Unit Vent Controller with 2-Stages of DX

This section presents start-up procedures for the Unit Vent Controllers with 2-Stages of DX. Refer to Figure 1.

NOTE: Update each controller at the field panel immediately after you complete the controller start-up procedures, and have made all other changes to the controller's point database (including tuning, etc.).

NOTE: If free-cooling is desired, then add the appropriate PPCL statements at the field panel to command the point FREE CLG (number 23) to ON when free-cooling is available and OFF when it is not available.

Verify power to controller

Verify that the Unit Vent Controller with 2-Stages of DX is powered up. Check that the BST LED on the controller is flashing. If the BST LED does not flash on/off once per second, then refer to the *System 600 Maintenance and Troubleshooting Manual* (125-1855) for troubleshooting information.

NOTE: The Controller Interface Software (CIS) used with the Unit Vent Controller with 2-Satges of DX firmware revision UG10 or higher must be Rev. 2.0 or greater. Voyager's point database may also be used for start-up.

Set controller address and application

Using the portable operator's terminal, set the controller address and application following these steps:

1. Display the STARTUP report.
2. Set the point CTLR ADDRESS (number 1) to the appropriate address number.

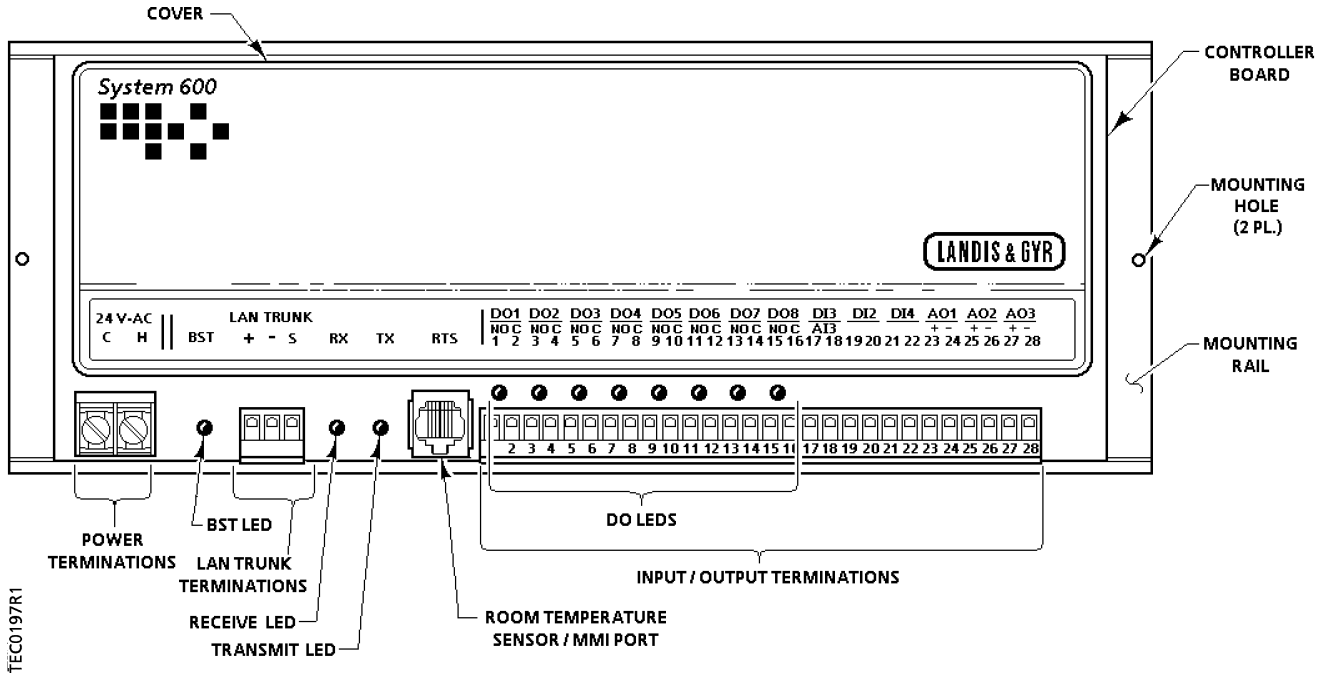

Figure 1. Unit Vent Controller with 2-Stages of DX.

3. Set the point APPLICATION (number 2) to the appropriate Unit Vent Controller with 2-Stages of DX application. Refer to Table 1 for application names and numbers.

Table 1. Unit Vent Controller with 2-Stages of DX Applications.

Application	Revision UG10 or higher
Electric Heating and DX Cooling, ASHRAE Cycle III	2327
Slave Mode	2299

After you set the application, the controller will go through a shut-down/load sequence as it switches from slave mode to the application selected. After the application loads and the OVERVIEW report appears, continue with the following procedures.

Set room temperature set points

Follow these steps to set the room temperature set points:

1. Display the SETPOINTS report.

2. If the room temperature sensor has a set point dial, and if the point RM STPT DIAL (number 13) is to be used by the controller, then set the point STPT DIAL (number 14) to YES; otherwise, set STPT DIAL to NO.

   NOTE: If STPT DIAL is set to YES, then the points DAY CLG STPT (number 6) and DAY HTG STPT (number 7) will not be used. The value of RM STPT DIAL will be used.

3. If the room temperature sensor has a set point dial and the set point dial is to be used, then set the points RM STPT MIN (number 11) and RM STPT MAX (number 12) for the minimum and the maximum allowable room temperature set point values, respectively. Valid values range from 55° to 95°F (13° to 35°C). Common values for these points are 65°F (18°C) for RM STPT MIN and 80°F (27°C) for RM STPT MAX.

4. If there is no set point dial on the room temperature sensor, then verify that STPT DIAL is set to NO.

   Set the following points to the appropriate values:

   - DAY CLG STPT (number 6)
   - DAY HTG STPT (number 7)
   - NGT CLG STPT (number 8)
   - NGT HTG STPT (number 9)

Set outdoor air damper minimum position

Follow these steps to set the outdoor air damper minimum position:

1. Display the STARTUP report.

2. If the minimum position for the outdoor air damper is a value other than the default value of 14.8%, then set the point OADPR MINPOS (number 10) to the appropriate value based on the job documentation.

Enable wall switch

If a wall switch is used for day/night control, then enable it by setting the point WALL SWITCH (number 18) to YES.

Otherwise, leave WALL SWITCH at its default value of NO.

Set override time

If using night override, then set the point OVRD TIME (number 20) to the number of whole hours that an override should last.

Otherwise, leave OVRD TIME at its default value of 1 (night override is disabled).

Enable auxiliary radiation

If the unit has auxiliary radiation that will be controlled by DO1, then set the point AUX.NOAUX (number 22) to AUX.

For all other units, leave AUX.NOAUX at its default value of NOAUX.

Set start and span of voltages for the 0-10V actuators

Depending on the actuators you are using, set points listed in Table 2 to the appropriate starting voltage position and the voltage range for the actuators.

NOTE: The maximum voltage output for the AOs is 10V. The starting voltage and the voltage range *must not* exceed 10V. The controller *will not* control the valve or damper actuator beyond 10V.

Table 2. Start and Span Voltages for Actuators.

Descriptor	Point Number	Landis & Staefa P/N SQB 61.1	Barber-Coleman P/N MP5433
		Voltage Range	
AOV1 SPAN AOV2 SPAN AOV3 SPAN	31 33 35	10 (default)	3
		Starting Voltage	
AOV1 START AOV2 START AOV3 START	32 34 36	0 (default)	6

Set AO DIR.REV

If the normal (de-energized) state of all of the devices controlled by AOs is closed, then leave the point AO DIR.REV (number 37) at its default value of 0.

Otherwise, reverse the action of the appropriate AO, or combination of AOs, as follows:

1. Add the values in Table 3 for each AO you wish to make reverse-acting.
2. Set AO DIR.REV to this value.

Table 3. AO DIR.REV Values.

Reverse-Acting AO	Value
AO1	1
AO2	2
AO3	4

Enable night heating

Set the point NGT HW HTG (number 53) to NO.

Enable night cooling

If cooling is desired during night mode, then set the point NGT CLG MODE (number 54) to YES.

NOTE: For cooling only units, NGT CLG MODE *must be* set to YES to enable cooling in the night mode.

Otherwise, leave NGT CLG MODE at its default value of NO.

Set DO DIR.REV

If the normal (de-energized) state of all of the devices controlled by DOs is off, then leave the point DO DIR.REV (number 59) at its default value of 0.

Otherwise, reverse the action of the devices as follows:

1. Add the values in Table 4 for each DO you wish to make reverse-acting.
2. Set DO DIR.REV to this value.

Table 4. DO DIR.REV Values.

Reverse-Acting DO	Value
DO1	32
DO2	16
DO3	8
DO4	4
DO5	2
DO6	1
DO7	64
DO8	128

Set gains

Display the TUNING report. Set the P, I, and D gains for the system. Refer to the table as follows:

Table 5. Recommended P, I, and D Gains for Application 2327.

Hardware Configuration	ASHRAE Cycle III (SI Units)		
	Cooling Loop 63 CLG P GAIN 64 CLG I GAIN 65 CLG D GAIN 66 CLG BIAS	**Heating Loop** 67 HTG P GAIN 68 HTG I GAIN 69 HTG D GAIN 70 HTG BIAS	**Mixed Air Loop** 81 MA P GAIN 82 MA I GAIN 83 MA D GAIN 84 MA BIAS
DAMPERS			
Mixed Air	Does not apply.	Does not apply.	1 (1.8) 0.05004 (0.090072) 0 14.8
ELECTRIC			
3 Steps	Does not apply.	5 (9) 0.008 (0.0144) 250 (450) 50	Does not apply.
DX			
DX	10 (18) 0.02 (0.036) 200 (360) 50	Does not apply.	Does not apply.

NOTE: Update each controller at the field panel immediately after you complete the controller start-up procedures, and have made all other changes to the controller's point database (including tuning, etc.).

Unit Vent Controller with 2-Stages of DX start-up is complete.