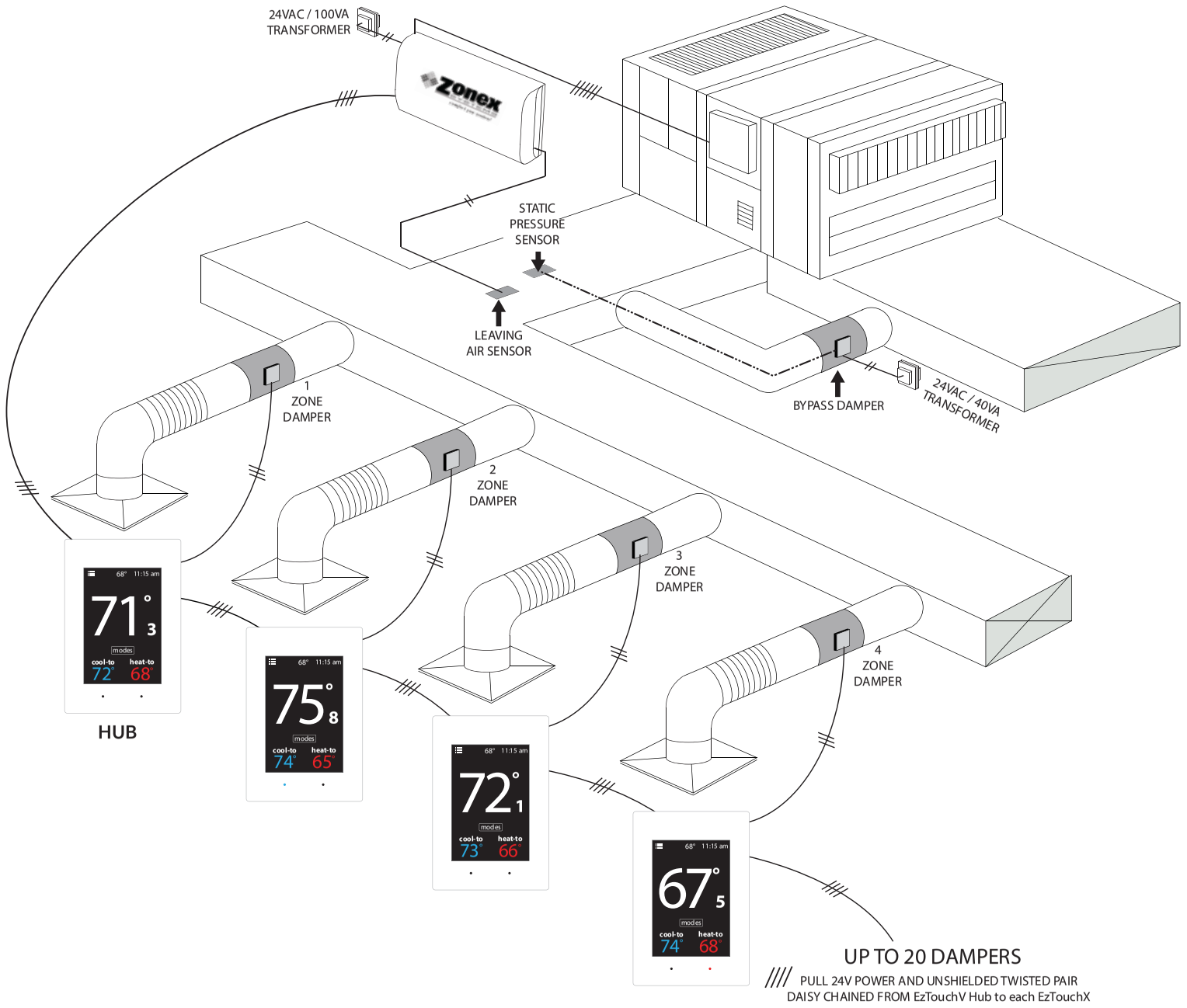
GEN V INSTALLATION AND STARTUP VIDEO
SCAN
ME

Zonex SYSTEMS
comfort you control

CONCEPTUAL OVERVIEW

GEN V - CONTROL SYSTEM

ON-SITE HUB ACCESS FOR SYSTEM CONFIGURATION AND OPERATION



NOTE: ***USE ZONEX, 2 WIRE TWISTED PAIR COMMUNICATION LINK***

** FOR THE 24V POWER, SIZE THE WIRE BASED ON LENGTH OF RUN*

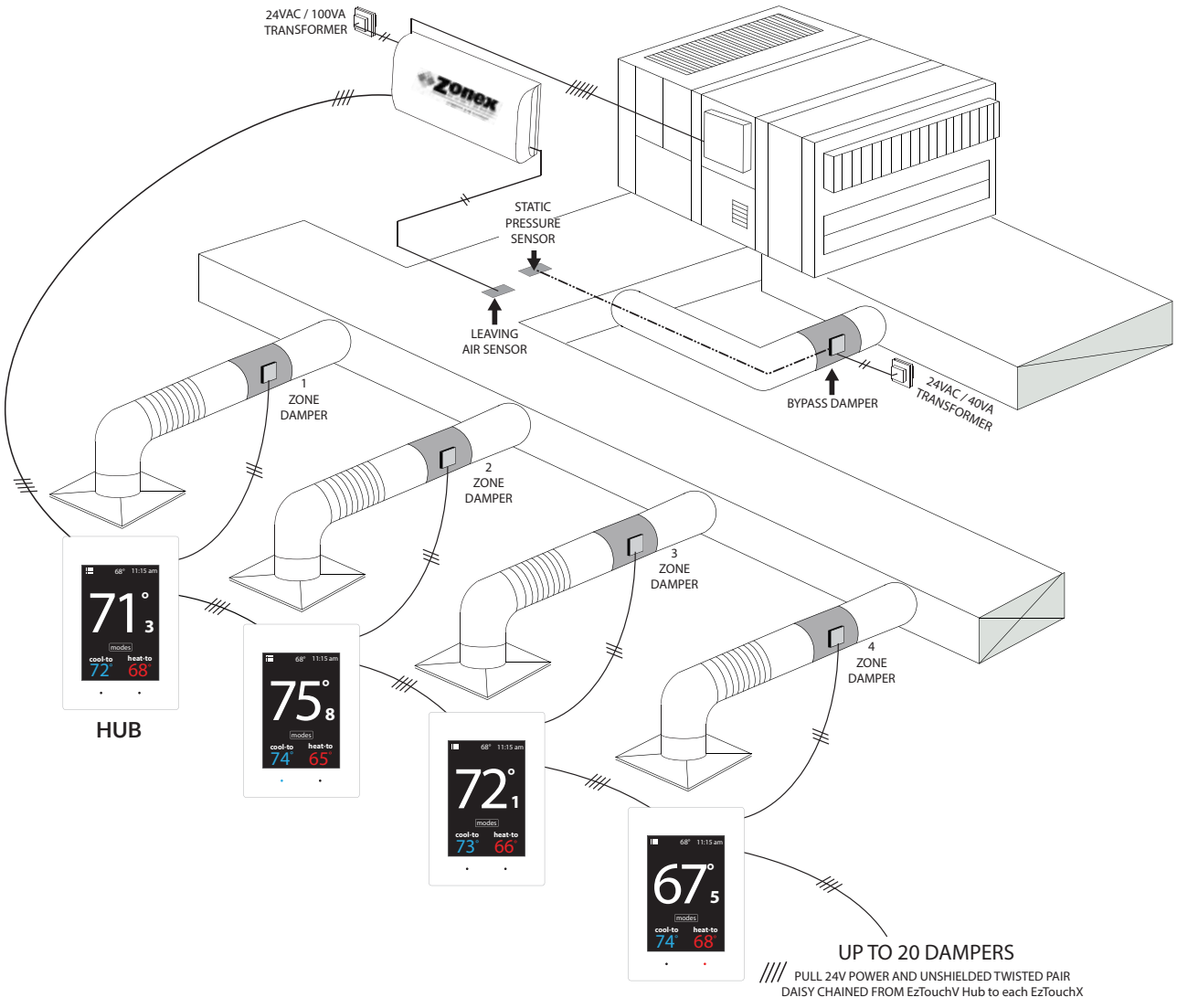
GEN V is a commercial modulating bypass VAV system controlling 2-20 independent zones per RTU or split system utilizing Zonex thermostats.

The GEN V controller is designed for Auto Changeover, bypass VAV operation for multi-stage Heat Pump (2C/3H), Gas Electric (2C/2H) or VRF applications. The GEN V supports VAV boxes and VFD type systems.

The GEN V HUB thermostat allows for a wide range of system control and changeover strategies, allowing the contractor to tailor the GEN V system to a specific application.

Additional features include LED status indication of all system functions, digital leaving air temperature, return air temperature display, fully adjustable capacity control with on-board limit settings and optional staging strategies. Morning warm up, priority votes, and air balance features are also included. An integrated clock allows for setup, night setback, vacation scheduling, globally or individually for each zone thermostat, with selectable 2 to 8 hour override, and the ability to remotely lock each thermostat in the system. Additionally a unique system tool provides the installing contractor with a simple startup diagnostic to quickly alert and identify any system wiring errors, all from the HUB thermostat. ADR and FDD alerts are also available, along with fan control strategies to insure pre and post building purge.

The GEN V system operates over a plenum rated two wire data link, along with two 24VAC power wires daisy chained from thermostat to thermostat with no home run wiring required. Communication and configuration is done through the HUB thermostat. GEN V can control zoned systems along with standalone units. Zonex stand alone thermostats are utilized to control stand-alone (non-zoned) HVAC equipment.



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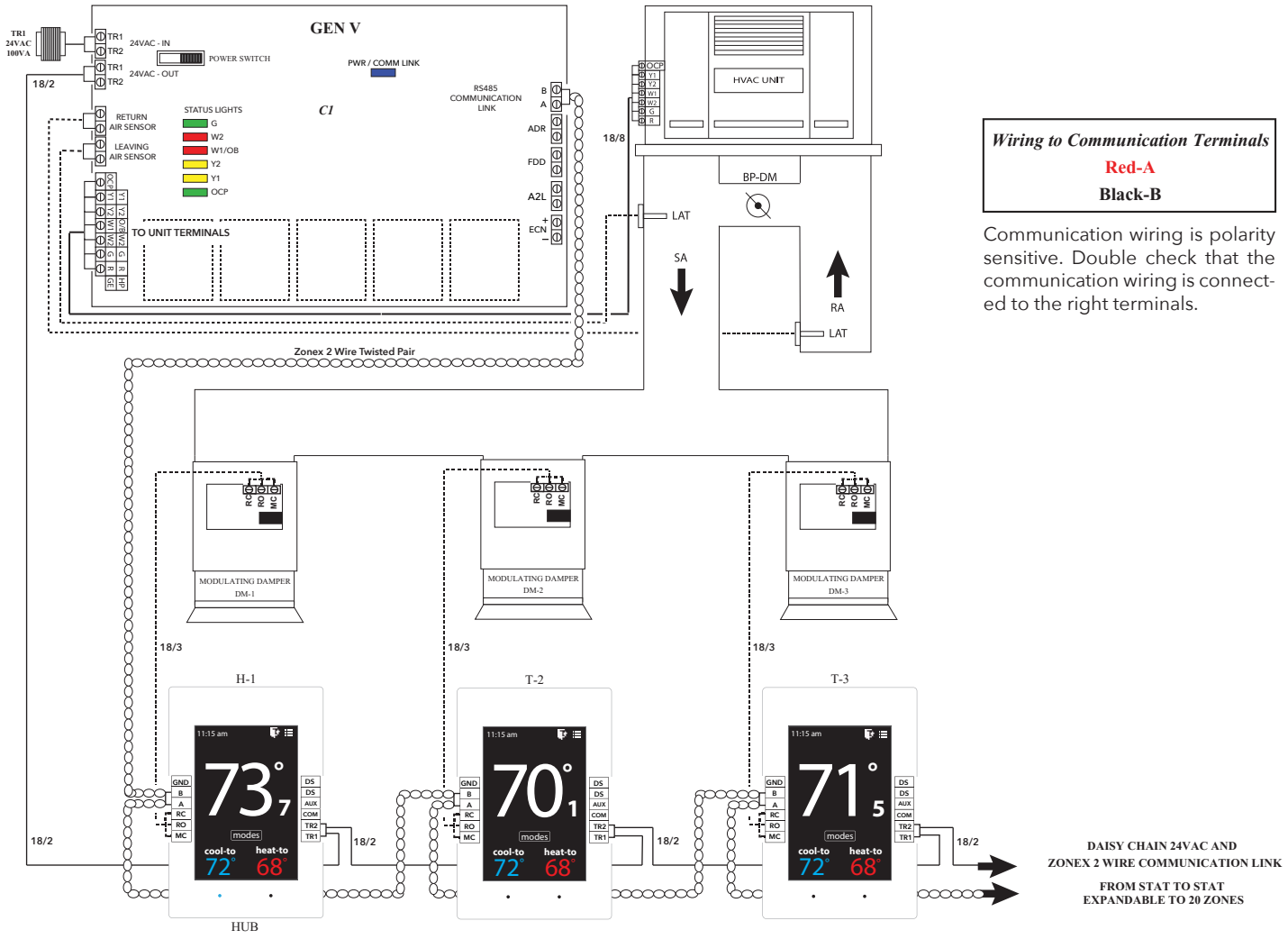
Wiring and Installation

1. Install GEN V contoller inside the conditioned space, in an area that is easily accessible.
2. Install an independent 24VAC/100VA transformer, wire the secondary 24VAC output to the TR1 and TR2 (IN) on the GEN V controller. **Do not ground out the transformer.**
3. Install the leaving air sensor (LV AIR) in the spply duct, prior to the bypass. Wire the leaving air sensor to the LV AIR terminals on the GEN V controller. Install the return air sensor (RTN AIR) in the return duct, before the bypass. Wire the return air sensor to the RTN AIR terminals. (If needed extend sensor wire using 18/2 thermostat wire.)(See page 13)
4. Install Supply dampers and run **18/3 thermostat wire** to the zone thermostat controlling it. Install the Bypass dampers as well. (See page 58)
5. Wire TR1 and TR2 (OUT) top terminal from the GEN V controller to the **HUB thermostat** (EzTouchV) TR1 and TR2 using **18/2 thermostat wire**. (See page 12.) Continue daisy chaining TR1 and TR2 on the EzTouchV to the next thermostat (EzTouchX) until the last EzTouchX or Standalone thermostat (SATouchX) in the system. Make sure TR1 and TR2 polarity is consistent throughout the system.
6. Wire A and B from the GEN V controller using **Zonex 2 wire twisted pair plenum rated wire (Part #STPR)** to the **HUB thermostat** (EzTouchV). (See page 12.) Continue daisy chaining from A and B on the EzTouchV to the next thermostat (EzTouchX) until at the last EzTouchX board or SATouchX in the system. Make sure A and B polarity is consistent throughout the system.
7. Turn ON the GEN V controller, confirm that the GEN V , EzTouchV, EzTouchX's, and SATouchX's (if applicable) are powered. A Blue light on the GEN V controller indicates it is powered. If you do not have a blue power light confirm power at the transformer and check TR1 and TR2 wiring.



Wiring to Communication Terminals

Red-A

Black-B

Communication wiring is polarity sensitive. Double check that the communication wiring is connected to the right terminals.

COMPONENT SELECTION GUIDE

GEN V Control Solutions

Manage the entire system from one central HUB

Part # - **GEN V**

1 - Per RTU or Split System

Supports 2 - 20 Fully Modulating Zones or Standalone Units

Daisy Chain: Zonex communication wire Part#-STPR and 24VAC from Thermostat to Thermostat
Only 1-24VAC / 100VA Transformer Powers the GEN V and up to 20 modulating dampers

HUB - Touch Screen Thermostat

Part # - **EzTouchV**

Need 1 Hub Thermostat per GEN V system
Slave Up to 3 Zone Dampers per Stat

Zone Touch Screen Thermostat

Part # - **EzTouchX**

1- Thermostat per Damper
Slave Up to 3 Zone Dampers per Stat

Modulating Zone Dampers

Part #

STMPD + Damper Size **-** Round Damper (up to 1.75 S.P.)
STCD + Damper Size **-** Rectangular Dampers (up to 1.75 S.P.)

Electronic Bypass Damper

(Includes Integrated Static Pressure Control)

Part #

STBP + Damper Size - Round Bypass Dampers
STCDBP + Damper Size - Rectangular Bypass Dampers

1-24vac / 40va Transformer to Power Bypass Damper

Thermostat to Control Standalone Units

Part # - **SATouchX**

Controls and Networks Standalone RTU or Split systems
with SA / RA / RH reporting

THIS COMPLETES YOUR GEN V SYSTEM

For assistance, contact Zonex at (800) 228-2966
or visit zonexproducts.com for more information

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Vote Based Auto Changeover Bypass VAV with Central HUB Thermostat

GEN V controller wires to the HVAC unit with legacy style connections Y1, Y2, W1/OB, W2, G, R. Every minute the controller communicates to each zone thermostat via RS485 connection daisy chained along with 24VAC power wired thermostat to thermostat. Each thermostat must be assigned a unique ID so they can communicate back to the GEN V controller.

The GEN V is an auto changeover, vote based VAV system. As thermostats call for heating or cooling, votes are tallied by the GEN V controller and based on the majority of votes received the HVAC unit operates in the mode of majority votes. If majority changes, the system controller will automatically initiate a changeover sequence with built in time delays to protect the equipment before changing over to the new mode of operation.

When the last calling zone is satisfied (in either heat or cool mode), the GEN V controller will terminate outputs to the HVAC unit after the next “poll”; and the blower output will de-energize (unless controller is configured for constant fan) after a 3-minute purge cycle. During the purge cycle no heat or cool calls are recognized.

The zone thermostats control and modulate zone dampers based on variance from set point to a position that will match the demand requirement. When the HVAC unit is running, if a zone thermostat is not calling or is calling for the opposite mode, its corresponding damper fully closes. When the HVAC unit is not running, the thermostats open to the Vent mode to provide ventilation if the indoor blower fan is running continuously. When configured for Reheat operation and the zone temperature drops 2° below thermostat set point, the damper modulates to approximately 40% open providing airflow over electric heat strips or other supplemental heat source, the AUX terminal will energize and strip heat will energize.

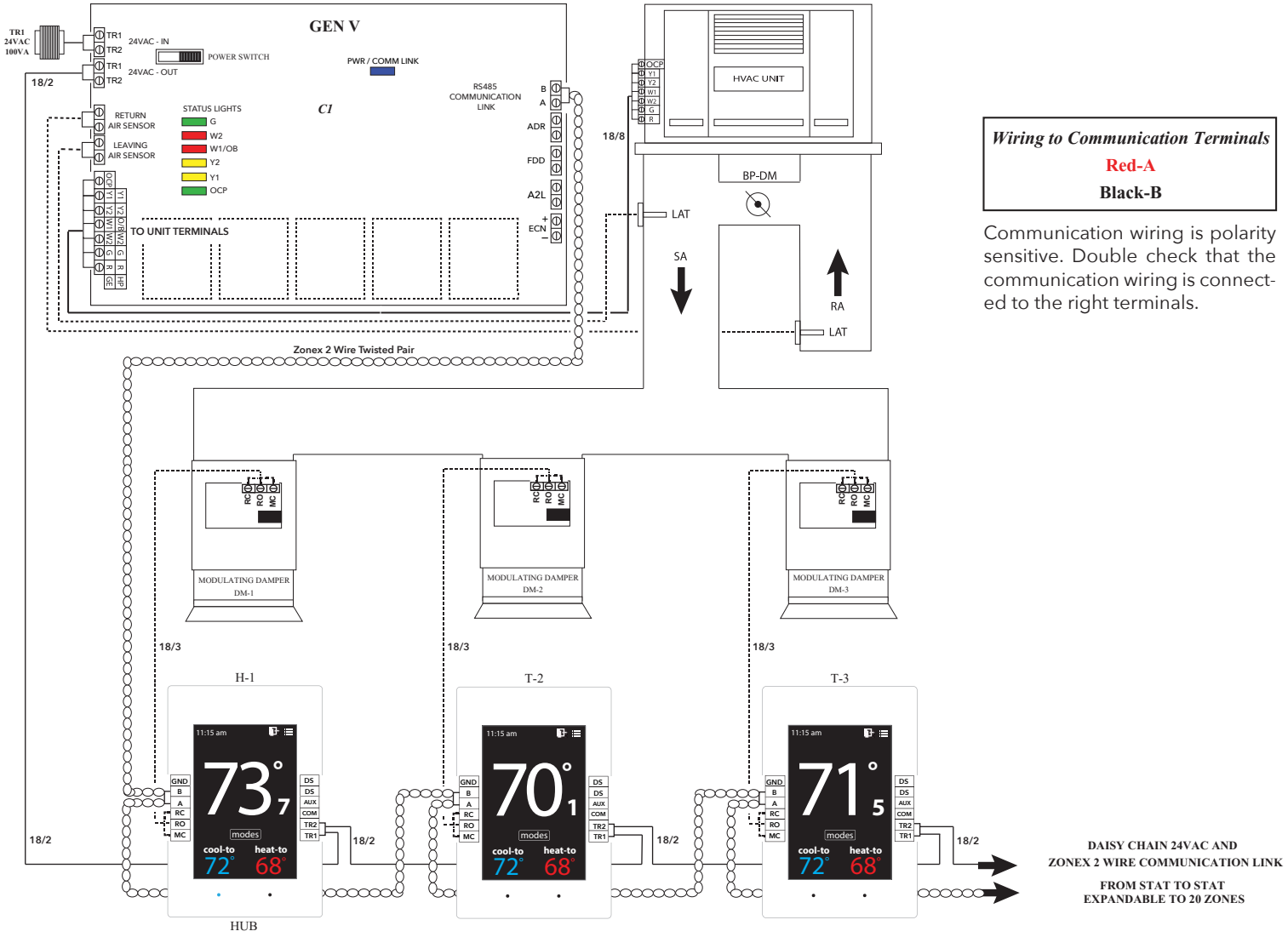
The HVAC unit's leaving air temperature is continuously monitored and compared against configurable low and high limits. When the low limit is exceeded the controller will cease cooling operation to prevent coil freeze-up and protect the compressor(s). When the high limit is exceeded the controller will cease heating operation to protect the unit's heat exchanger and/or compressor(s). After a 3-minute purge cycle, the GEN V will ensure that the leaving air temperature does not exceed the low or high limits before resuming system operation.

The GEN V is a vote based system where majority wins on changeover. For example, when the system is in the heating mode and a majority of the votes change from heating to cooling a changeover timer begins that allows unit to operate in the heating mode for 4 minutes or until heat call is satisfied (whichever comes first). Heating operation is then terminated and a 3-minute purge cycle is begun. After the purge cycle is complete cooling operation is energized until all cool calls are satisfied or there is a majority vote for heat received by the GEN V controller. After all calls have been satisfied a 3-minute purge delay begins and then all dampers will modulate to approximately 40% open position for ventilation mode.

The system fan/blower operation can be configured for ON or intermittent AUTO operation.

All zone thermostats are wired to and control/modulate their respective modulating zone damper. The HUB thermostat has the ability to issue individual or global commands to each thermostat in the system. Management and configurations such as scheduling, set point changes, locking thermostats, and much more are all done from the HUB thermostat. Additionally the HUB thermostat provides useful diagnostics information such as communication status, system status, current zone temperatures & set points, and more.

Voting demand strategy can be enhanced by adding additional votes or by giving a NULL vote to individual thermostats in the system, thereby weighting certain zones more than others. Priority votes allow you to select 0, 1, 2, or 3 additional votes for a zone that has unusual loads, such as a conference room. A change to 0 will create a NULL vote and will not allow the stat to place a call for heat or cool, but will only control damper operation based on system mode of operation, and zone requirements.



Wiring to Communication Terminals

Red-A

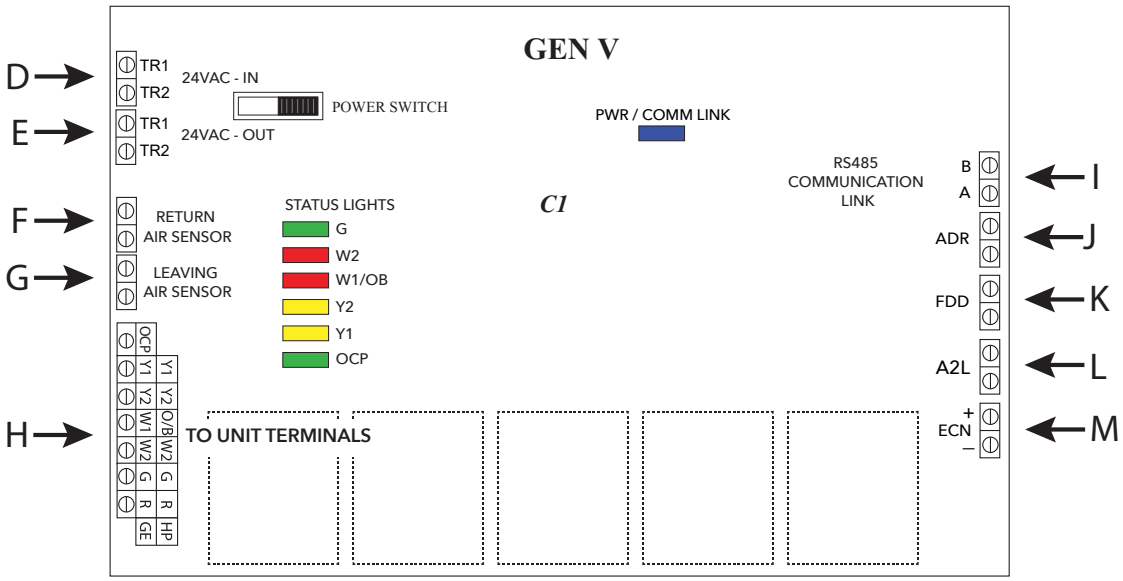
Black-B

Communication wiring is polarity sensitive. Double check that the communication wiring is connected to the right terminals.

DEVICE	ID	DESCRIPTION	DEVICE	ID	DESCRIPTION
CONTROL BOARD	C1	GEN V CONTROLLER CONTROLS 2-20 MODULATING DAMPERS 1-24VAC/100VA TRANSFORMER POWERS ALL SUPPLY DAMPERS	SYSTEM TRANSFORMER	TR1	24VAC/100VA TRANSFORMER (SIZED @ 5VA PER ZONE) DAISY CHAIN STAT TO STAT
EZTOUCHV THERMOSTAT	H-1	HUB COLOR TOUCH SCREEN THERMOSTAT	SUPPLY / RETURN AIR LAT DISCHARGE SENSORS	LAT	SUPPLY LAT LOCATED BEFORE THE BYPASS. RETURN LAT LOCATED AFTER THE BYPASS
EZTOUCHX THERMOSTAT	T2-T20	COLOR TOUCH SCREEN THERMOSTAT	24VOLT WIRING TO EzTouchX's	——	USE **18/2 THERMOSTAT WIRE** TO DAISY CHAIN THE 24VOLTS FROM STAT TO STAT
ZONE DAMPER ACTUATOR	DM	SUPPLIED WITH ZONE DAMPER	RS485 COMMUNICATION LINK	○○○	**ZONEX 2 WIRE TWISTED PAIR**

VISIT OUR ON-LINE CATALOG AT ZONEXPRODUCTS.COM
FOR APPLICATIONS ASSISTANCE CALL 800-228-2966

The GEN V is a micro-controller based, auto changeover Universal Gas/Electric, Heat Pump or VRF system controller (Part # ***GEN V***). The ***GEN V*** controls a zoned 2H/2C Gas/Electric HVAC unit or 3H/2C zoned Heat Pump unit and communicates with and supports up to 20 zones, utilizing pressure dependent, modulating dampers and zone thermostats. The ***GEN V*** gathers information every 60 seconds from each thermostat and communicates with the system over a 2-wire plenum rated twisted pair data link directing control based decisions to the HVAC equipment. The ***GEN V*** is powered with one 24VAC/ 100VA transformer, which also powers all thermostats and dampers in the system. Power from the controller, along with the Zonex 2-wire communications bus, is daisy chained thermostat to thermostat to streamline installation and system communications. The ***GEN V*** is equipped with integrated capacity control and High and Low temperature limits to protect the compressor and heat exchanger. Supply air and return air sensors are also provided. The HVAC unit is staged based on leaving air temperature and time. Auto changeover operation is vote based, predicated on a first call, first served majority wins on changeover algorithm. Additional control strategies are established with the HUB thermostat (EzTouchV) which initiates control decisions with the ***GEN V*** system controller. **Review controller terminal connections below:**



A. On /Off Power Switch
B. Power / Communication link LED
C. Unit Status Lights
D. 24VAC IN to power the GEN V board
E. 24VAC OUT daisy chained out to zone thermostats (Independent 24VAC /100VA Transformer)
F. Return Air Sensor (RA)
G. Leaving Air Sensor (LVAIR)
H. Unit Terminals
I. A/B 2 wire communication link, daisy chained OUT to zone thermostats
J. Automated Demand Response (ADR)
K. Fault Detection Device (FDD)
L. A2L Sensor Input (A2L)
M. ECN - **Not in use**

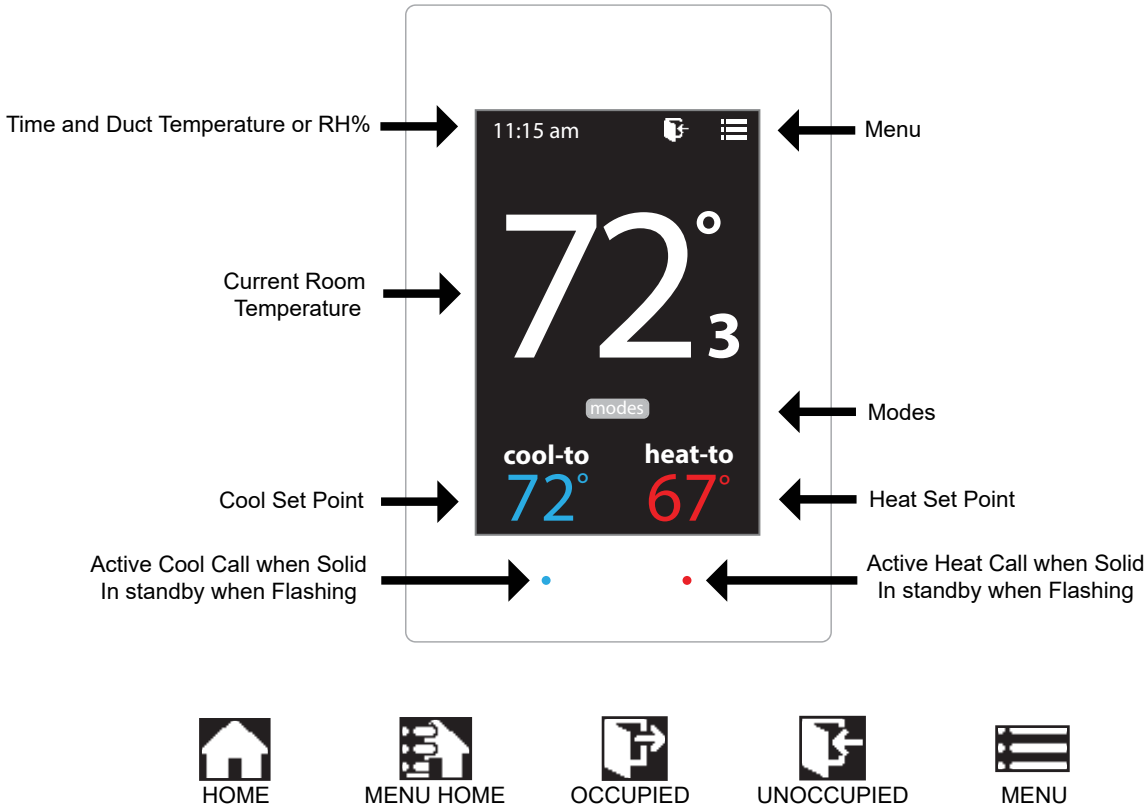
DESCRIPTION

The zone thermostats EzTouchV and EzTouchX are a microprocessor based, auto changeover, programmable communicating zone thermostat.

The zone thermostat controls medium pressure modulating round or rectangular commercial or spring loaded two position low pressure dampers. The zone thermostats control modulating zone dampers based on variance from set point to a position that will match the supply load to the demand requirement.

When the HVAC unit is running and a zone thermostat is satisfied or is calling for the opposite mode its damper will fully close. When all zones are satisfied the thermostats modulate their damper to 40% open (called Vent mode) to provide ventilation if the indoor blower fan is running continuously.

All zone thermostats require a unique ID numbered 2 - 20 so they can be identified and communicate back to the GEN V controller. All system management and configuration is performed at the GEN V HUB thermostat (EzTouchV) such as global or individual schedules for the system, lock thermostats, master temperature settings individually or globally for the system. This user interface provides diagnostic functions to streamline system troubleshooting along with air balance shortcuts and many additional functions.



EzTouchV / EzTouchX - Sequence of operation

COOL CALL

When zone temperature rises 1° or more degrees above COOL set point, thermostat transmits COOL call to the GEN V controller. GEN V controller evaluates calls for HEAT and COOL for majority vote. If there is a majority vote for COOL, GEN V controller initiates a call for cooling and the damper modulates open. ***A BLUE light* will flash** until system is operating in the COOL mode. Once system is in COOL mode, The BLUE light will remain constant. As zone cools, thermostat will communicate with the zone damper and modulate to maintain zone comfort. When zone temperature reaches set point, damper is closed or at minimum position and EzTouchV / EzTouchX releases call for COOL.

HEAT CALL

When the zone temperature falls greater than 1 degree below HEAT set point, thermostat will initiate a call for HEAT. GEN V controller will evaluate all calls for HEAT and COOL in the system and if there is a majority of calls for HEAT, GEN V controller will initiate heat call and the damper modulates open. ***A RED light* will flash** until system is operating in the HEAT mode. Once system is in HEAT mode, The RED light will remain constant. As zone heats, thermostat will communicate with the zone damper and modulate to maintain zone comfort. When zone temperature reaches set point, damper is closed or at minimum position and EzTouchV / EzTouchX releases call for HEAT.

Baseboard / Supplemental HEAT

When zone thermostat is configured for BASEBOARD heat and zone temperature falls greater than 2° below HEAT set point, the thermostat will energize AUX heat and BASEBOARD heat is now operating, When calling the RED light will remain constant. When zone temperature rises to HEAT set point, thermostat will satisfy call for AUX operations.

REHEAT

When zone thermostat is configured for REHEAT operation, and the zone temperature falls greater than 2° below HEAT set point, thermostat transmits a call for REHEAT. The thermostat modulates the damper to 40% open and energizes AUX output REHEAT, When calling the RED light will remain constant. When zone temperature rises to HEAT set point, thermostat satisfies, releases call for AUX REHEAT and closes damper.

VENT

When all calls for HEAT or COOL are satisfied, dampers will modulate to approx. 40% open.

Zone Damper Installation

Install dampers into HVAC duct so damper actuators are easily accessible. Damper may be mounted in an area where the ambient temperature is between 32° and 140° Fahrenheit. Round dampers should be mounted with damper actuators between 9 and 3 O'clock position. Using **18/3 thermostat wire**, wire to RO, RC and MC at the damper and the thermostat that is controlling it.

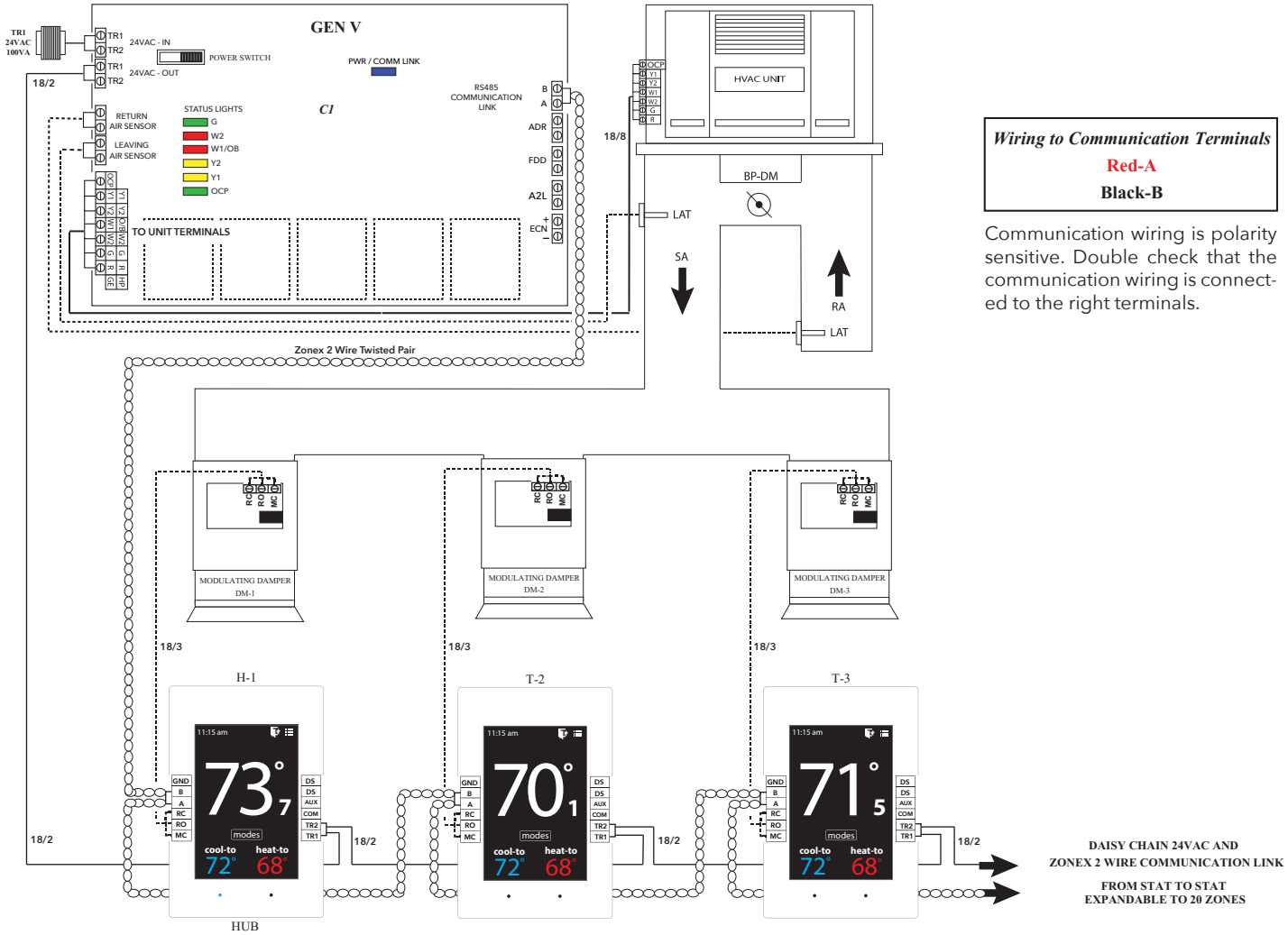
Installing 24VAC wiring

Once GEN V controller and supply dampers are installed, install one 24VAC/100VA transformer, and wire secondary 24 volts to the TR1 / TR2 - IN terminals on GEN V controller. Using **18/2 thermostat wire**, wire TR1 / TR2 - OUT terminals and daisy chain power wires to the first zone thermostat. Continue daisy chain wiring from first thermostat to second, third, etc., until all zone thermostats are wired with power.

Note: Maintain TR1 and TR2 wiring polarity throughout the system to improve communications.
Do not ground out the transformer.

Installing Communication Wire RS485

Once power wiring is daisy chained to all zone thermostats in the system, use **Zonex STPR plenum rated twisted pair** communications wire to install communications bus. Install communications wire using the A and B terminals on GEN V controller and daisy chain to the first zone thermostat in the system and wire to A and B terminals. Continue daisy chain to the next thermostat using A and B terminals to the A and B of the next thermostat, repeating this process until all zone thermostats are wired into the communications loop. Communications wiring is polarity specific, if RED communications wire is on A at the GEN V controller, then RED wire is connected to A throughout the system.



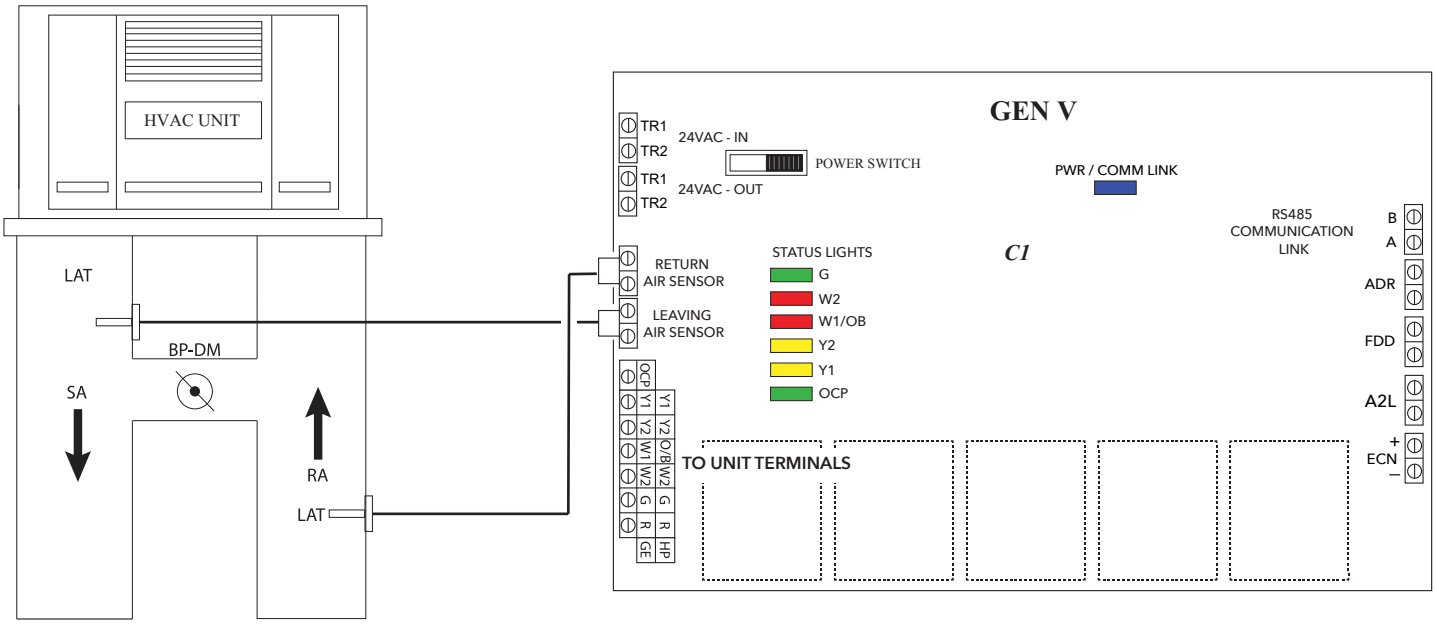
Wiring to Communication Terminals
Red-A
Black-B

Communication wiring is polarity sensitive. Double check that the communication wiring is connected to the right terminals.

Wiring in the Leaving and Return Air Sensors to GEN V controller

The LAT Capacity Controller protects both the air conditioner and furnace by constantly monitoring the leaving air temperature. If the air gets to cold (drops below the cool cut-out set point), it breaks the"Y" connection, disengaging the compressor. If the air gets to warm (rises above the heat cut-out set point), it breaks the "W" connection, de-energizing the furnace. To prevent short cycling, the compressor or furnace cannot re-energize for at least 4 minutes after cut-out. The heating and cooling cut-out set points can be changed by the installer from the HUB.

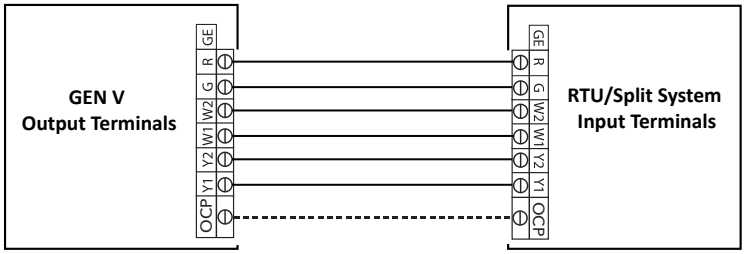
Install Leaving Air Temperature Sensor (LAT) to the LVAIR terminals on the GEN V controller and place the sensor in the supply duct prior to the bypass takeoff. Install Return Air Temperature Sensor (LAT) to the RA terminals on the GEN V controller and place the sensor in the return duct after the bypass takeoff.
(Note: If extension of wire is needed, 18 ga. thermostat wire may be used).



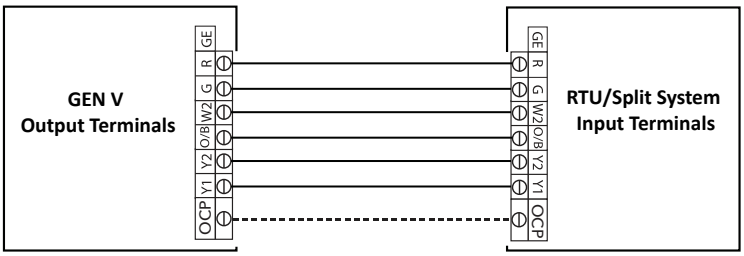
Wire Unit to GEN V Controller

Using standard 18 ga. thermostat wire, connect GEN V unit outputs to HVAC unit. Standard HVAC control terminal designations are used, R Y1 Y2 W1(O/B) W2 G, and energize HVAC unit.

1. Gas/Electric Wiring

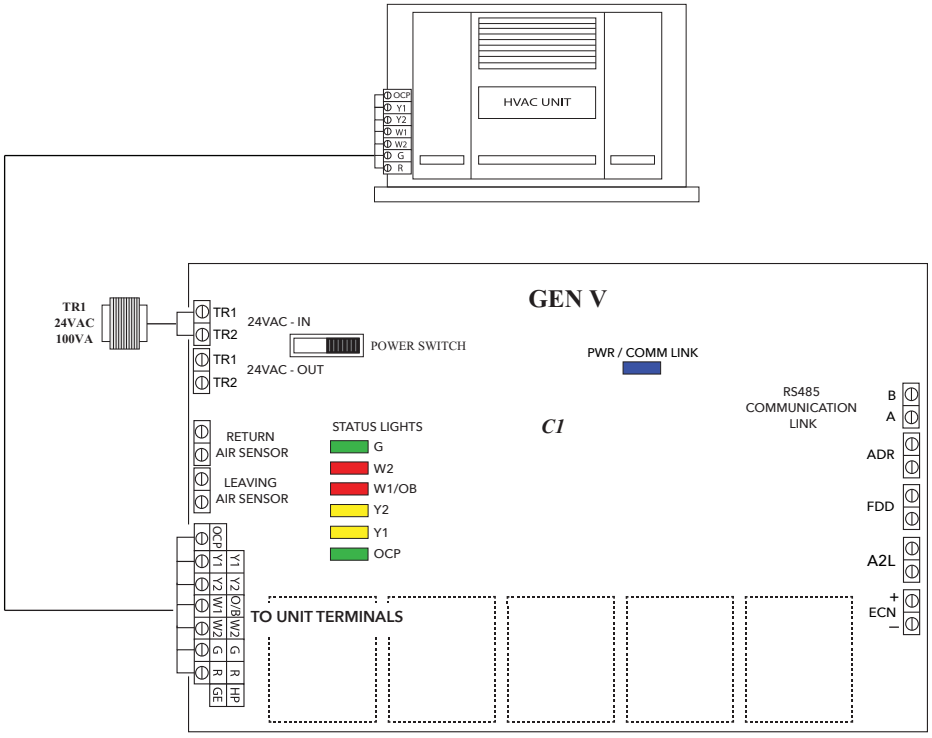


2. Heat Pump Wiring– O/B operation



Note: 1. Single stage systems will not use Y2 or W2 terminals for operation. Please confirm your system operation to ensure proper wiring.

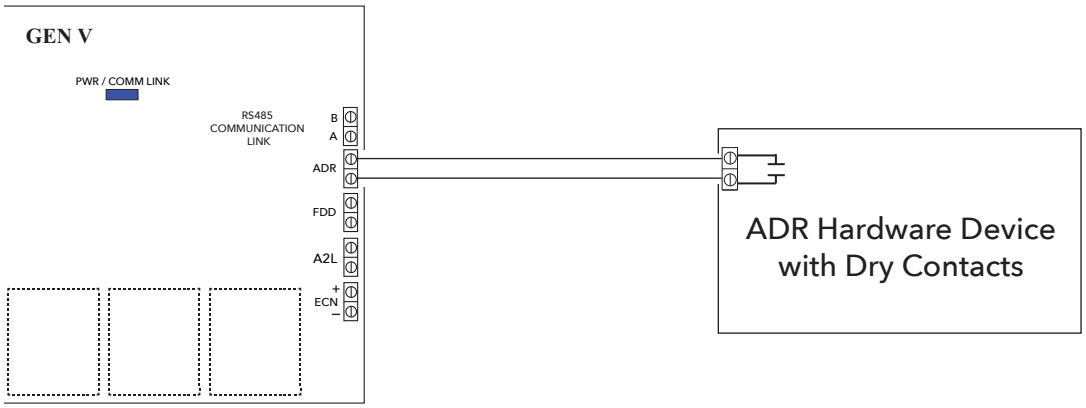
2. For Heat Pump applications with Gas/Electric inputs, set system for gas operation and reset high limit on the App to 115 degrees.



Note: GEN V does not control the unit economizer.

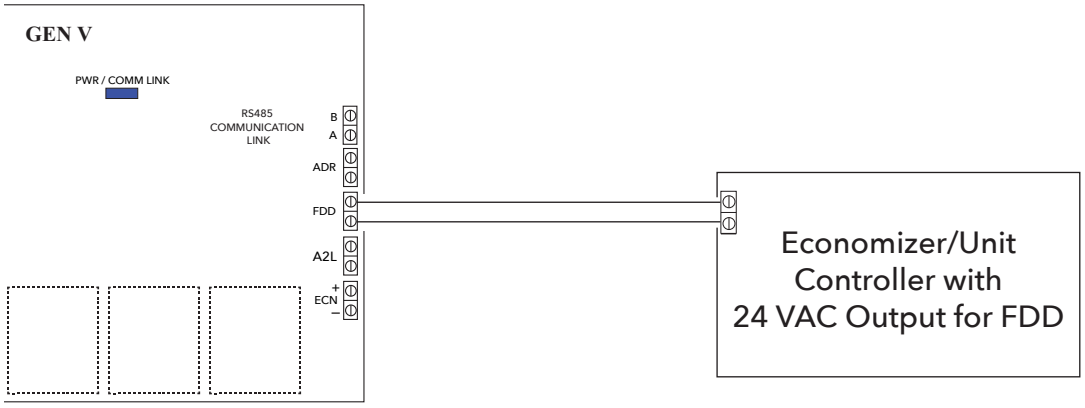
Wiring in the Automated Demand Response (ADR) to GEN V controller

ADR (Automated Demand Response) is a load shedding strategy implemented by local utilities to curb electricity usage during high demand periods. The local utility provider sends out a signal from a VTN or DRAS (Virtual Top Node or Demand Response Automated Server) from their facility and is received by a VEN (Virtual End Node) located at the customer's location. The purpose of the signal is it to setback thermostat set points 4° for both the heating and cooling modes of the facility's HVAC equipment. **The GEN V does not directly accept signals from the local utility provider.** For the GEN V to setback thermostat set points it must be used in conjunction with a VEN hardware device that supports Open ADR **(contact the local utility provider for the most current protocol requirements for your area)** and must be equipped with a set of dry normally open contacts that close during an ADR event. The contacts of the VEN are wired to the ADR terminal of the GEN V (see diagram below). When the VEN receives an ADR signal from the VTN or DRAS its contacts close, the GEN V will set back the thermostats 4° for both the heating & cooling modes and lock the thermostat set points so they cannot be adjusted at the thermostat during the ADR event. Once the ADR event has concluded the thermostats unlock and return to their original set points. For a list of Open ADR products please visit **http://products.openadr.org** or contact your local utility provider. **This feature can be enabled/disabled on a thermostat by thermostat basis.** Go to Settings ->Change ADR settings -> Check the boxes to enable ADR for that thermostat.



Wiring in the Fault Detection and Diagnostics (FDD) to GEN V controller

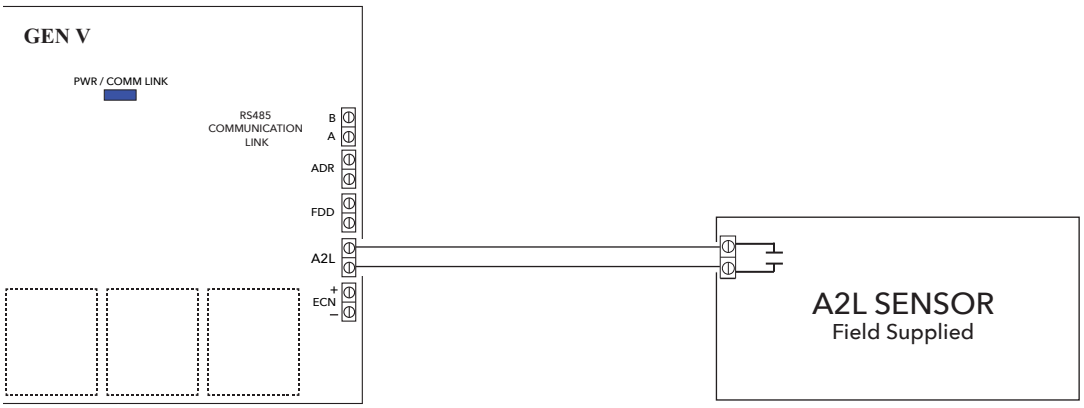
The purpose of the **Fault Detection & Diagnostics (FDD)** is to meet the requirement of Title 24 Part 6 section 120.2(i)6A or other states regulations in the event that a fault is detected by the economizer/unit controller so that appropriate facility personnel are notified. FDD must be triggered at the GEN V by a 24 VAC signal from the economizer/unit controller in the event of a fault. A "fdderror" notification will be displayed on the HUB themostat when a fault is detected. No additional configuration is required to make this feature operational. **Verify with the HVAC unit manufacturer that a 24 VAC for FDD alerting is provided prior to installation.**



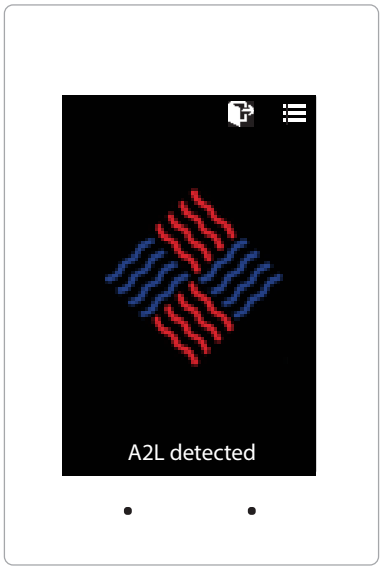
A2L wiring and Sequence of Operation

When an A2L refrigerant is detected the field supplied A2L sensor will close its normally open set of dry contacts shorting the A2L terminal on the GEN V (see drawing below). Any active HEAT or COOL calls by the GEN V will be discontinued and future calls will be locked out during the A2L event. All supply dampers will open 100% and the fan circuit (G terminal) on the GEN V controller will remain energized during the A2L event. Any thermostats that had energized their auxiliary heat sources (baseboard or reheat) will de-energize. A warning message on the GEN V's HUB stat will indicate "A2L DETECTED" during the A2L event and all zone thermostats will display the Zonex icon. Under the HUB stat's System Diagnostic menu -> GEN V -> AC Status will indicate "A2L".

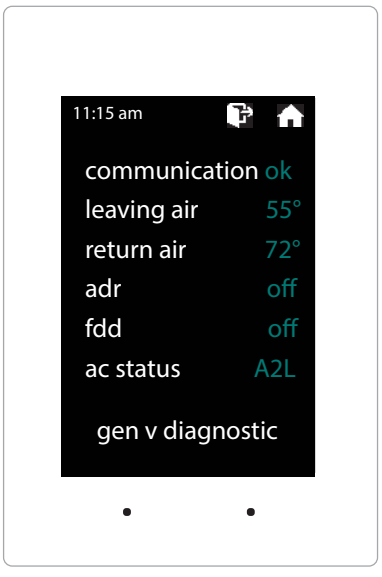
After the A2L event ends and the A2L sensor's contacts open and the GEN V will return to normal operation.



Please follow the manufacturer's recommendation when installing the A2L sensor.



HUB



HUB

Setting ID on the EzTouchV / EzTouchX Thermostat

Each thermostat must be ID'd. Beginning with the first thermostat in the daisy chain closest to the GEN V controller. Locate associated zone thermostat and confirm display appears on stat. If not, turn ON the GEN V controller at the ON/OFF switch located on the upper left hand corner of the controller. If no display is seen, check that you have 24VAC between TR1 and TR2 on the GEN V controller and then at the thermostat. The EzTouchV (HUB) thermostat is ID'd as #01 and can not be changed. All EzTouchX zone thermostats require a unique ID 02 to 20. Note: HUB in addition to being the control center also controls the damper in that zone.

To ID and configure thermostats access the Thermostat Advanced Menu: Tap on the degree symbol next to the room temp . The degree symbol will change color from white to green and then tap .

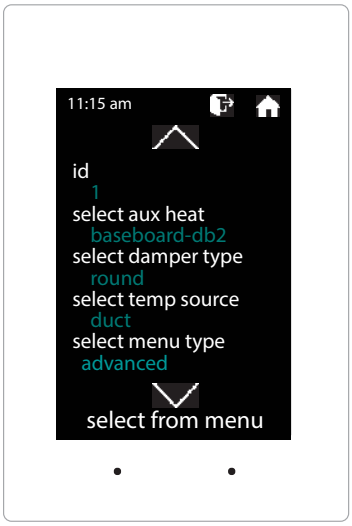
Setting STAT ID for the Zone Thermostat

While in the Thermostat Advanced Menu, Select **SET ID**

Use the and arrows to set the new ID ranging from 2-20

Tap to save changes, to return to the home screen tap

Note: The EzTouchV (HUB) will always have ID #01. All EzTouchX thermostats receive a unique ID 02 to 20, maximum of 20 zones per GEN V controller.



Select Damper Type Operation

The EzTouchV / EzTouchX needs to be configured for the type of damper that it is wired to. There are 4 options, round, rectangular, spring loaded or vrf.

To set the damper type access the Advanced Configuration menu by tapping on the degree symbol next to the room temp. The degree symbol will change from white to green and then tap

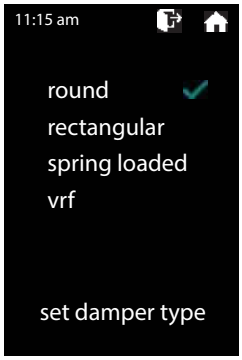
EzTouchV (HUB) - select configure hub stat, **Select Damper Type**

EzTouchX - Thermostat Advanced Menu, **Select Damper Type**

Select round, rectangular, spring loaded or vrf damper operation

Tap to save changes, to return to the home screen tap

Note: Only select VRF damper type when SAV dampers are installed on VRF systems.



Confirm Gen V and Thermostat Communications

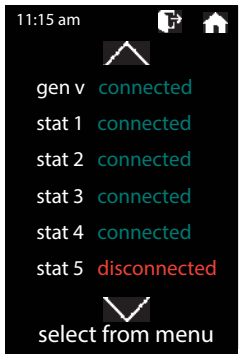
From the **EzTouchV (HUB)** thermostat, confirm that all the zones are showing connected in system diagnostic screen. If it shows any disconnected with in your zone count confirm wiring is correct and check stat ID. The GEN V will report up to 20 zones, anything above the zone count will report back disconnected.

To access the **System Diagnostic** screen tap on the degree symbol next to the room temp. The degree symbol will change from white to green and then tap

Tap to go back to previous, to return to the home screen tap

Zone quick view: Tap on any connected zone to see communication status, thermostat type, current room temperature, set points, mode, current call and status.

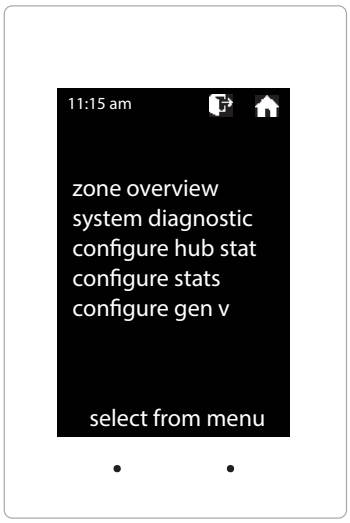
Note: If a thermostat is showing up disconnected with in system the zone count when it should be connected, check the thermostat ID and wiring is correct.

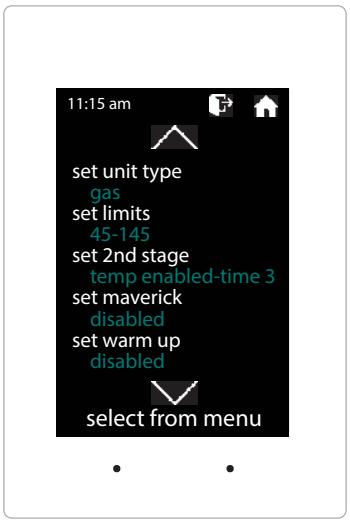


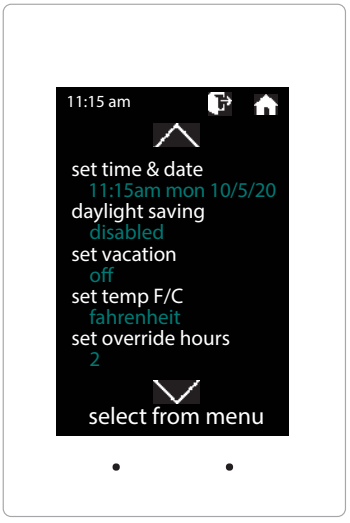
CONFIGURING GEN V CONTROLLER

Once GEN V controller is mounted, all zone stats are ID'd and there are no communication errors the system is ready to be commissioned and started up. Follow the steps below from the HUB thermostat.

To **configure gen v** controller access the Advanced Configuration menu by tapping on the degree symbol next to the room temp . The degree symbol will change from white to green and then tap







Set Type of Unit

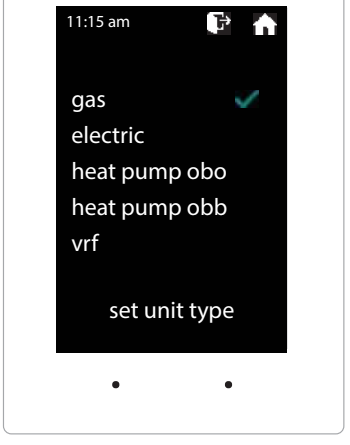
Confirm the type of unit the GEN V is controlling: GAS, ELECTRIC, HEAT PUMP (O), HEAT PUMP (B), or VRF. Factory default for UNIT TYPE is GAS, if application is ELECTRIC, HEAT PUMP or VRF, you will need to select one of these options through the HUB thermostat.

While in the configure gen v, **Select Set Unit Type**

Select the desired unit type operation

Tap to save changes, to return to the home screen tap

Note: Only select VRF unit type when SAV dampers are installed on VRF systems.



Set Time and Date

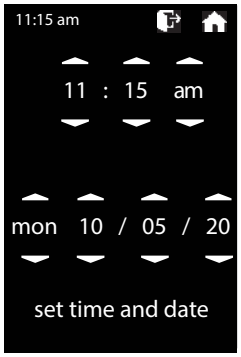
From the HUB thermostat time and date is set for all system devices. To set the time and date, access configure gen v on the HUB thermostat.

While in the configure gen v, **Select Set Time and Date**

Use the ^ and v arrows to set the time and date

Tap to save changes, to return to the home screen tap

Note: If the GEN V is in a daylight savings time zone, "Enable" daylight savings while in the configure gen v menu.



Confirm High/Low Limits

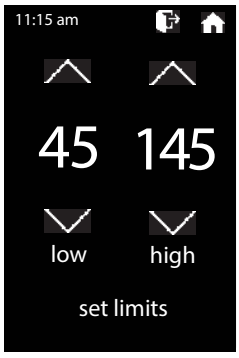
Factory defaults for GAS/ELECTRIC units are set for 45 degrees Low Limit and 145 degrees High Limit. Heat Pump O and B machines are set for 40 degrees Low Limit and 115 degrees High Limit. These may be adjusted in the field to meet installation/application requirements.

While in the configure gen v, **Select Set Limits**

Use the ^ and v arrows to set the High / Low Limits

Tap to save changes, to return to the home screen tap

Note: Ensure that the RTU/Split systems high and low limit settings do not conflict with the GEN V's.



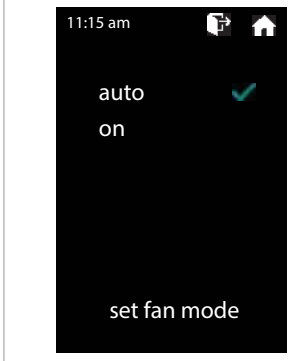
Set Fan Operation

Configuration of FAN is set at the factory for AUTO operation and will operate only when a call for heat or cool is present. If continuous fan is required, fan will need to be configured for fan ON and will run anytime during Occupied time, and AUTO during unoccupied. To set fan mode, access configure gen v on the HUB thermostat.

While in the configure gen v, **Select Set Fan Mode**

Select the desired fan operation “Auto” or “On”.

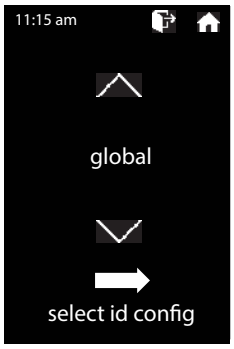
Tap  to save changes, to return to the home screen tap 

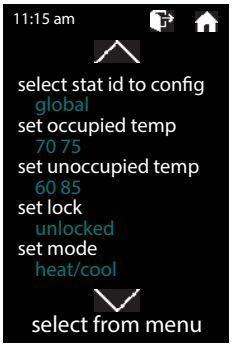


Confirm Cool, Heat Call and Damper Operation

From the HUB thermostat go to **configure stats** access the Advanced Configuration menu by tapping on the degree symbol next to the room temp . The degree symbol will change from white to green and then tap

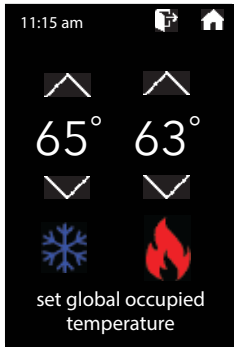
Use the and arrows to select **Global** tap the arrow below to global configuration.

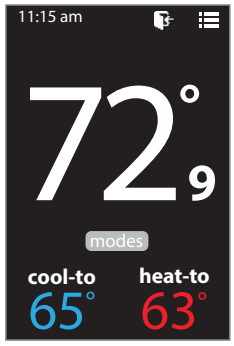




Tap **set occupied temp,** to make a occupied global temperature change.

Use the and arrows over the snowflake icon to lower the cool set point, so all zones will make a cool call. Tap to save changes, return to the home screen by tapping





All zone thermostats should now be calling for cooling. Confirm the GEN V controller has energized in cooling. When the RTU or Split system is cooling confirm all zone dampers are open and conditioned air is entering the zones.

Once you have confirmed the zone dampers are open, start satisfying each zone individually and confirm the dampers close.

Repeat the steps above on a call for heating.

Vent

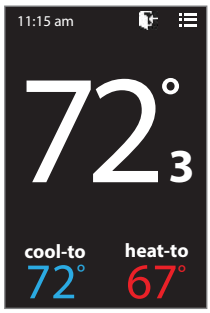
With all calls satisfied all dampers modulate to the vent position, approximately 40% open.

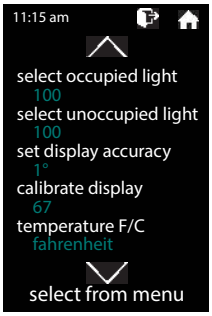
THERMOSTAT USER MENU

To access the Thermostat User Menu: Tap 

The **THERMOSTAT USER MENU** allows you to:

Select Occupied Light
Select Unoccupied Light
Set Display Accuracy
Calibrate Display
Temperature F/C (view only)
Current Schedule (view only)
Time & Date (view only)





SELECT OCCUPIED LIGHT

The brightness of the thermostat during occupied mode is adjustable from 100% down to off .

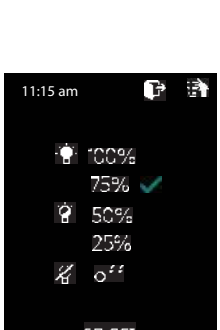
While in Thermostat Configuration Menu, Select **Occupied Light**

Select the desired brightness.

Tap  to save changes, to return to the home screen tap 

Note: If "off" is selected, just touch stat to wake it up.

SELECT UNOCCUPIED LIGHT



The brightness of the thermostat during unoccupied mode is adjustable from 100% down to off .

While in Thermostat Configuration Menu, Select **Unoccupied Light**

Select the desired brightness.

Tap  to save changes, to return to the home screen tap 

Note: If "off" is selected, just touch stat to wake it up.

SET DISPLAY ACCURACY

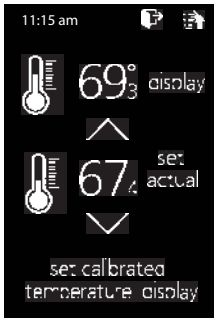
Display accuracy allows the thermostat to display the room temperature in 1/10° or 1°.

While in the Thermostat Configuration Menu, Select **Set Display Accuracy**

Select the desired display accuracy

Tap to save changes, to return to the home screen tap

CALIBRATE DISPLAY



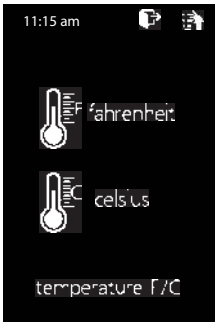
Thermostat is equipped with an accurate temperature sensor. If you require field calibration, follow the steps below.

While in Thermostat Configuration Menu, Select **Calibrate Display**

Use the ^ and v arrows to calibrate the thermostat display to a external temperature probe temperature reading.

Tap to save changes, to return to the home screen tap

TEMPERATURE F/C



Thermostats can be configured for F° or C° operation through the HUB thermostat.

While in the Thermostat Configuration Menu, Select **Temperature F/C**

To view the current temperature operation *(View only function)*

Tap to go back to the menu, to return to the home screen tap

CURRENT SCHEDULE

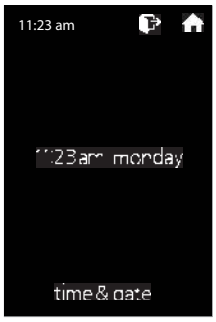
View the current thermostat schedule, given by the Gen V system

While in the Thermostat Configuration Menu, Select **Current Schedule**

This allows you to view the schedule for that zone. Changes to the schedule are done through the HUB thermostat. *(View only function)*

Tap to go back to the menu, to return to the home screen tap

TIME & DATE



View the current time and date, given by the Gen V system.

While in the Thermostat Configuration Menu, Select **Time & Date**

To view the current time and date on the Gen V system *(View only function)*

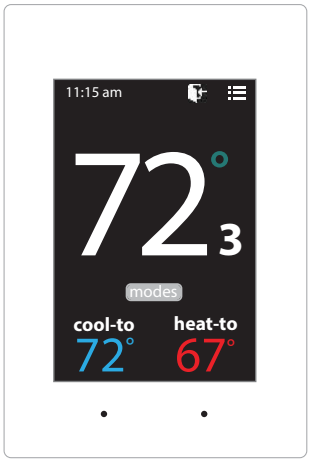
Tap to go back to the menu, to return to the home screen tap

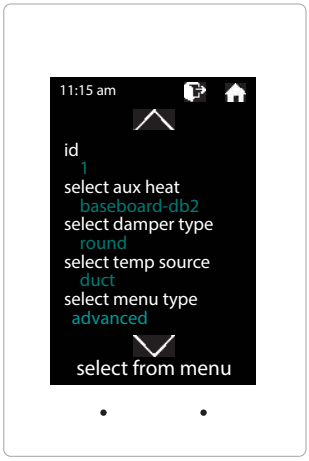
THERMOSTAT ADVANCED MENU

To access the Thermostat Advanced Menu: Tap on the degree symbol next to the room temp. The degree symbol will change color from white to green and then tap .

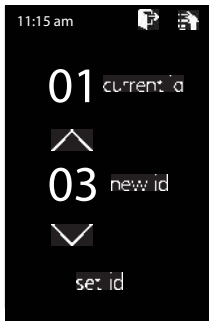
The **THERMOSTAT ADVANCED MENU** allows you to:

Set ID	Select damper type	Menu Type
Select Aux Heat	Temp Source	Diagnostic





STAT ID



Every thermostat in the system needs a unique ID and must be ID'd in numerical order the way the communication wire is daisy chained. No duplicate addresses.

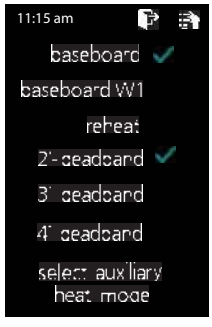
While in the Thermostat Advanced Menu, Select **SET ID**

Use the ∧ and ∨ arrows to set the new ID ranging from 02-20

Tap to save changes, to return to the home screen tap

Note: All thermostats receive a unique ID 02 to 20, maximum of 20 zones.
The EzTouchV is hard set to ID 01 and can not be changed

SELECT AUX HEAT



The zone thermostat provides the following Auxiliary Heat options; Baseboard, Baseboard W1 (with configurable dead band of 2°, 3°, or 4°) and reheat.

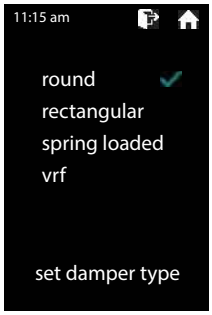
While in the Thermostat Advanced Menu, Select **Aux Heat**

Select the desired auxiliary heat operation and dead band

Tap to save changes, to return to the home screen tap

Note: Reheat has a fixed 2° dead band.

SELECT DAMPER TYPE



The thermostat must be configured for the appropriate damper type that it will be connected to and controlling. There are 4 options, round, rectangular, spring loaded or vrf.

While in the Thermostat Advanced Menu, **Select Damper Type**

Select round, rectangular, spring loaded or vrf damper operation

Tap to exit diagnostic screen, to return to the home screen tap

TEMP SOURCE

The thermostat can display the outside air temperature, supply air duct , relative humidity, or no value will be displayed at the top of the home screen. An optional LAT temperature sensor must to be installed to report outside air or supply air duct temperature.

While in the Thermostat Advanced Menu, Select **Temp Source**

Select outside, duct, humidity or no display to display or not display the duct temperature

Tap to save changes, to return to the home screen tap

Note: If an LAT is not installed a temperature reading of "00°" will be displayed.

MENU TYPE

The menu allows user to access advanced configuration and management features. When this feature is selected the Advance menu will be displayed whenever the menu is accessed. .

While in the Thermostat Advanced Menu, Select **Menu Type**

Select **user** to hide the advanced options
Select **advanced** to show the advanced options under the user menu

Tap to save changes, to return to the home screen tap

DIAGNOSTIC

The thermostat Diagnostic screen will allow you to confirm communication with the GEN V controller, confirm damper, aux relay, and LED operation.

While in the Thermostat Advanced Menu, Select **Diagnostic**

Tap **damper** to confirm closed/open operation
Tap **aux relay** to confirm it energizes and de-energizes
Tap **blue led** to confirm the blue led illuminates
Tap **red led** to confirm the red led illuminates

Tap  to exit diagnostic screen, to return to the home screen tap 

HUB Thermostat

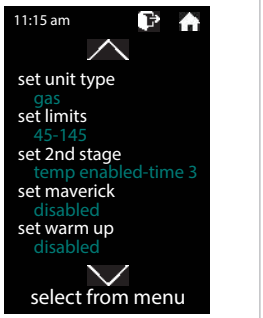
A HUB zone thermostat is used with the GEN V controller to interact and initiate control decisions for the system, the HUB coordinates global or individual schedules for the system, locks thermostats individually and provides a user interface to make adjustments and establish master temperature settings individually or globally for the system. This user interface provides diagnostic functions to streamline system troubleshooting along with air balance shortcuts and more.

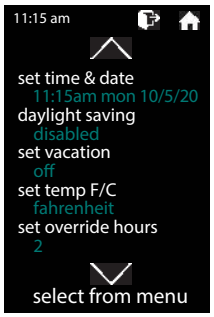
The HUB Thermostat performs all the functions of a zone thermostat along with Advanced Configuration Menu to access 14 unique functions to control and schedule the GEN V system. To access the Advanced Configuration menu follow the steps below:

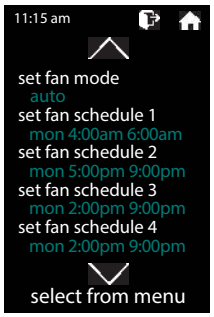
GEN V Configuration

All GEN V system configuration and management is done at the HUB stat from the Advanced Configuration Menu.

To configure the GEN V system access the Advanced Configuration menu by tapping on the degree symbol next to the room temp . The degree symbol will change from white to green then tap and then tap configure gen v



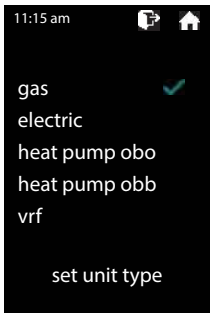




GEN V MENU FEATURES:

1) UNIT TYPE
2) SET LIMITS
3) SET 2ND STAGE
4) SET MAVERICK
5) SET WARM UP
6) SET TIME AND DATE
7) DAYLIGHT SAVING
8) SET VACATION
9) SET TEMP F/C
10) SET OVERRIDE HOURS
11) SET FAN MODE
12) SET FAN SCHEDULE
13) SET AIR BALANCE
14) SELECT DIAGNOSTIC

SET UNIT TYPE



The GEN V is designed as a universal GAS / ELECTRIC / HEAT PUMP / VRF controller. Factory default is set for GAS operations.

While in the configure gen v, Select **Set Unit Type**

Select the desired unit type operation

Tap to save changes, to return to the home screen tap

Note: Only select VRF unit type when SAV digital dampers are installed on VRF systems.

SET LIMITS

For system protection the GEN V has high and low limit protections built into the controller. Factory defaults for Gas/Electric operations are High Limit of 145°F and Low Limit of 40°F, for Heat Pump operations factory defaults are High Limit of 115°F and Low Limit of 40°F, for VRF operations factory defaults are High Limit of 110°F and Low Limit of 50°F. These can be field configured as required.

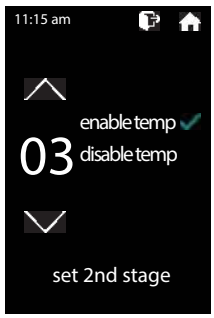
While in the configure gen v, Select **Set Limits**

Use the and arrows to set the High / Low Limits

Tap to save changes, to return to the home screen tap

Note: Check the RTU / Split System's High / Low limits and adjust them on the GEN V below the units cut out limit.

SET 2ND STAGE



The GEN V controller can be configured for TIME/TEMP or TIME only second stage operation. TIME/TEMP strategy uses both run time and leaving air temperature to determine when to stage on second stage heat or cool. Time only strategy uses run time to stage on second stage heat and cool. Factory default for run time is preset to 3 minutes; however this can be reset for up to 30 minutes.

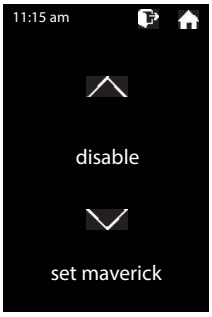
While in the configure gen v, Select **Set 2nd Stage**

Select enable / disable temp

Use the and arrows to set 2nd stage time delay (3-30 minutes)

Tap to save changes, to return to the home screen tap

SET MAVERICK



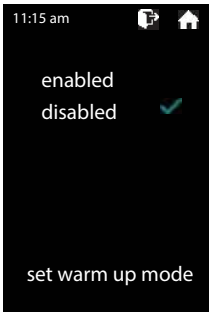
Maverick operations allow the system to recognize an outlier call in the system. When most zones in a system are calling for heat and single zone is calling for cooling, the system will initiate a MAVERICK CALL protocol by starting a time clock. Logic in the controller will provide a time period from 3-30 minutes for first calls to satisfy, then run a purge cycle and then maverick call. Maverick call will remain on until zone is satisfied, then run purge and return to majority operations.

While in the configure gen v, Select **Set Maverick**

Use the ^ and v arrows to set the time period or disable

Tap to save changes, to return to the home screen tap

SET WARM UP



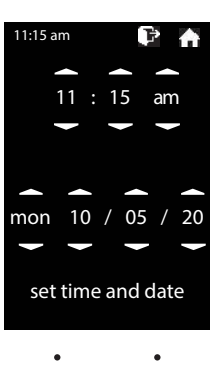
In cold climates a MORNING WARM UP sequence will assist in preheating the building prior to occupancy. The GEN V system provides a strategy for morning warm up based on a sophisticated algorithm built into the system controller. When enabled, the system will switch from Unoccupied to Occupied two hours prior to system start time if any zones are 10° or more below the set point the system will run heating for 20 minutes to evaluate time needed to raise building temperature, after 20 minutes system will return to Unoccupied mode. Using the information gathered from the 20 minute warm up evaluation, thermostats will reset individual occupied start times to provide morning warm up for each zone in the building.

While in the configure gen v, Select **Set Warm Up**

Select the desired operation; enabled / disabled

Tap to save changes, to return to the home screen tap

SET TIME AND DATE



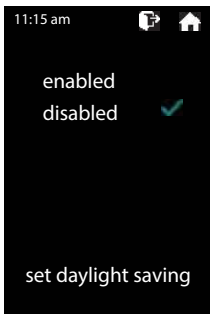
System time and date operation, including all scheduling functions are based on the system time clock. Set the time to your local time at startup

While in the configure gen v, Select **Set Time & Date**

Use the ^ and v arrows to set the time, day, and date

Tap to save changes, to return to the home screen tap

DAYLIGHT SAVING



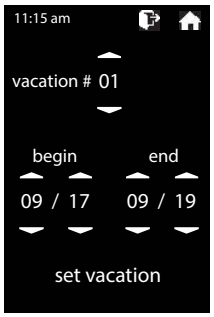
The GEN V will follow daylight savings time when it is enabled

While in the configure gen v, Select **Daylight Saving**

Select the enabled / disabled if you desire daylight savings operation

Tap to save changes, to return to the home screen tap

SET VACATION



The GEN V can be configured for up to 20 vacation schedules.

While in the configure gen v, Select **Set Vacation**

Use the and arrows to select the vacation #. For multiple vacation dates adjust the vacation # for each additional vacation schedule.

Use the and arrows to set the vacation begin and end dates

Tap to save changes, to return to the home screen tap

Note: Vacation schedules will need to be adjusted every year.

SET TEMP F/C

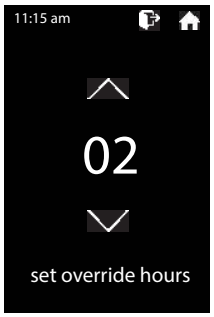
GEN V may be configured for F° or C° operations.

While in the configure gen v, Select **Set Temp F/C**

Select the desired temperature format

Tap to save changes, to return to the home screen tap

SET OVERRIDE HOURS



Select the number of hours for override operation. Select 2-8 hours in the setback mode.

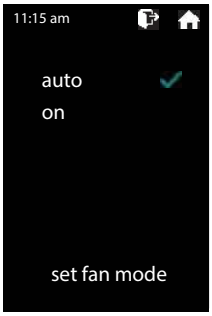
While in the configure gen v, Select **Set Override Hours**

Use the ^ and v arrows to set the desired overtime hours from 2-8 hours.

Tap to save changes, to return to the home screen tap

Shortcut note: Tap on to place the thermostat into override mode

SET FAN MODE



Fan operation is configured for either Fan ON or AUTO. When system is configured for ON operation, the Fan will run continuously during Occupied Schedule and will revert to Auto operations during unoccupied schedule. When system is configured for Auto operation, Fan will only run when there is a call for heating or cooling.

While in the configure gen v, Select **Set Fan Mode**

Select auto / on for fan operation

Tap to save changes, to return to the home screen tap

SET FAN SCHEDULE

Fan schedule allows the fan to be scheduled to run during a scheduled time. Up to 4 schedules can be given.

While in the configure gen v, Select **Set Fan Schedule**

Tap on mon-fri, sat or sun to set a schedule for those days.

Use the ^ and v arrows to set the on and off times

Tap to save changes, to return to the home screen tap

Note: To disable the fan schedule, set all times to 12:00am / 12:00am

SET AIR BALANCE

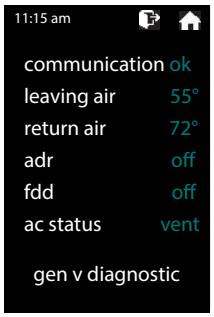
During the start up and commissioning of the system, an air balance may be required. Tap ON, this will drive all dampers to the open position, energize the fan and lock out compressor or heat function. When air balance is complete, Tap OFF to place system back into normal operation.

While in the configure gen v, Select **Set Air Balance**

Select off / on for air balance operation

Tap to save changes, to return to the home screen tap

SELECT DIAGNOSTIC



This function allows the user to review the current conditions for the GEN V System. Communication with the HUB thermostat, Leaving Air Temperature, Return Air Temperature, Automated Demand Response (ADR), Fault Detection and Diagnostics (FDD) and system status.

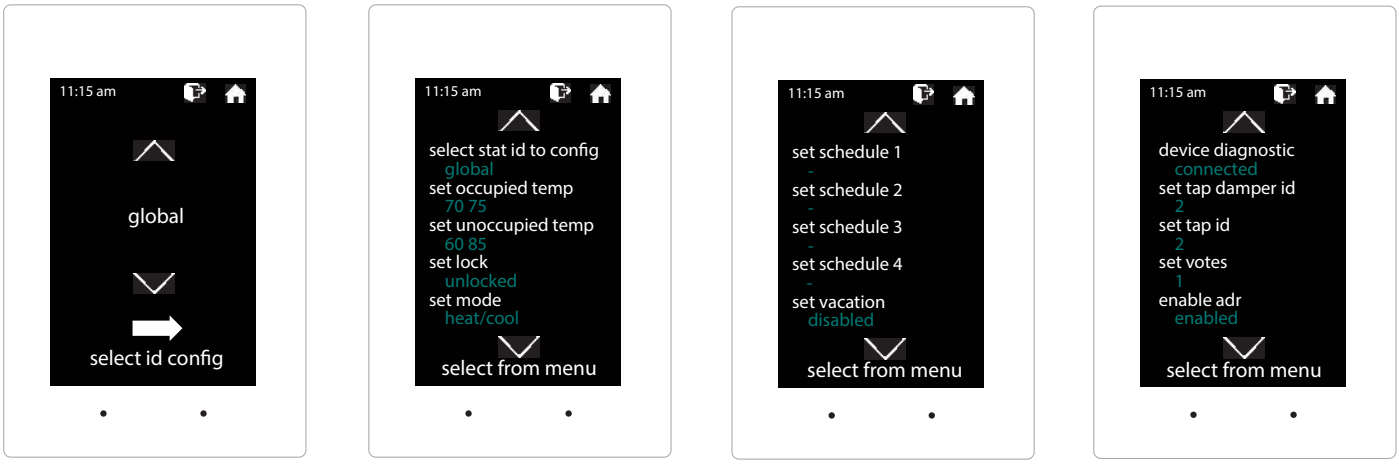
While in the configure gen v, Select **Diagnostic**

Tap to save changes, to return to the home screen tap

Configuration of Thermostats

All thermostats can be managed from the HUB stat

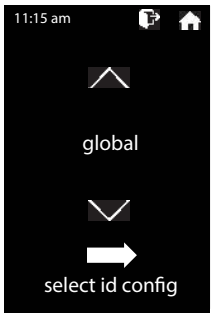
To configure access the Advanced Configuration menu by tapping on the degree symbol next to the room temp. The degree symbol will change from white to green and then tap and then tap configure stats



CONFIGURE STATS MENU OPTIONS:

1) SELECT STAT ID TO CONFIG
2) SET OCCUPIED TEMP
3) SET UNOCCUPIED TEMP
4) SET LOCK
5) SET MODE
6) SET SCHEDULE 1, 2, 3, AND 4
7) SET VACATION
8) DEVICE DIAGNOSTIC
9) SET TAP DAMPER ID
10) SET TAP ID
11) SET VOTES
12) ENABLE ADR

SELECT STAT ID TO CONFIG



Select stat id to config, allows you to select one thermostat or all thermostats in the GEN V system that you want to make changes to.

While in the configure stats, **Select Stat ID to Config**

Use the ^ and v arrows to select the desired ID or Global

Tap on the → to select the ID or Global configuration

Tap  to save changes, to return to the home screen tap 

SET OCCUPIED TEMP

When in the "Set Occupied Temp" screen you can adjust the occupied heat/cool set points to their desired temperature settings.

While in the configure stats, Select **Set Occupied Temp**

Use the ^ and v arrows over the flame/snowflake icons to set the desired occupied heat and cool set points.

Tap  to save changes, to return to the home screen tap 

SET UNOCCUPIED TEMP

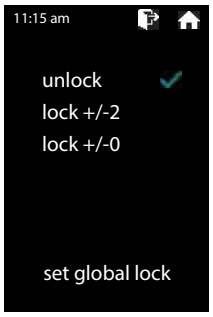
When in the "Set Unoccupied Temp" screen you can adjust the unoccupied heat/cool set points to their desired temperature settings.

While in the configure stats, Select **Set Unoccupied Temp**

Use the ^ and v arrows over the flame/snowflake icons to set the desired unoccupied heat and cool set points.

Tap  to save changes, to return to the home screen tap 

SET LOCK



Thermostats can be locked independently or globally through the HUB stat. When a thermostat is locked, the end user will have limited operability of thermostat with adjustment of only +/- 2° or no variance +/- 0° from the heating or cooling set points.

While in the configure stats, Select **Set Lock**

Select the desired lock mode

Tap to save changes, to return to the home screen tap

SET MODE

Thermostat mode allows the thermostat to be set to heat/cool, cool only, heat only or off operation.

While in the configure stats, Select **Set Mode**

Select the desired mode operation

Tap to save changes, to return to the home screen tap

SET SCHEDULE

Set Schedule, allows you to set a 5-1-1 or 7 day schedule format. The GEN V will allow up to 4 schedules per zone thermostat.

While in the configure stats, Select **Set Schedule 1**

Tap on the to set zone schedule 1

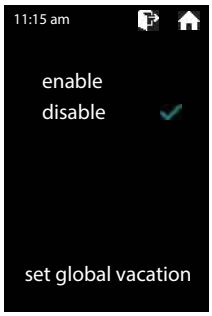
Select 5-1-1 or 7 day schedule type; Tap on the to confirm.

Use the and arrows to set the occupied and unoccupied time

Tap to save changes, to return to the home screen tap

Note: To disable or ignore the schedule, set all times to 12:00am / 12:00am

SET VACATION



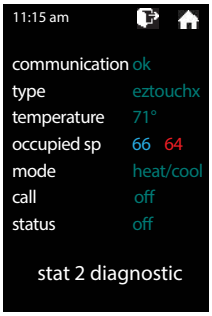
Set Vacation, enables or disables the zone thermostat from following the vacation schedule set for the GEN V system.

While in the configure stats, Select **Set Vacation**

Select enable / disable to follow the vacation schedule

Tap to save changes, to return to the home screen tap

DEVICE DIAGNOSTIC

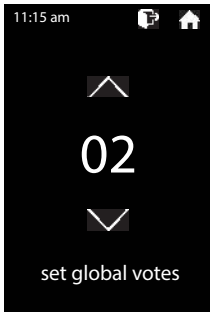


Device Diagnostic, allows you to see all the vitals of that zone thermostat. From the device diagnostic you can confirm communication with the GEN V and HUB thermostat, type of thermostat, current room temperature, current set points, mode, active call, and GEN V status.

While in the configure stats, Select **Device Diagnostic**

Tap to save changes, to return to the home screen tap

SET VOTES



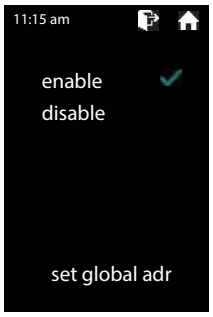
This function allows the GEN V to determine the weight of each vote sent from thermostats. Factory default is set to 1, or 1 vote per thermostat. When needed a thermostat can be set for higher weight by adding votes to the thermostat. Thermostats may have up to two additional votes for a total weight to 3 votes. Additionally, if there is a desire for a thermostat to not be able to place a call for heat or cool, a null vote may be configured by using a value of 0.

While in the configure gen v, Select **Set Votes**

Use the and arrows to set the desired votes

Tap to save changes, to return to the home screen tap

ENABLE ADR



When the 3rd party device receives an Automated Demand Response (ADR) signal from the utility service provider its contacts close, the GEN V will set back their thermostats 4° for both the heating & cooling modes and lock the thermostat set points so they cannot be adjusted at the thermostat during the ADR event. Once the ADR event has concluded the thermostats unlock and return to their original set points.

While in the configure stats, Select **Enable ADR**

Select enabled / disabled to allow ADR events

Tap to save changes, to return to the home screen tap

AUXILIARY HEAT/REHEAT

The zone thermostat provides the following Auxiliary Heat options; Baseboard, Baseboard W1 and Reheat (see figure on the following page for more details) with configurable dead band of 2°, 3°, or 4°. **Note: Reheat has a fixed 2° dead band.**

Baseboard: the thermostat's auxiliary output will energize when the room temperature drops 2° - 4° below the heat set point. Auxiliary heat operations will remain energized until the heat call is satisfied.

Baseboard W1: the auxiliary output will energize before the unit heater at 1° below heat set point. When the room temperature drops 2° - 4° below set point the thermostat will send a heat call to the unit heater. Auxiliary heat operations will remain energized until the heat call is satisfied.

Reheat: when the zone temperature drops 2° below the heat set point the damper will modulate to approximately 40% providing air flow over the electric heat strips, the AUX terminal will energize, and strip heat will provide reheat.
Note: When using in duct electric strip heater, an airflow proving switch is required for safe operation.

Configuration of Auxiliary Heat/Reheat is accomplished by selecting "SELECT AUX HEAT" function in the Advanced Menu. To access the Advanced Menu tap the ○ degree symbol of the room temperature (the degree symbol should change color to green) then tap the ☰ in the upper right corner of the thermostat, see **Fig 1**. Tap "Select Aux Heat", see **Fig 2**. Select the desired Auxiliary Heat/Reheat and dead band (2°, 3°, or 4°) see **Fig 3**. Tap on ⌂ to save desired settings. To return to the home screen tap ⌂.

Home Screen

Fig 1

Advanced Menu

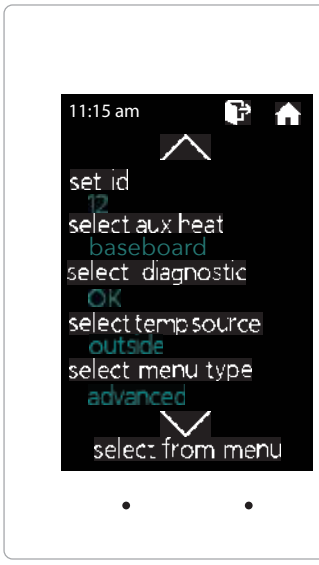


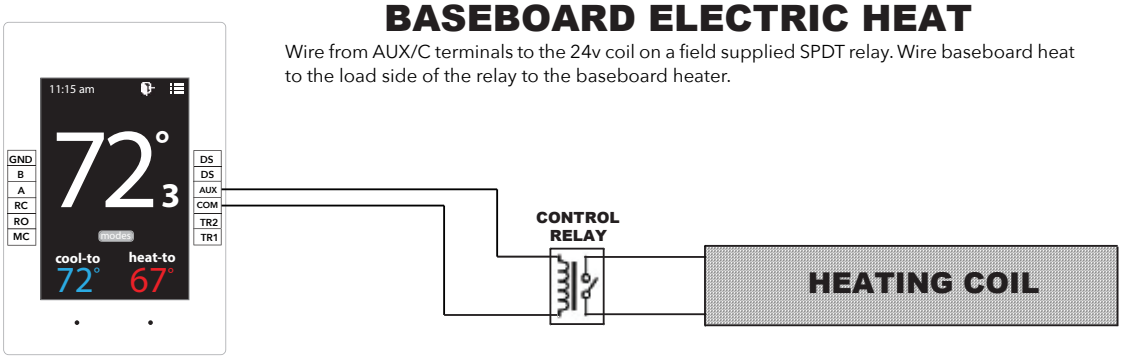
Fig 2

Select Aux Heat Menu

Fig 3

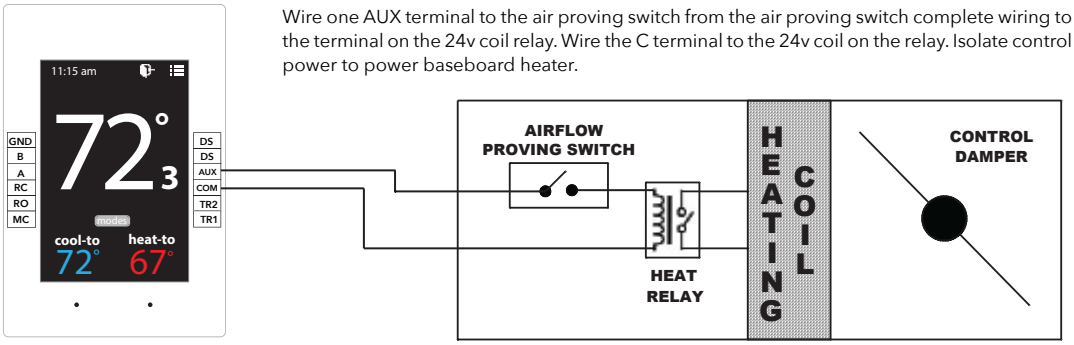
BASEBOARD ELECTRIC HEAT

Wire from AUX/C terminals to the 24v coil on a field supplied SPDT relay. Wire baseboard heat to the load side of the relay to the baseboard heater.



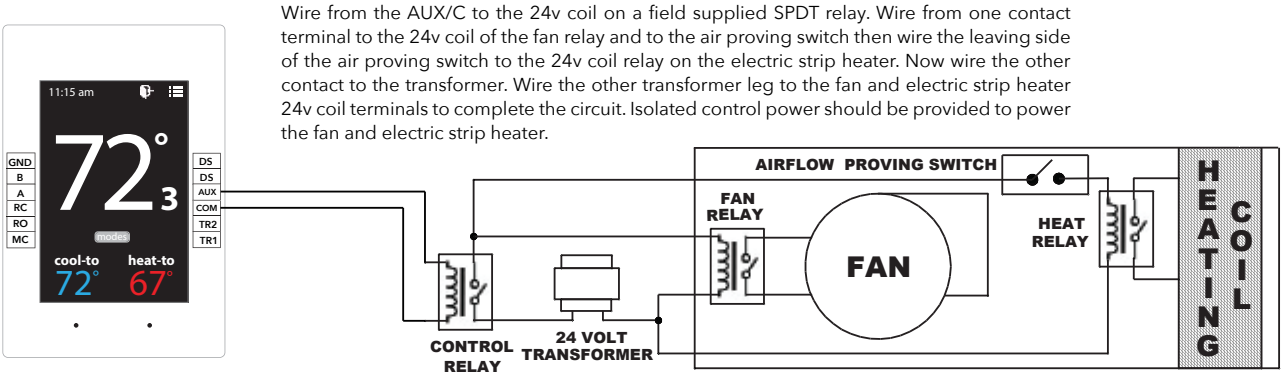
VAV DUCT REHEAT

Wire one AUX terminal to the air proving switch from the air proving switch complete wiring to the terminal on the 24v coil relay. Wire the C terminal to the 24v coil on the relay. Isolate control power to power baseboard heater.



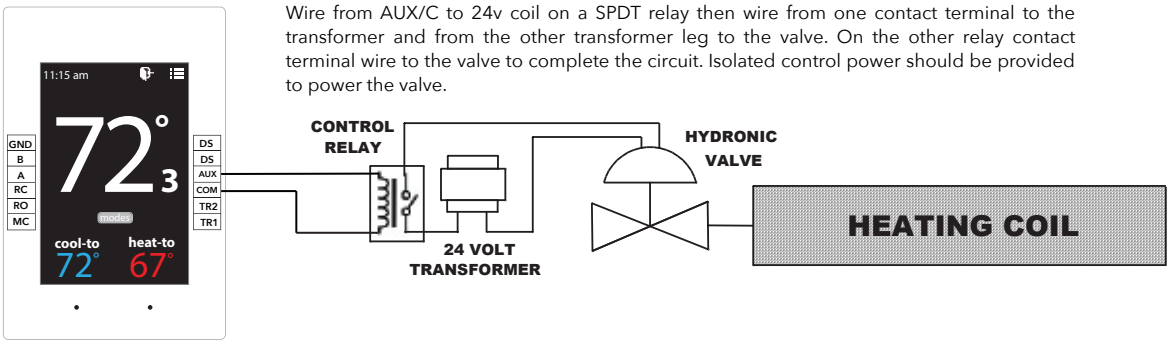
DUCT FAN REHEAT

Wire from the AUX/C to the 24v coil on a field supplied SPDT relay. Wire from one contact terminal to the 24v coil of the fan relay and to the air proving switch then wire the leaving side of the air proving switch to the 24v coil relay on the electric strip heater. Now wire the other contact to the transformer. Wire the other transformer leg to the fan and electric strip heater 24v coil terminals to complete the circuit. Isolated control power should be provided to power the fan and electric strip heater.



BASEBOARD HYDRONIC HEAT

Wire from AUX/C to 24v coil on a SPDT relay then wire from one contact terminal to the transformer and from the other transformer leg to the valve. On the other relay contact terminal wire to the valve to complete the circuit. Isolated control power should be provided to power the valve.



STAND ALONE UNIVERSAL THERMOSTAT

The SATouchX is a universal color touch screen programmable G/E or H/P thermostat, microprocessor based, auto changeover, stand alone thermostat used to control stand alone units with the GEN V system. The SATouchX is configured for Gas/Electric (2H, 2C) with selectable fan operation. The SATouchX reports the humidity, supply and return air temperatures and has a large, easy to read display.

The SATouchX features an on board thermistor for precise temperature measurement. In the event of power loss, the Heat and Cool set points are stored in non-volatile memory without the need for battery backup.

Space ambient temperature is continually displayed with large, easy-to-read numbers. SATouchX temperature display range is 47° - 95°F. Heat and Cool set points and operation modes are all indicated on the display.

Set points can be locally adjusted at the stat or from the HUB stat. The stat can be locked 0° or +/-2° to limit users from adjusting set point, this function is done from the HUB stat. During unoccupied hours the thermostat can be put into a 2 - 8 hour override with a single tap on 

Thermostat Operation

COOL - The thermostat will make a Y1 cool call when the space temperature rises 1° above set point. Y2 will energize when the space temperature rises 2° above the cool set point or whatever the 2nd stage temperature is set for. When the room temperature reaches set point Y1 and Y2 will de-energize. O or B energize for the reversing valve circuit, depending on configuration. The G circuit is energized for fan.

HEAT - The thermostat will make a W1 heat call when the space temperature is 1° below the heat set point. W2 will energize when the space temperature is 2° below the heat set point or whatever the 2nd stage temperature is set for. When the room temperature reaches set point W1 and W2 will de-energize.

Note: When the thermostat is configured for GAS operation the fan circuit is not energized in heat mode.
Note: When the thermostat is configured for ELECTRIC operation the fan circuit is energized in heat mode.

EMERGENCY HEAT - When Emergency Heat is selected in the configuration menu on the thermostat on a call for heat, there is an output signal on "W2" for backup heat and "G" for the fan. The compressor circuits Y1 and Y2 are locked out during heat calls, until the emergency heat function has been turned off in the configuration menu.

FAN MODE - Is factory set for "Auto", to configure the thermostat to run the fan constant "On". Go to Thermostat Advanced Menu, Select Fan Mode; Select the the desired fan operation "Auto" or "On".

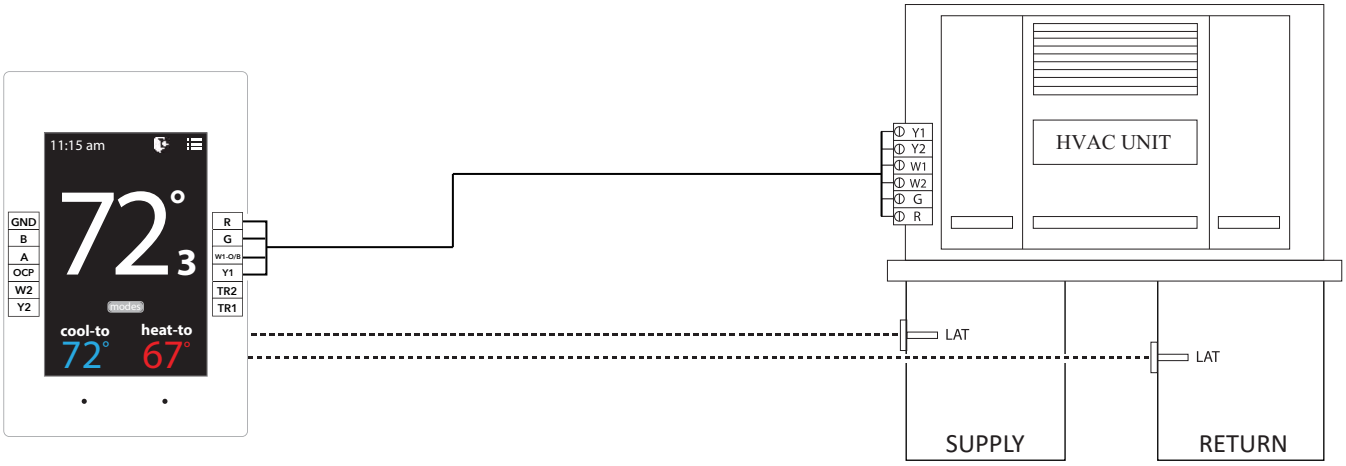
INSTALLATION

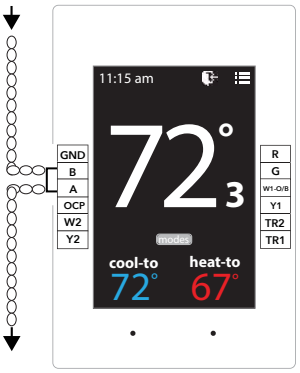
Thermostat and Terminal base

1. Install the thermostat on an interior wall, away from drafts, supply air currents and direct sunlight or any heat generating source.
2. Remove the thermostat from its sub-base, by pulling the thermostat and sub-base apart.
3. Install the thermostat sub-base to the wall using the provided anchors and screws.

WIRING THE UNIT, SUPPLY AND RETURN AIR SENSORS TO THE SATouchX

Use 18/6 thermostat wire, wire from SATouchX to the RTU/split system. Make sure to match up the unit terminals to the SATouchX terminals R, Y1, Y2, W1/O/B, W2, G. Wire in the Supply and Return air sensors using 18/4 thermostat wire. Install the Supply (AT1) and Return Air (AT2) LAT sensors 18 to 24" downstream of the unit.

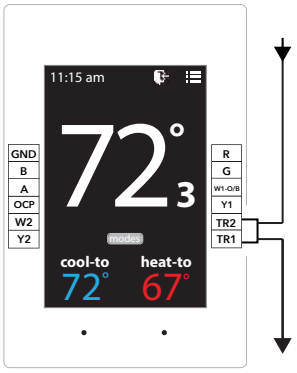




DAISY CHAIN THE COMMUNICATION WIRE

Using Zonex STPR communication wire. Wire **IN** and **OUT** on A and B to and from SATouchX's in a daisy chain configuration.

Wiring to Communication Terminals
Red-A
Black-B

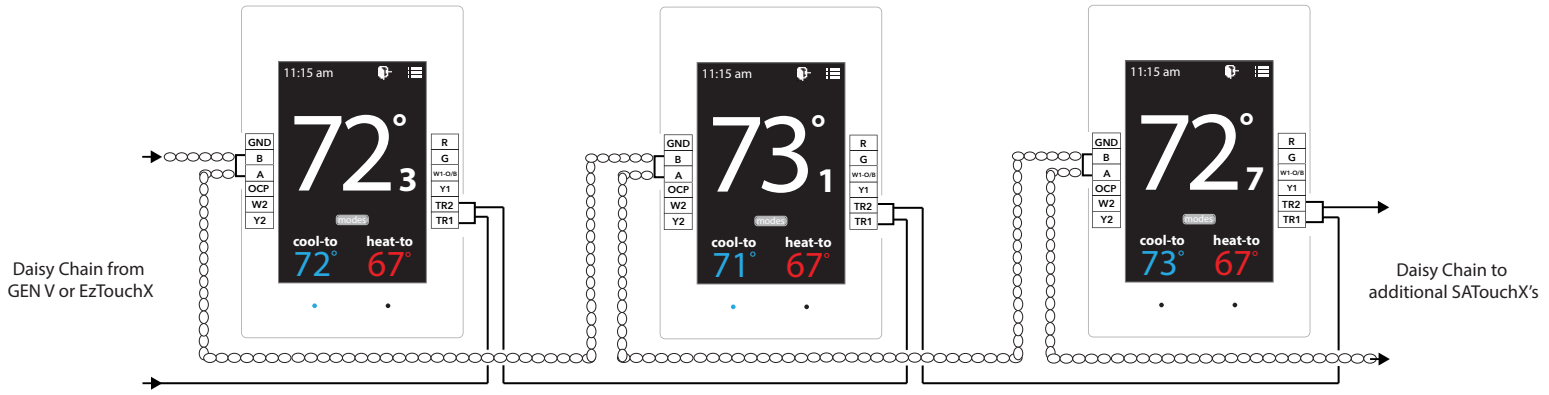


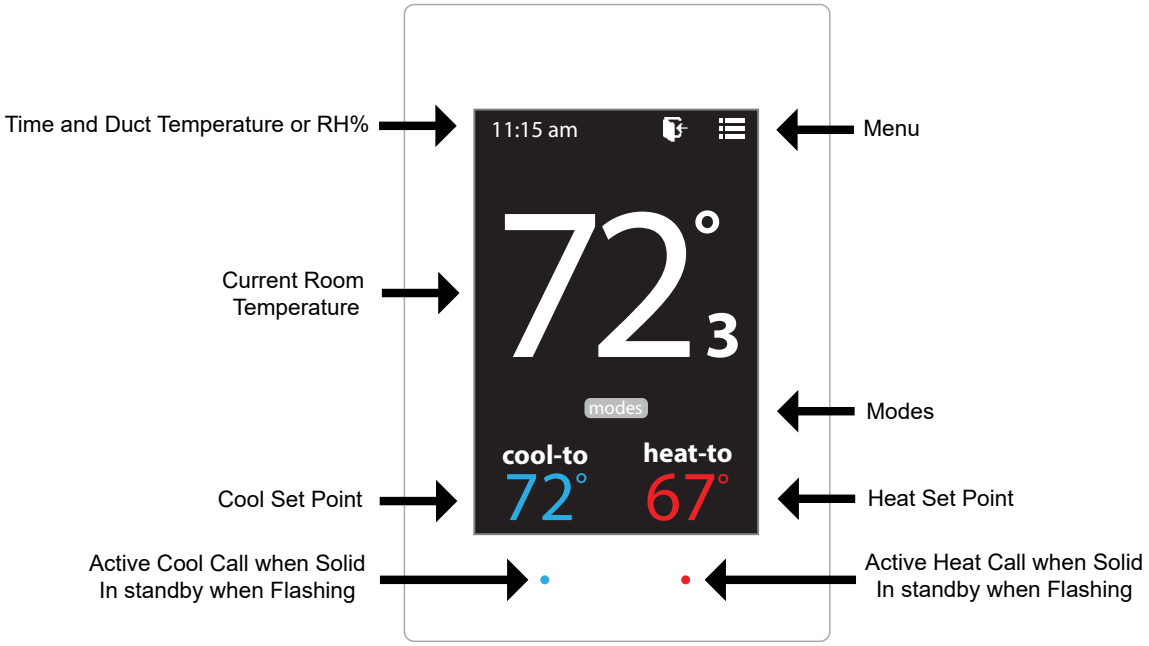
DAISY CHAIN 24V POWER FROM GEN V CONTROLLER

SATouchX is powered by the independent transformer connected to the GEN V. Using 18/2 wire for the 24vac power, daisy chain from TR1, TR2 **IN** and **OUT** to and from the SATouchX's.

Note: Do not use power from RTU/Split system to power the SATouchX.

Daisy Chain Multiple SATouchX's





Addressing Standalone Thermostats

Every thermostat in the system needs a unique ID ranging from 2-20. They must be in numerical order the way the communication wire is daisy chained. Confirm no duplicate addresses.

To set the stat's ID access the Advanced Configuration menu by tapping on the degree symbol next to the room temp O . The degree symbol will change from white to green and then tap

Once in the Thermostat Advanced Menu, Select **SET ID**

Use the ^ and v arrows and set the new ID ranging from 02-20

Tap to save changes, to return to the home screen tap

Select Unit Type

The SATouchX is designed as a universal GAS/ELECTRIC/HEAT PUMP thermostat. Factory default is set for GAS operations.

While in the Thermostat Advanced Menu, Select Unit Type

Select the the desired unit type operation

Tap to save changes, to return to the home screen tap

Display Temperature Calibration

The display space temperature may be field calibrated by the following procedure:

To access the Thermostat Configuration Menu: Tap 

While in Thermostat Configuration Menu, Select **Calibrate Display**

Use the  and  arrows to calibrate the thermostat display to a external temperature probe temperature reading.

Tap  to save changes, to return to the home screen tap 

Adjusting Set Points

The Heat or Cool set points are displayed at the bottom of the screen. To adjust the set points, tap on the heat-to or cool-to temperatures; the set points will be displayed on the screen.

Use the  and  arrows over the flame/snowflake icons to set the desired heat and cool set points.

Tap  to save changes

Changing Mode

The thermostats are auto changeover, but specific modes may be selected. Heat/Cool mode is the default.

System Heat/Cool - Tap on modes , select “Heat/Cool”. Tap  to save changes

System Heat Only - Tap on modes , select “Heat Only”. Tap  to save changes

System Cool Only - Tap on modes , select “Cool Only”. Tap  to save changes

System Off - Tap on modes , select “Off”. Tap  to save changes

Override Operation

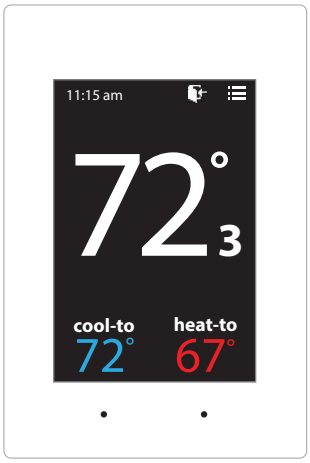
When the thermostat displays the unoccupied icon  a 2-8 hour temporary override may be initiated by tapping the  “Override” will appear. When additional override time is required, tap the unoccupied icon again.

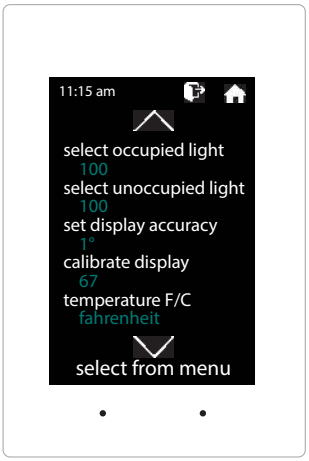
THERMOSTAT USER MENU

To access the Thermostat User Menu: Tap

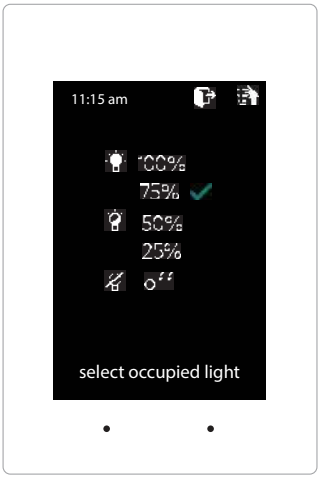
The **THERMOSTAT USER MENU** allows you to:

Select Occupied Light
Select Unoccupied Light
Set Display Accuracy
Calibrate Display
Temperature F/C
Current Schedule
Time & Date





SELECT OCCUPIED LIGHT



The brightness of the thermostat during occupied mode is adjustable from 100% down to off .

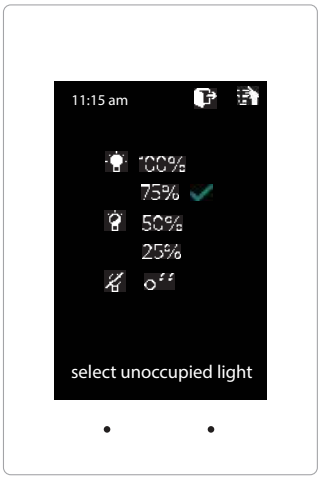
While in Thermostat Configuration Menu, Select **Occupied Light**

Use the ∧ and ∨ arrows to select the desired brightness.

Tap to save changes, to return to the home screen tap

Note: If "off" is selected, just touch stat to wake it up.

SELECT UNOCCUPIED LIGHT



The brightness of the thermostat during unoccupied mode is adjustable from 100% down to off .

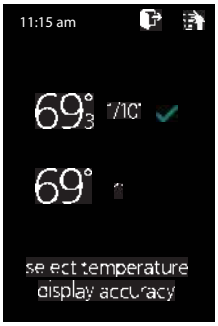
While in Thermostat Configuration Menu, Select **Unoccupied Light**

Use the ∧ and ∨ arrows to select the desired brightness.

Tap to save changes, to return to the home screen tap

Note: If "off" is selected, just touch stat to wake it up.

SET DISPLAY ACCURACY



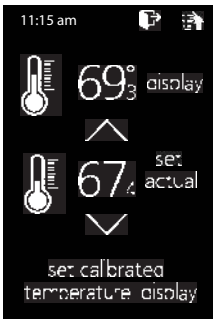
Display accuracy allows the thermostat to display the room temperature in 1/10° or 1°.

While in the Thermostat Configuration Menu, Select **Set Display Accuracy**

Select the desired display accuracy

Tap to save changes, to return to the home screen tap

CALIBRATE DISPLAY



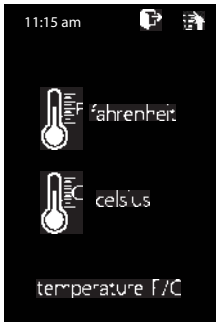
Thermostat is equipped with an accurate temperature sensor. If you require field calibration, follow the steps below.

While in Thermostat Configuration Menu, Select **Calibrate Display**

Use the ^ and v arrows to calibrate the thermostat display to a external temperature probe temperature reading.

Tap to save changes, to return to the home screen tap

TEMPERATURE F/C



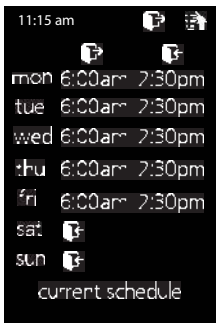
Thermostats can be configured for F° or C° operation through the HUB thermostat.

While in the Thermostat Configuration Menu, Select **Temperature F/C**

To view the current temperature operation *(View only function)*

Tap to go back to the menu, to return to the home screen tap

CURRENT SCHEDULE



View the current thermostat schedule, given by the Gen V system

While in the Thermostat Configuration Menu, Select **Current Schedule**

This allows you to view the schedule for that zone. Changes to the schedule are done through the HUB thermostat *(View only function)*

Tap to go back to the menu, to return to the home screen tap

TIME & DATE

View the current time and day, given by the Gen V system

While in the Thermostat Configuration Menu, Select **Time & Date**

View the current time and date on the Gen V system *(View only function)*

Tap to go back to the menu, to return to the home screen tap

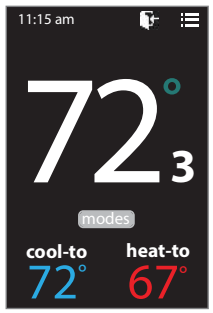
THERMOSTAT ADVANCED MENU

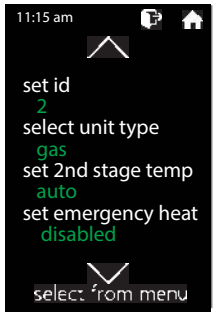
To access the Thermostat Advanced Menu: Tap on the degree symbol next to the room temp

The degree symbol will change color from white to green and then tap

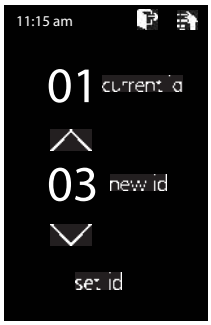
The **THERMOSTAT ADVANCED MENU** allows you to:

Set ID	Select Fan Mode	Set Emergency Heat	Temp Source
Select Unit Type	Set 2nd Stage Temp	Diagnostic	Menu Type





STAT ID



Every thermostat in the system needs a unique ID. They must be ID'd in numerical order the way the communication wire is daisy chained. No duplicate addresses.

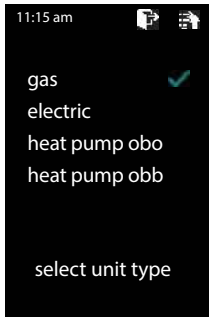
While in the Thermostat Advanced Menu, Select **SET ID**

Use the ∧ and ∨ arrows to set the new ID ranging from 1-20

Tap to save changes, to return to the home screen tap

Note: All thermostats receive a unique ID 01 to 20, maximum of 20 zones.

SELECT UNIT TYPE



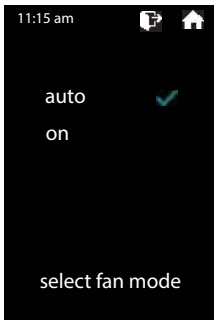
The SATouchX is designed as a universal GAS/ELECTRIC/HEAT PUMP thermostat. Factory default is set for GAS operations.

While in the Thermostat Advanced Menu, Select **Unit Type**

Select the desired unit type operation

Tap to save changes, to return to the home screen tap

SELECT FAN MODE



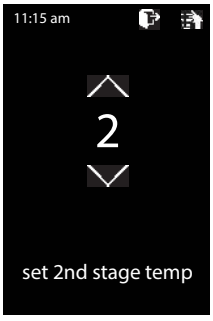
Fan operation is configured for either Fan ON or AUTO. When system is configured for ON operation, the Fan will run during Occupied schedule and will revert to Auto operations during Unoccupied schedule. When thermostat is configured for Auto operation, Fan will only run when there is a call for heating or cooling.

While in the Thermostat Advanced Menu, Select **Fan Mode**

Select the desired fan operation "Auto" or "On".

Tap to save changes, to return to the home screen tap

SET 2ND STAGE TEMP



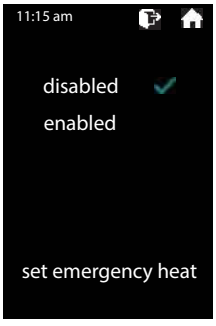
The SATouchX's 2nd stage operation is based on room temperature. Staging is adjustable from 2°- 8° from thermostat room temperature.

While in the Thermostat Advanced Menu, Select **Set 2nd Stage Temp**

Use the and arrows to set the 2nd stage temp range from 2°-8°

Tap to save changes, to return to the home screen tap

SET EMERGANCY HEAT



The SATouchX has an emergency heat function that will lock out the compressor, and energize the Aux heat in the unit.

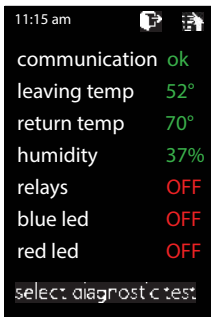
While in the Thermostat Advanced Menu, Select **Set Emergancy Heat**

Select "Enabled" for emergancy heat operation.

Tap to save changes, to return to the home screen tap

Note: Only emergancy heat calls will be seen when enabled.

DIAGNOSTIC



The SATouchX Diagnostic screen will allow you to confirm communication with the GEN V controller and allow you to confirm the relays operation, LED operation and report the leaving/return temperatures as well as the relative humidity.

While in the Thermostat Advanced Menu, Select **Diagnostic**

Tap **relays** to confirm they energize and de-energize
Tap **blue led** to confirm the blue led illuminates
Tap **red led** to confirm the red led illuminates

Tap to exit diagnostic screen, to return to the home screen tap

TEMP SOURCE

Temp source allows the thermostat to display the leaving air temperature or the relative humidity at the top on the home screen. An LAT sensor needs to be installed to report this reading. It will read 00 if no sensor is installed.

While in the Thermostat Advanced Menu, Select **Temp Source**

Select leaving air, humidity or no display to display or not display the temperature

Tap to save changes, to return to the home screen tap

MENU TYPE

Menu type will allow you to see the advanced menu options under the user menu when advanced is selected.

While in the Thermostat Advanced Menu, Select **Menu Type**

Select **user** to hide the advanced options
Select **advanced** to show the advanced options under the user menu

Tap to save changes, to return to the home screen tap

GEN V modulating zone dampers are used in cooling/heating systems to provide room by room zone control. The damper is provided with a factory mounted actuator. Each zone damper is controlled by a zone thermostat. More than one damper can be controlled by one zone thermostat. Use this table to determine which zone dampers to use.

DAMPER MODEL	DIFFERENTIAL PRESSURE	MAXIMUM SYSTEM SIZE	MAXIMUM DUCT SIZE
STMPD Round Med. Pressure	1.75"	Any Size	18"
STMRTD Rect. Med. Pressure	1"	6.0 Tons	24"W x 20"H
STCD Rect. Heavy Duty	1.75"	Any Size	48"W x 48"H
STRD Round Heavy Duty	1.75"	Any Size	24"
D-FUSER	0.1"	Any Size	10"

Maximum Differential Pressure refers to the maximum static pressure drop in inches of water column between the input (upstream) of the zone damper and the output (downstream) when the damper is closed.

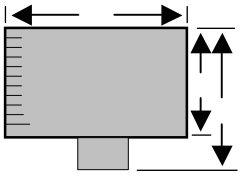
Round Medium Pressure Zone Dampers

Zonex Systems round (part # STMPD size) medium pressure zone dampers are recommended for systems with a maximum differential static pressure up to 1.75". This modulating power open/power close damper is manufactured from 20-22 gauge galvanized steel with rolled-in stiffening beads for superior rigidity. Mechanical minimum and maximum set stops are provided and are easily adjustable. The damper is elliptical, which allows the airflow to be tracked linearly. The damper pipe is furnished with one crimped end and one straight end for easy installation. Do not install damper in an inverted position. A hat section supports a reversing 24VAC, 60Hz, 2 VA motor. A magnetic clutch allows for continuous power to the motor and longer motor life. Motor drive time from full open to full close is 90 seconds.

MEDIUM PRESSURE (STMPD)

Round Medium Pressure Damper

PART NUMBERS AND SIZES



PART#	SIZE	D	L	W
STMPD06	6	6"	10"	9"
STMPD08	8	8"	10"	11"
STMPD10	10	10"	12"	13"
STMPD12	12	12"	14"	15"
STMPD14	14	14"	16"	17"
STMPD16	16	16"	18"	19"
STMPD18	18	18"	23"	21"
STRD20	20	20"	24"	27"
STRD22	22	22"	24"	27"
STRD24	24	24"	24"	27"

Note: Round dampers over 18" will be heavy duty style STRD dampers. Part # STRD size

Typical Round Capacities

These air quantities were derived from a duct sizing chart 0.1" friction loss per 100' of duct.

All CFMs

DUCT DIAMETER	NOMINAL CFM	DUCT VELOCITY FPM	DAMPER ΔP " WC
6"	110	540	.014
8"	250	700	.015
10"	410	750	.015
12"	660	850	.022
14"	1000	925	.035
16"	1450	1070	.036
18"	2000	1100	.036
20"	2600	1200	.039
22"	3250	1250	.039
24"	4100	1325	.041

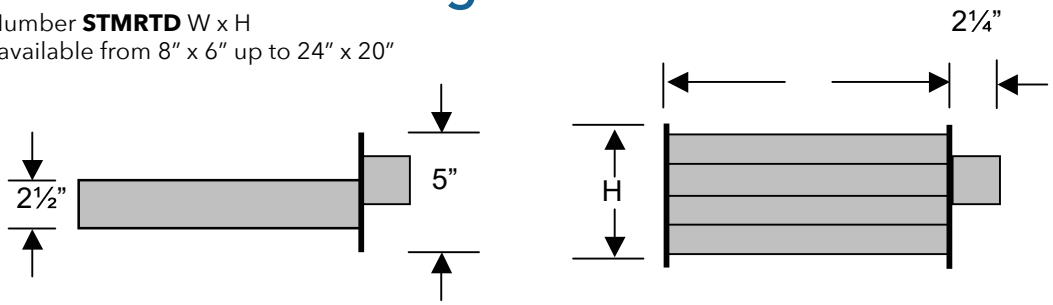
The rectangular zone dampers are available in either medium pressure or heavy duty. For systems under 6 tons, use medium pressure dampers, (part # STMRTD size). For systems 6 tons or over, use heavy duty dampers, (part # STCD size). Motor drive time open and close is 90 seconds.

Rectangular Medium Pressure Zone Dampers (STMRTD)

Zonex Systems rectangular medium pressure dampers are recommended for systems under 6 tons with a maximum differential static pressure of 1". These are fully modulating, power open, power close dampers. They are constructed from heavy duty aluminum and stainless steel. The damper is an opposed blade type that slips into a 3 1/4 - inch wide cutout in the existing duct and attaches with screws via a duct mounting plate. The duct mounting plate is 5 inches wide. A hat section supports a reversing 24vac, 60Hz, 2 VA motor. A magnetic clutch allows for continuous power to the motor and longer motor life. Two set screws connect the motor to the damper shaft, allowing quick motor replacement if necessary. Motor drive time from full open to full close is 90 seconds.

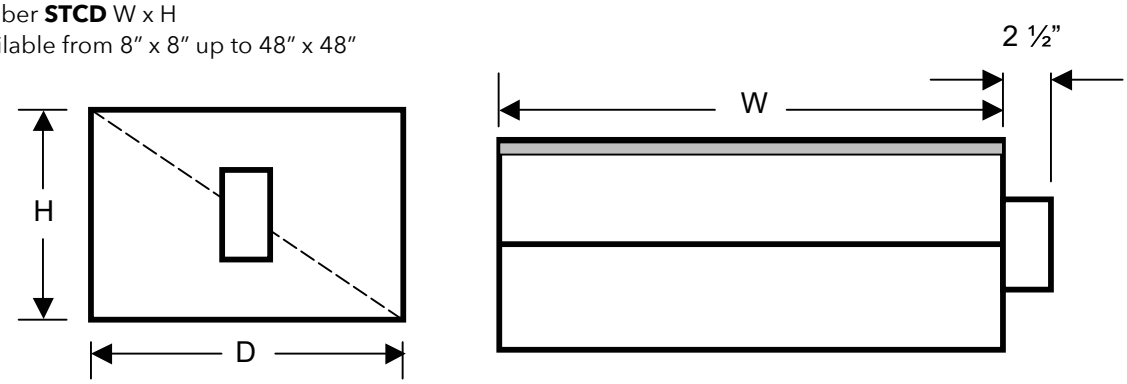
Medium Pressure Rectangular Dimensional Data

Part Number **STMRTD** W x H
Sizes available from 8" x 6" up to 24" x 20"



Heavy Duty Rectangular Dimensional Data

Part Number **STCD** W x H
Sizes available from 8" x 8" up to 48" x 48"



Rectangular Heavy Duty Zone Dampers (STCD)

Zonex Systems rectangular heavy duty dampers are recommended for systems 6 tons or larger with a maximum differential static pressure of 1.75". These are fully modulating, power open / power close dampers made of 20 gauge "snap lock" steel frame with S & Drive duct connections. Allow a 16" gap in the duct for the damper. Formed steel blade stops incorporate a gasket for quiet operation and improved structural rigidity. Rectangular dampers under 10" in height incorporate a single blade design. Dampers 10" or over use opposed blade design. A full stall motor, drawing 2 VA, drives the motor from full open to full close in 90 seconds.

Rectangular Damper Capacities*

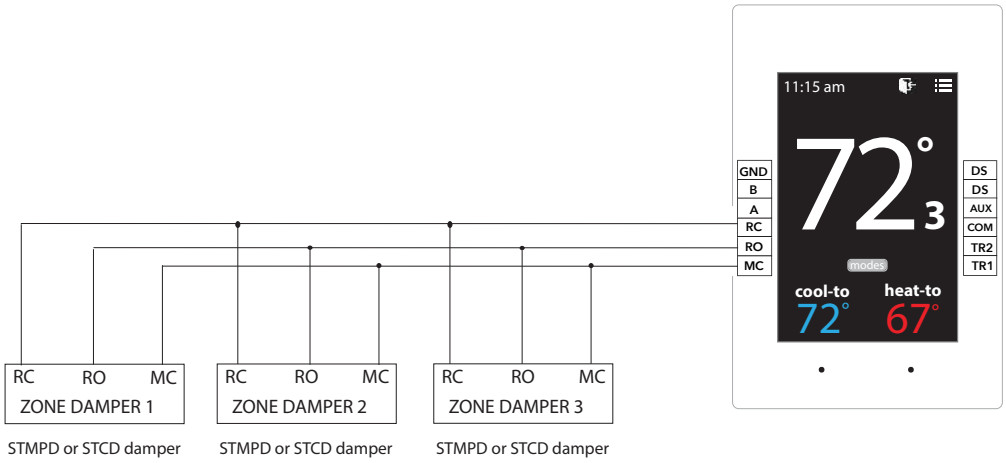
WIDTH IN INCHES

HEIGHT IN INCHES	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
8	300	400	500	610	710	820	925	1050	1175	1250	1400	1500	1600	1725	1825	2000	2100	2200	2275	2400	2525
10	400	540	680	825	975	1125	1300	1400	1590	1750	1975	2100	2175	2400	2600	2775	2900	3000	3200	3400	3600
12	500	680	850	1000	1200	1400	1600	1850	2000	2300	2550	2700	2850	3100	3400	3600	3800	3975	4200	4450	5775
14	610	825	1000	1250	1500	1750	2000	2250	2500	2900	3150	3425	3625	3825	4200	4600	4800	5000	5300	5750	6000
16	710	975	1200	1500	1800	2100	2450	2700	3000	3600	3950	4200	4425	4650	5100	5600	5780	6025	6500	7000	7400
18	820	1125	1400	1750	2100	2500	2850	3080	3600	4400	4600	4950	5100	5600	6000	6500	7000	7150	7600	8100	8600
20	925	1300	1600	2000	2450	2850	3400	3775	4000	4800	5500	5700	6000	6600	7100	7900	8025	8500	9000	9600	10075
22	1050	1400	1850	2250	2700	3080	3775	4300	4800	5100	6000	6350	6800	7200	7800	8600	9000	9600	10000	11500	12500
24	1175	1590	2000	2500	3000	3600	4000	4800	5400	6100	7000	7150	7600	8600	9100	10000	10700	11500	12000	13050	14700
26	1250	1750	2300	2900	3600	4400	4800	5100	6100	6700	7800	8400	8900	10000	10900	11075	12050	13000	14000	15000	15900
28	1400	1975	2550	3150	3950	4600	5500	6000	7000	7800	8400	9150	10000	10700	11900	13000	13800	14900	15200	16500	17500
30	1500	2100	2700	3425	4200	4950	5700	6350	7150	8400	9150	10000	11000	11800	12400	13800	14200	15000	16000	17400	18500
32	1600	2175	2850	3625	4425	5100	6000	6800	7600	8900	10000	11000	11250	12700	13900	14900	15200	16900	17300	19000	20500
34	1725	2400	3100	3825	4650	5600	6600	7200	8600	10000	10700	11800	12700	14100	15000	16500	17200	18100	19200	20500	21900
36	1825	2600	3400	4200	5100	6000	7100	7800	9100	10900	11900	12400	13900	15000	16100	17400	18500	20000	21500	22900	24200
38	2000	2775	3600	4600	5600	6500	7900	8600	10000	11075	13000	13800	14900	16500	17400	17800	20000	21900	22600	24000	25100
40	2100	2900	3800	4800	5780	7000	8025	9000	10700	12050	13800	14200	15200	17200	18500	20000	21000	22200	24900	25000	27000
42	2200	3000	3975	5000	6025	7150	8500	9600	11500	13000	14900	15000	16900	18100	20000	21900	22200	22800	25100	26900	30000
44	2275	3200	4200	5300	6500	7600	9000	10000	12000	14000	15200	16000	17300	19200	21500	22600	24900	25100	26500	30000	32000
46	2400	3400	4450	5750	7000	8100	9600	11500	13050	15000	16500	17400	19000	20500	22900	24000	25000	26900	30000	30500	32800
48	2525	3600	5775	6000	7400	8600	1075	12500	14700	15900	17500	18500	20500	21900	24200	25100	27000	30000	32000	32800	35600

* These air quantities were derived from duct sizing chart .1" friction loss per 100' of duct. All CF Ms listed are approximate.
For accurate selection use duct sizing table or

Slaving Up To Three Zone Dampers

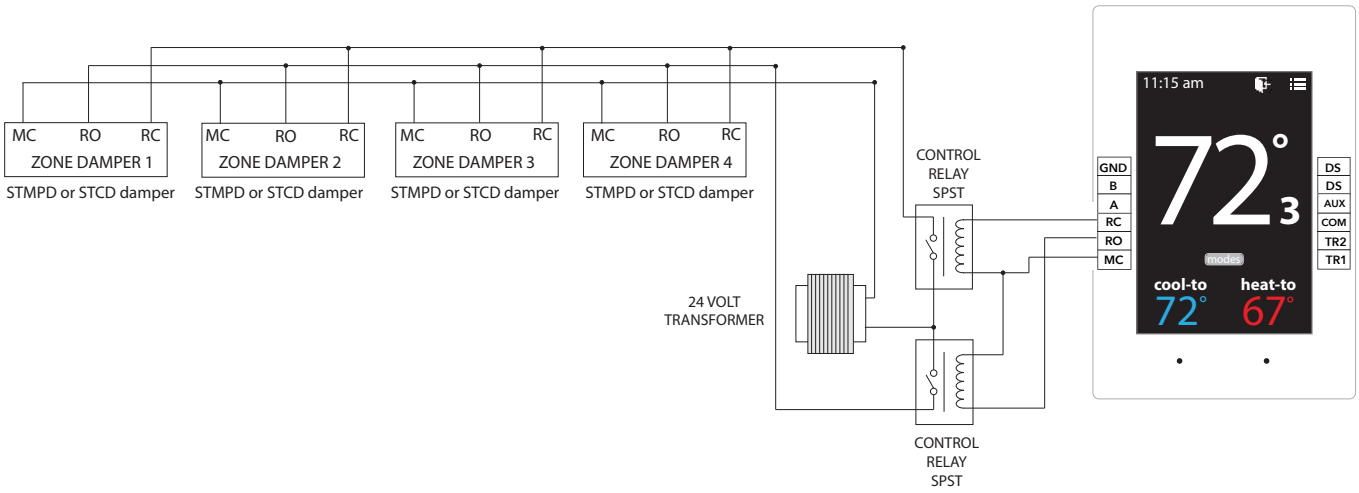
Up to three dampers can be directly controlled by one EzTouchX. To wire two or three dampers for a zone, use the following wiring diagram. Remember to size the power transformer for the total number of zone dampers in the system, 2VA per damper.



Slaving More Than Three Zone Dampers

When slaving more than three zone dampers, use the following diagram. An additional 24VAC and control relays are needed for these applications.

Note: All slave dampers need to be model STMPD / STCD



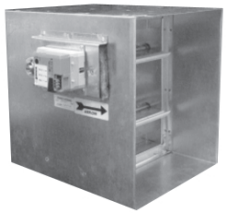
BYPASS DAMPERS – ELECTRONIC

with integrated static pressure control

Electronic Bypass Dampers

Modulating Bypass dampers are used to provide constant air delivery through the air handling unit. This is done by bypassing excess air from the supply duct back to the return duct. As a zone is satisfied, its zone damper closes. When this happens, the bypass damper modulates just enough to bypass the excess air. This will control static pressure and noise at the diffusers.

The Electronic Bypass Damper is used on any size system. The damper can be round **(STBP)** or rectangular **(STCDBP)** with integrated static pressure control; and multiple dampers can be slaved together.



Sizing Electronic Bypass Dampers

The bypass damper is to be sized for the total system CFM @ 1500 FPM. System CFM should be calculated at 400 CFM per ton.

Example: A 5-ton system is rated at 2000 CFM (5x400 = 2000). When calculated at 1500 FPM, the bypass damper should be 16".
Never undersize the bypass damper.

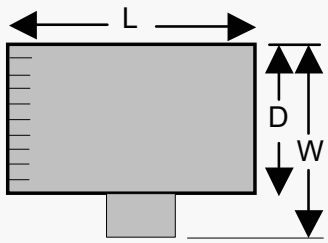
ROUND BYPASS SELECTION

DIAMETER	CFM	PART #	SIZE	D	L	W
8"	560	STBP08	8	8"	10"	11"
10"	900	STBP10	10	10"	12"	13"
12"	1250	STBP12	12	12"	14"	15"
14"	1700	STBP14	14	14"	16"	17"
16"	2200	STBP16	16	16"	18"	19"
18"	2600	STBP18	18	18"	23"	21"
20"	3300	STRDBP20	20	20"	24"	27"
22"	4000	STRDBP22	22	22"	24"	27"
24"	4700	STRDBP24	24	24"	24"	27"

Round Bypass Damper Selection

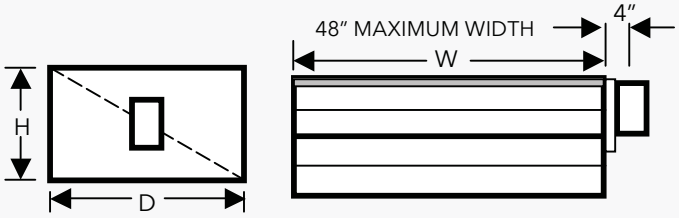
The Zonex Systems STBP damper is used for round bypass applications. When you know the bypass CFM requirements, use the ROUND BYPASS SELECTION TABLE to confirm the round damper size.

NOTE: Multiple round dampers can be slaved from one static pressure control to provide the correct capacity. One large rectangular bypass damper may be used instead of multiple round dampers. See below.



Rectangular Bypass Damper Selection

The Zonex Systems **STCDBP WxH** damper is used for rectangular bypass applications. These dampers are also sized for the total system CFM rated at 1500 FPM. Multiple dampers can be slaved from a single static pressure control.



RECTANGULAR BYPASS DAMPERS
SELECT FROM 8 x 8 thru 48 x 48

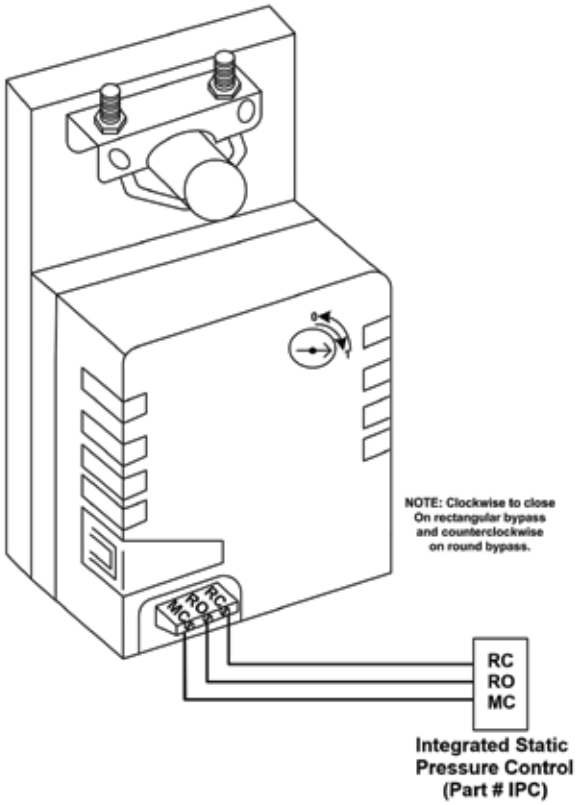
RECTANGULAR BYPASS SELECTION TABLE

WIDTH IN INCHES

HEIGHT IN INCHES	8	10	12	14	16	18	20	22	24	28	32	36	40	44	48
8	667	833	1000	1167	1333	1500	1667	1833	2000	2333	2667	3000	3333	3667	4000
10	833	1042	1250	1458	1667	1875	2083	2292	2500	2917	3333	3750	4167	4583	5000
12	1000	1250	1500	1750	2000	2250	2500	2750	3000	3500	4000	4500	5000	5500	6000
14	1167	1458	1750	2042	2333	2625	2917	3208	3500	4083	4667	5250	5833	6417	7000
16	1333	1667	2000	2333	2667	3000	3333	3667	4000	4667	5333	6000	6667	7333	8000
18	1500	1875	2250	2625	3000	3375	3750	4125	4500	5250	6000	6750	7500	8250	9000
20	1667	2083	2500	2917	3333	3750	4167	4583	5000	5833	6667	7500	8333	9167	10000
22	1833	2292	2750	3208	3667	4125	4583	5042	5500	6417	7333	8250	9167	10083	11000
24	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000	8000	9000	10000	11000	12000
28	2333	2917	3500	4083	4667	5250	5833	6417	7000	8167	9333	10500	11667	12833	14000
32	2667	3333	4000	4667	5333	6000	6667	7333	8000	9333	10667	12000	13333	14667	16000
36	3000	3750	4500	5250	6000	6750	7500	8250	9000	10500	12000	13500	15000	16500	18000
40	3333	4167	5000	5833	6667	7500	8333	9167	10000	11667	13333	15000	16667	18333	20000
44	3667	4583	5500	6417	7333	8250	9167	10083	11000	12833	14667	16500	18333	20167	22000
48	4000	5000	6000	7000	8000	9000	10000	11000	12000	14000	16000	18000	20000	22000	24000

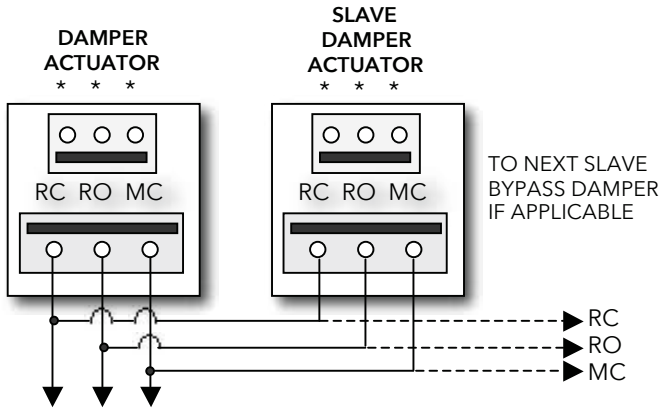
Bypass air in CFM. Calculated at 1500 FPM.
Formula used: B = W x H / 144 x 1500, where B = Bypass air in CFM, W = damper width in inches, H = damper height in inches, 144 = 144 Sq. inches per sq. ft., 1500 = 1500 FPM.

ROUND AND RECTANGULAR BYPASS DAMPER MOTORS



Slaving Bypass Dampers

Use only one Pressure Sensor when slaving two or more Bypass Dampers together. Connect the Pressure Sensor to one damper as described above. Connect the slave dampers in parallel as shown. Up to 4 dampers can be slaved to one Sensor. The slaved dampers will self-synchronize each time the dampers reach full open or full close.



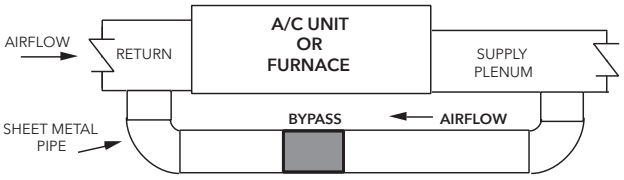
To Static Pressure Control, as shown on the Bypass Wiring Diagram on the next page.

INSTALLATION

The round and rectangular bypass damper can be installed in any position. Do not run speed screws into damper housing. Screws may interfere with damper travel.

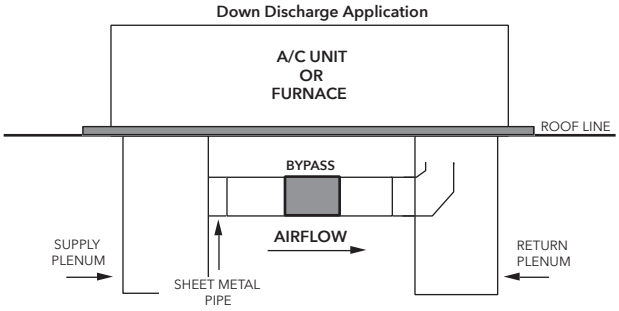
1. Install the bypass damper between the supply and return plenum of the unit. It must be the first tap off the supply plenum. (Bypass damper sizing is recommended for 100% of system CFM.)
2. Be sure the air flows through the damper in the proper direction as indicated by the arrow on the damper. Airflow is always from supply to return plenum.
3. Do not install the bypass damper outside.
4. Bypass damper and controller are powered by a dedicated 24vac 40VA transformer.
5. Follow the steps on the next page for Integrated Pressure Controller installation and set up.

HORIZONTAL APPLICATION

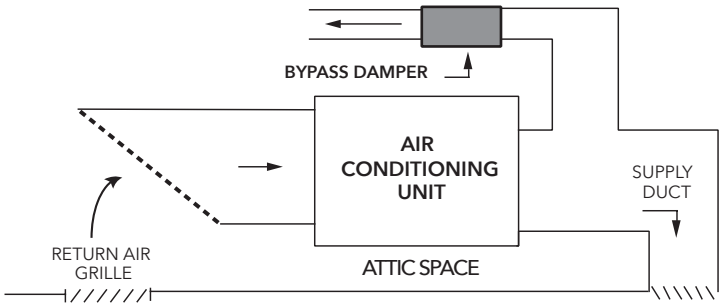


ROOFTOP INSTALLATION

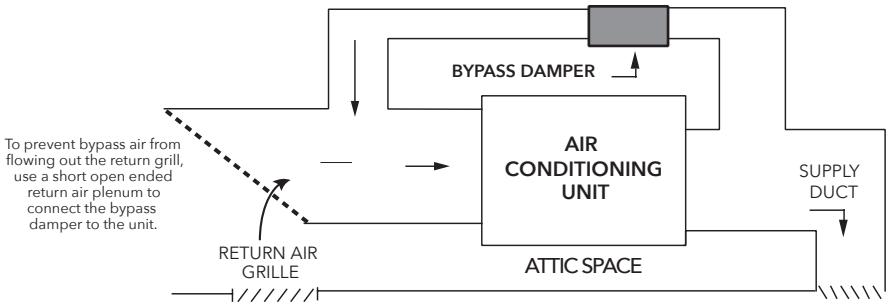
Down Discharge Application



OPEN RETURN PLENUM AND BYPASS APPLICATION



OPEN RETURN PLENUM BYPASS APPLICATION



INTEGRATED STATIC PRESSURE CONTROL SETUP

Bypass Damper with Integrated Pressure Control is used to control bypass operations. The bypass damper modulates to maintain static pressure as zone dampers open and close. The bypass system reduces air noise from the supply registers caused by excessive air velocity. If the system is configured for intermittent fan mode and the system satisfies, there will be a 3-minute delay to allow for system purge, after which the bypass damper will open to 25%, preventing noisy rush of air through supply registers when fan starts up on a call for heat or cool. If the system is configured for fan continuous operation, the **STBP** (Round) or **STCDBP** (Rectangular) Electronic Bypass will monitor static pressure continuously, providing constant control of system static.

Integrated Pressure Control Description

A. Supply air tube
B. 24vac R and C
C. Damper Terminal RO, RC, MC
D. LED lights
E. Adjustable Potentiometer
F. TP1 Test Point

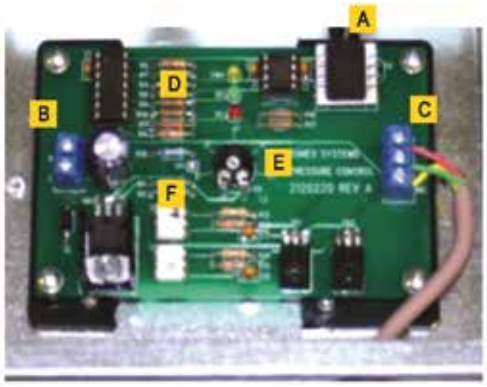
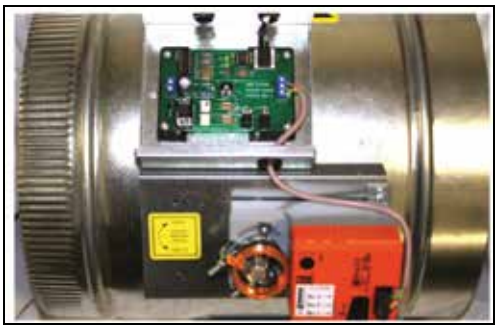


Fig. 1

IPC Installation



1. Locate the Integrated Pressure Control (IPC) and air tube on the bypass damper.
   Drill hole into the side of the supply duct 2' after the bypass and before the 1st supply take-off.

2. Mount pressure supporting block over hole, align hole in block with hole in duct. Use provided sheet metal screws.

3. Install air tube into supply air duct by slipping supplied plastic tubing into holes in support block and duct. Slip tube 3" into the duct. Pickup tubing fits snugly into provided hole.

4. Connect pressure tube from static air pickup to Integrated Pressure Controller (port closest to you).

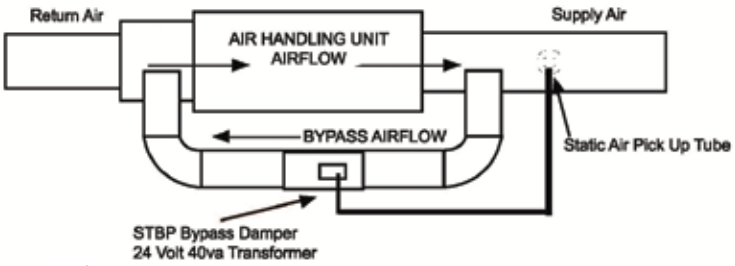


Fig. 2

Bypass Damper With Integrated Bypass Control Setup

1. Run all supply dampers to the full open position and have blower motor running at 100% fan speed. (See Note #1)

2. Manually close the bypass damper by pressing in the release lever on the motor side of the actuator. With the release lever pressed, rotate the damper actuator collar to close the damper and release the lever to lock the damper closed.

3. Quick Set Option: Turn the potentiometer on the damper control board to the full left position and slowly rotate RIGHT, until the "RC" RED LED turns on. Now rotate LEFT just slightly, until RC LED turns off. The **IPC** is ready for operation.

   "RC" RED LED means damper closing.
   "RO" GREEN LED means damper opening.

4. Static Pressure Option: The Integrated Pressure Control Board can be field configured for specified static pressure using a multi meter and the static pressure – voltage chart. (Exhibit A). This chart shows voltage (DC) to inches of W.C. (static pressure) relationship. Use a multi meter set on VDC and place the leads on the "C" terminal and "TP1" (test point one) next to the potentiometer. The Voltage reading translates to inches of W.C.

Static Pressure Voltage Chart

STATIC PRESSURE	TP1	STATIC PRESSURE	TP1
INCH W.C.	VOLTAGE (DC)	INCH W.C.	VOLTAGE (DC)
0.1	1.49	0.5	2.22
0.15	1.62	0.55	2.27
0.2	1.69	0.6	2.42
0.25	1.81	0.65	2.48
0.3	1.85	0.7	2.6
0.35	1.91	0.75	2.68
0.4	1.94	0.8	2.81
0.45	2.06	N/A	N/A

EXHIBIT A

Note # 1: To open all dampers, it may be necessary to remove Y outputs to unit on the zone control board and to make full cool calls on all thermostats. This will modulate dampers fully open and lock out compressor.

On GEN V use air balance mode on the HUB thermostat for simplified bypass setup.

Bypass Checkout For Static Pressure Controller

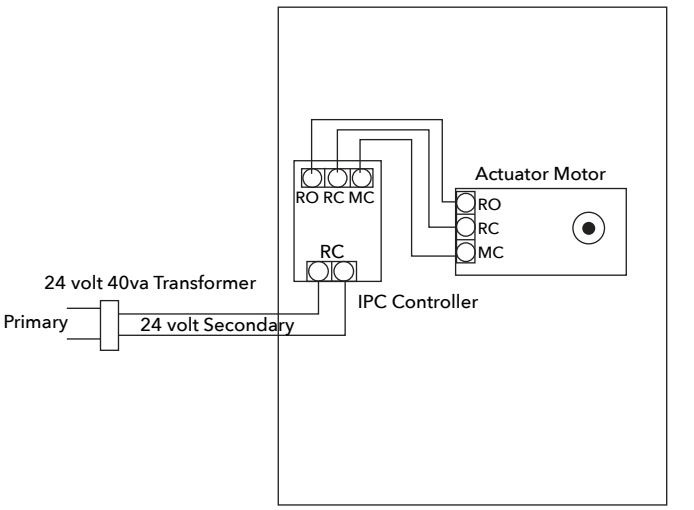
1. Make cool call at the zone thermostat of the smallest zone.

2. Verify all zone dampers are closed except for calling zone.

3. Verify noise at zone registers is not excessive. Adjust the Integrated Pressure Control LEFT to lower noise (airflow) or RIGHT to increase airflow until to noisy.

Bypass Damper Wiring Diagram With Integrated Bypass Control

BYPASS DAMPER WITH INTEGRATED BYPASS CONTROL



GEN V SYSTEM SETUP DIRECTORY

INSTALLING CONTRACTOR	DATE OF INSTALL
PHONE NUMBER	**SYSTEM ID#**

ZONE ID	ZONE / ROOM NAME	NOTES

NOTES

GEN V

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A MODULATING SYSTEM

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PART # GENVMAN
JAN 2025