NOTE: The SCPT names in this document have been lengthened. There is a 63-character limit to SCPT names, rather than a 16-character limit assumed in this Profile.

When time permits, this Profile will be modified to have the proper SCPT names.
Overview

This document describes the profile for a Discharge Air Controller object. A Discharge Air controller is used to control duct static pressure and discharge air temperature, along with other auxiliary functions such as a humidity and/or ventilation control.

Some common types of Discharge Air Units include:

- Packaged Rooftop Units
- Indoor Air Handling Units
- Outdoor Air Handling Units
- Water-cooled Self-contained Units

Although some of the physical characteristics of the HVAC equipment may vary, many of the same controller functions are used. The primary control functions within the Discharge Air controller include:

- Fan System Control
- Supply Temperature Control for Heating and Cooling
- Economizer and Ventilation Control
- Humidity Control

Sensors for various control functions may either be hardwired to the controller or connected via the network. Actuating devices such as valves and dampers will normally be hardwired to the controller, but may be connected to the controller via the network.

Operation of the equipment is subject to the Discharge Air controller’s safety checks before external requests are honored and processed.

The network variables and configuration properties of the Discharge Air object are listed in Tables 1.1, 1.2 and 1.3.
Example Usage

The Discharge Air Controller resides on a LONTALK network, interacting with one or more of the following LONTALK nodes:

- Return air or space temperature sensor
- Return air or space humidity sensor
- Discharge air temperature sensor
- Discharge air humidity sensor
- Outdoor air temperature sensor
- Outdoor air humidity sensor
- Condenser water temperature sensor
- Building static pressure sensor
- Other sensors
- Scheduler
- Supervisory controller
- Monitoring device
- Installation/service tool
- VAV terminal controllers
- Heat actuator
- Cool actuator
- Fan speed controller(s)
- Outdoor air damper actuator
- Humidifier
- Other nodes as required

Figure 1 shows a typical application of a Discharge Air Controller.
New and Revised SNVTs
In this document new and revised SNVTs are proposed. These SNVTs are marked as SNVT_xxx*. A brief description is included at the end of this document.

Valid Ranges
In this document, the term “Valid Range” is used to indicate the minimum range of input values that a Discharge Air Controller object must be able to accept. Product manufacturers can choose to support a broader range in a product, at their discretion.

Mandatory Variables and Configuration Properties
In this document, mandatory variables and properties indicate the minimum features that a Discharge Air Controller object must support. Other profiles that are derived from this template can have additional mandatory features.

Typical Default Values
In this document, the term “Typical Default Value” is used to indicate a typical value for a manufacturer-specified default. This term is commonly used for Configuration Properties, whose default values are all manufacturer-defined.

Methods for Implementing Configuration Properties
Configuration Properties can be implemented as either Configuration Network Variables or by using Direct Memory Read/Write and Standard Configuration Property Type (SCPT) references. The device manufacturer needs to determine the best method for the intended application.
Figure 1 Typical Discharge Air System Drawing
## Discharge Air Controller Object Details

### Table 1.1: Network Variable Inputs

<table>
<thead>
<tr>
<th>NV # (M/O)**</th>
<th>Name</th>
<th>Recv HrtBt</th>
<th>SNVT Type</th>
<th>SNVT Index</th>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (M)</td>
<td>nviOccSchedule</td>
<td>Yes</td>
<td>SNVT_tod_event</td>
<td>128</td>
<td>RAM</td>
<td>Occupancy Scheduler Input</td>
</tr>
<tr>
<td>2 (O)</td>
<td>nviOccManCmd</td>
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<td>SNVT_occupancy</td>
<td>109</td>
<td>RAM</td>
<td>Occupancy Override Input</td>
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<td>3 (O)</td>
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<td>SNVT_hvac_mode</td>
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<td>RAM</td>
<td>Application Mode Input</td>
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<td>4 (O)</td>
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<td>SNVT_hvac_emerg</td>
<td>103</td>
<td>RAM</td>
<td>Emergency Override Input</td>
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<td>5 (O)</td>
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<td>RAM</td>
<td>Duct Static Pressure Input</td>
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<td>6 (O)</td>
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<td>SNVT_press_p</td>
<td>113</td>
<td>RAM</td>
<td>Duct Static Pressure Setpoint Input</td>
</tr>
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<td>7 (O)</td>
<td>nviDACISP</td>
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<td>SNVT_temp_p</td>
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<td>RAM</td>
<td>Discharge Air Cooling Setpoint Input</td>
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<td>nviDAHtSP</td>
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<td>SNVT_temp_p</td>
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<td>RAM</td>
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<td>11 (O)</td>
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<td>RAM</td>
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<td>14 (O)</td>
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<td>RAM</td>
<td>Building Static Pressure Setpoint Input</td>
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<td>15 (O)</td>
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<td>No</td>
<td>SNVT_lev_percent</td>
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<td>RAM</td>
<td>Outdoor Air Minimum Position Input</td>
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<td>19 (O)</td>
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<td>SNVT_flow</td>
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<td>RAM</td>
<td>Minimum Outdoor Air Flow Setpoint Input</td>
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<td>20 (O)</td>
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<td>SNVT_temp_p</td>
<td>105</td>
<td>RAM</td>
<td>Outdoor Air Temperature Input</td>
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<td>21 (O)</td>
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<td>Outdoor Air Humidity Input</td>
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<td></td>
<td>RAM</td>
<td>Outdoor Air Enthalpy Input</td>
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<tr>
<td>23 (O)</td>
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<td>SNVT_temp_p</td>
<td>105</td>
<td>RAM</td>
<td>Mixed Air Temperature Setpoint Input</td>
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<td>nviRATemp</td>
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<td>SNVT_temp_p</td>
<td>105</td>
<td>RAM</td>
<td>Return Air Temperature Input</td>
</tr>
<tr>
<td>25 (O)</td>
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<td>SNVT_enthalpy</td>
<td></td>
<td>RAM</td>
<td>Space Enthalpy Input</td>
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<td>26 (O)</td>
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<td>SNVT_temp_p</td>
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<td>RAM</td>
<td>Space Temperature Input</td>
</tr>
<tr>
<td>NV # (M/O)**</td>
<td>Name</td>
<td>Reqv HrtBt</td>
<td>SNVT Type</td>
<td>SNVT Index</td>
<td>Class</td>
<td>Description</td>
</tr>
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<td>------------</td>
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<tr>
<td>27 (O)</td>
<td>nviSpaceRH</td>
<td>Yes</td>
<td>SNVT_lev_percent</td>
<td>81</td>
<td>RAM</td>
<td>Space Humidity Input</td>
</tr>
<tr>
<td>28 (O)</td>
<td>nviHumEnable</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Humidification Enable Input</td>
</tr>
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<td>29 (O)</td>
<td>nviSpaceHumSP</td>
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<td>SNVT_lev_percent</td>
<td>81</td>
<td>RAM</td>
<td>Space Humidification Setpoint Input</td>
</tr>
<tr>
<td>30 (O)</td>
<td>nviDehumEnable</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Dehumidification Enable Input</td>
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<td>31 (O)</td>
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<td>SNVT_lev_percent</td>
<td>81</td>
<td>RAM</td>
<td>Space Dehumidification Setpoint Input</td>
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<td>32 (O)</td>
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<td>RAM</td>
<td>Discharge Air Dewpoint Setpoint Input</td>
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<td>33 (O)</td>
<td>nviCWTemp</td>
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<td>SNVT_temp_p</td>
<td>105</td>
<td>RAM</td>
<td>Condenser Water Temperature Input</td>
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<td>34 (O)</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Condenser Water Flow Input</td>
</tr>
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** M = mandatory, O = optional
### Table 1.2: Network Variable Outputs

<table>
<thead>
<tr>
<th>NV # M/O**</th>
<th>Name</th>
<th>Send HrtBt</th>
<th>SNVT Type</th>
<th>SNVT Index</th>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>35 (M)</td>
<td>nvoDischAirTemp</td>
<td>Yes</td>
<td>SNVT_temp_p</td>
<td>105</td>
<td>RAM</td>
<td>Discharge Air Temperature Output</td>
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<tr>
<td>36 (M)</td>
<td>nvoUnitStatus</td>
<td>Yes</td>
<td>SNVT_hvac_status</td>
<td>112</td>
<td>RAM</td>
<td>Unit Status Output</td>
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<td>37 (O)</td>
<td>nvoEffDATempSP</td>
<td>Yes</td>
<td>SNVT_temp_p</td>
<td>105</td>
<td>RAM</td>
<td>Effective Discharge Air Temperature Setpoint Output</td>
</tr>
<tr>
<td>38 (O)</td>
<td>nvoDuctStatPress</td>
<td>Yes</td>
<td>SNVT_press_p</td>
<td>113</td>
<td>RAM</td>
<td>Duct Static Pressure Output</td>
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<td>39 (O)</td>
<td>nvoEffDuctStatSP</td>
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<td>SNVT_press_p</td>
<td>113</td>
<td>RAM</td>
<td>Effective Duct Static Pressure Setpoint Output</td>
</tr>
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<td>40 (O)</td>
<td>nvoHeatCool</td>
<td>Yes</td>
<td>SNVT_hvac_mode</td>
<td>108</td>
<td>RAM</td>
<td>Effective Heat/Cool Output</td>
</tr>
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<td>41 (O)</td>
<td>nvoApplicMode</td>
<td>Yes</td>
<td>SNVT_hvac_mode</td>
<td>108</td>
<td>RAM</td>
<td>Application Mode Output</td>
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<td>42 (O)</td>
<td>nvoEffectOccup</td>
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<td>SNVT_occupancy</td>
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<td>RAM</td>
<td>Effective Occupancy Output</td>
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<td>43 (O)</td>
<td>nvoSupFanStatus</td>
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<td>SNVT_switch</td>
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<td>RAM</td>
<td>Supply Fan Status Output</td>
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<td>44 (O)</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Supply Fan On/Off Control Output</td>
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<td>45 (O)</td>
<td>nvoSupFanCap</td>
<td>Yes</td>
<td>SNVT_lev_percent</td>
<td>81</td>
<td>RAM</td>
<td>Supply Fan Capacity Output</td>
</tr>
<tr>
<td>46 (O)</td>
<td>nvoExhFanStatus</td>
<td>Yes</td>
<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Exhaust Fan Status Output</td>
</tr>
<tr>
<td>47 (O)</td>
<td>nvoExhFanOnOff</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Exhaust Fan On/Off Control Output</td>
</tr>
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<td>48 (O)</td>
<td>nvoExhFanCap</td>
<td>Yes</td>
<td>SNVT_lev_percent</td>
<td>81</td>
<td>RAM</td>
<td>Exhaust Fan Capacity Output</td>
</tr>
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<td>49 (O)</td>
<td>nvoExhDamper</td>
<td>Yes</td>
<td>SNVT_lev_percent</td>
<td>81</td>
<td>RAM</td>
<td>Exhaust Damper Control Output</td>
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<td>50 (O)</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Return Fan Status Output</td>
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<td>SNVT_switch</td>
<td>95</td>
<td>RAM</td>
<td>Return Fan On/Off Control Output</td>
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<td>SNVT_lev_percent</td>
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<td>RAM</td>
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<td>53 (O)</td>
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<td>RAM</td>
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<td>54 (O)</td>
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<td>SNVT_press_p</td>
<td>113</td>
<td>RAM</td>
<td>Building Static Pressure Output</td>
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<td>55 (O)</td>
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<td>SNVT_switch</td>
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<td>RAM</td>
<td>Economizer Enabled Output</td>
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<td>RAM</td>
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<td>58 (O)</td>
<td>nvoLocalOATemp</td>
<td>Yes</td>
<td>SNVT_temp_p</td>
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<td>RAM</td>
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<td>RAM</td>
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<td>NV # M/O**</td>
<td>Name</td>
<td>Send HrtBt</td>
<td>SNVT Type</td>
<td>SNVT Index</td>
<td>Class</td>
<td>Description</td>
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<td>RAM</td>
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<td></td>
<td>Outdoor Air Enthalpy Output</td>
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<td>63 (O)</td>
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<td>Primary Heating Output</td>
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<td>SNVT_temp_p</td>
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<td>Mixed Air Temperature Output</td>
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<td>66 (O)</td>
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<td>SNVT_temp_p</td>
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<td>RAM</td>
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<td>105</td>
<td>RAM</td>
<td>Discharge Air Dewpoint Temperature Output</td>
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<td>Condenser Capacity Output</td>
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** M = mandatory, O = optional
### Table 1.3: Configuration Properties

<table>
<thead>
<tr>
<th>Config. Property # (M/O)**</th>
<th>Name</th>
<th>SCPT Index</th>
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<th>Association</th>
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</table>
Mandatory Network Variables - Inputs

**Occupancy Scheduler Input**

```c
network input SNVT_tod_event nviOccSchedule;
```

This input network variable is used to command the Discharge Air Controller into different occupancy modes. It is typically sent by a scheduler or a supervisory node. SNVT_tod_event is a structure containing three parts. The first part, current_state, is required for this network variable input. The additional parts, next_state and time_to_next_state, are optional. They can be used for control strategies that provide improved transitions between states. A scheduler node should send OC_NUL and 0, respectively, if it does not use these functions. The controller node will ignore these values if the functions are not supported by the controller.

This input is used in conjunction with nviOccManCmd to determine the effective occupancy mode. Refer to Effective Occupancy Output (nvoEffectOccup) for more information.

**Valid Range**

for current_state:

0 = OC_OCCUPIED: The Discharge Air Controller should operate in the occupied mode as defined by the manufacturer.

1 = OC_UNOCCUPIED: The Discharge Air Controller should operate in the unoccupied mode as defined by the manufacturer.

3 = OC_STANDBY: The Discharge Air Controller should operate in the standby mode as defined by the manufacturer.

0xFF = OC_NUL: This is the initial value after power-up and it remains until another value is received. It is used to indicate that this network variable input is invalid or unused.

The interpretation of all other enumerations will be manufacturer-specific.

for next_state: (optional)

0 = OC_OCCUPIED: The Discharge Air Controller will operate in the occupied mode as defined by the manufacturer.

1 = OC_UNOCCUPIED: The Discharge Air Controller will operate in the unoccupied mode as defined by the manufacturer.

3 = OC_STANDBY: The Discharge Air Controller will operate in the standby mode as defined by the manufacturer.

0xFF = OC_NUL: This is the initial value after power-up and it remains until another value is received. It is used to indicate that this network variable input is invalid or unused.

The interpretation of all other enumerations will be manufacturer-specific.

for time_to_next_state: (optional)

0 to 65,534 minutes, 0 = not used, 65,535 (0xFFFF) = Invalid
Default Value

current_state = 0xFF = OC_NUL

next_state = 0xFF = OC_NUL

time_to_next_state = 0 minutes

These values will be adopted at power-up and in case of not receiving an update within the specified receive heartbeat time.
**Mandatory Network Variables - Outputs**

**Discharge Air Temperature Output**

network output SNVT_temp_p nvoDischAirTemp;

This output network variable is used to monitor the discharge air temperature measured by a hardwired sensor.

**Typical Range**

Typical Range is 0 °C to 100 °C. If no hardwired sensor is present, or if the sensor is failed, an invalid value will be sent.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.
**Unit Status Output**

network output SNVT_hvac_status nvoUnitStatus;

This output network variable is available to report the Discharge Air Controller status. It combines the operating mode, the capacity of heating and cooling used and an indication if any alarms are present in the object. SNVT_hvac_status allows this information to be provided in one network variable.

**Valid Range**

- **mode:** HVAC_HEAT, HVAC_MRNG_WRMUP, HVAC_COOL, HVAC_NIGHT_PURGE, HVAC_PRE_COOL, HVAC_OFF, HVAC_TEST, HVAC_FAN_ONLY, HVAC_MAX_HEAT.

- **heat_output_primary:** 0-100%, 0x7FFF (INVALID)
- **heat_output_secondary:** 0-100%, 0x7FFF (INVALID)
- **cool_output:** 0-100%, 0x7FFF (INVALID)
- **econ_output:** 0-100%, 0x7FFF (INVALID)
- **fan_output:** 0-100%, 0x7FFF (INVALID)
- **in_alarm:** 0 Means there is no alarm. Not 0 Means there is an alarm. 0xFF Means that alarming is disabled.

**NOTE:** For the econ_output value: If the unit has an airside economizer, its capacity will be reported. If the unit has only a water side economizer, its capacity will be reported. If the unit has both, only the airside economizer capacity will be reported. If no economizer is used, the invalid value will be reported.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.
Optional Network Variables - Inputs

**Occupancy Override Input**

network input SNVT_occupancy nviOccManCmd;

This input network variable is used to command the Discharge Air Controller into different occupancy modes. It is typically sent by a wall-mounted occupant-interface module or a supervisory node, to manually control occupancy modes, or to override the scheduled occupancy.

If a local Bypass Input is present, it can be used in conjunction with this network variable input. The local input, when active, forces a Bypass request (equivalent to OC_BYPASS), overriding nviOccManCmd for the duration of the Local Bypass Time (determined by the configuration property nciBypassTime). When nviOccManCmd indicates OC_BYPASS, the Local Bypass Time is also used. Whenever an update of nviOccManCmd is received indicating OC_BYPASS, the bypass timer is restarted.

*This network variable input should never be bound to a network variable that uses a Send Heartbeat function.*

This input is used in conjunction with nviOccSchedule to determine the effective occupancy mode. Refer to Effective Occupancy Output (nvoEffectOccup) for more information.

**Valid Range**

0 = OC_OCCUPIED: The Discharge Air Controller should operate in the occupied mode as defined by the manufacturer.

1 = OC_UNOCCUPIED: The Discharge Air Controller should operate in the unoccupied mode as defined by the manufacturer.

2 = OC_BYPASS: The Discharge Air Controller should operate in the occupied mode for a period of time defined by nciBypassTime.

3 = OC_STANDBY: The Discharge Air Controller should operate in the standby mode as defined by the manufacturer.

0xFF = OC_NUL: This is the initial value after power-up and it remains until another value is received. It is used to indicate that this network variable input is invalid, unused or to cancel a previous command.

**Default Value**

The default value OC_NUL = 0xFF. This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.
Application Mode Input

network input SNVT_hvac_mode nviApplicMode;

This network variable input is used to coordinate the Discharge Air Controller with any supervisory controller. If a mode is requested that is not supported by the unit controller, the unit controller will use a manufacturer-defined default mode.

Valid Range

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<th>Value</th>
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</thead>
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</tr>
<tr>
<td>1</td>
<td>HVAC_HEAT: Heating only</td>
</tr>
<tr>
<td>2</td>
<td>HVAC_MRNG_WRMUP: Morning warm-up</td>
</tr>
<tr>
<td>3</td>
<td>HVAC_COOL: Cooling only</td>
</tr>
<tr>
<td>4</td>
<td>HVAC_NIGHT_PURGE: Free cooling</td>
</tr>
<tr>
<td>5</td>
<td>HVAC_PRE_COOL: Morning cool-down</td>
</tr>
<tr>
<td>6</td>
<td>HVAC_OFF: No operation allowed</td>
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<td>HVAC_TEST: Special test mode, manufacturer-defined</td>
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<tr>
<td>9</td>
<td>HVAC_FAN_ONLY: No heating or cooling functions operate</td>
</tr>
<tr>
<td>10</td>
<td>not used</td>
</tr>
<tr>
<td>11</td>
<td>not used</td>
</tr>
<tr>
<td>12</td>
<td>HVAC_MAX_HEAT Maximum flow heating mode</td>
</tr>
<tr>
<td>0xFF</td>
<td>HVAC_NUL: (same as HVAC_AUTO)</td>
</tr>
</tbody>
</table>

All other enumerations will be interpreted as manufacturer-defined.

Default Value

The default value is HVAC_AUTO. This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
Emergency Override Input

network input SNVT_hvac_emerg nviEmergOverride;

This input network variable is used to command the device into different emergency modes. It is typically set by a supervisory node. The response to each mode is manufacturer-specific. An example of a possible application is given below.

Valid Range
The valid range is described in the table below:

- **0** = EMERG_NORMAL: Normal operation
- **1** = EMERG_PRESSURIZE: Start the PRESSURIZE operation
- **2** = EMERG_DEPRESSURIZE: Start the DEPRESSURIZE operation
- **3** = EMERG_PURGE: Start the PURGE operation
- **4** = EMERG_SHUTDOWN: SHUTDOWN all unit functions
- **0xFF** = EMERG_NUL: Invalid mode (same as EMERG_NORMAL).

Example: Typical usage of these modes is shown in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Supply Fan</th>
<th>Outdoor Air Damper</th>
<th>Exhaust or Return Fan</th>
<th>Exhaust Damper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressurize</td>
<td>On</td>
<td>Open</td>
<td>Off</td>
<td>Closed</td>
</tr>
<tr>
<td>Depressurize</td>
<td>Off</td>
<td>Closed</td>
<td>On</td>
<td>Open</td>
</tr>
<tr>
<td>Purge</td>
<td>On</td>
<td>Open</td>
<td>On</td>
<td>Open</td>
</tr>
<tr>
<td>Shutdown</td>
<td>Off</td>
<td>Closed</td>
<td>Off</td>
<td>Closed</td>
</tr>
</tbody>
</table>

Default Value
The default value is EMERG_NORMAL. This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.
**Duct Static Pressure Input**

network input SNVT_press_p nviDuctStatPress;

This input network variable is used to connect a duct static pressure sensor or network output from another controller. When a duct static pressure sensor is locally wired to the controller, the use of nviDuctStatPress is manufacturer-defined.

**Valid Range**
The valid range is 0 Pa to 1250 Pa. The value 0x7FFF = 32767 Pa will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF. This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

---

**Duct Static Pressure Setpoint Input**

network input SNVT_press_p nviDuctStaticSP;

This input network variable is used to set the duct static pressure setpoint of the controller via the network. If a valid value is not present, either a locally wired setpoint adjustment or the value as configured in nciDuctStatSP will be used as defined by the manufacturer.

**Valid Range**
The valid range is 0 Pa to 1250 Pa. The value 0x7FFF = 32767 Pa will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF. This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

---

**Discharge Air Cooling Setpoint Input**

network input SNVT_temp_p nviDAClSP;

This input network variable is used to set the discharge air cooling setpoint of the controller via the network. If a valid value is not present, either a locally wired setpoint knob or the value as configured in nciDAClSP will be used.

**Valid Range**
The valid range is 0 °C to 30 °C. The value 0x7FFF = 327.67 °C will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF. This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.
**Discharge Air Heating Setpoint Input**

network input SNVT_temp_p nviDAHtSP;

This input network variable is used to set the discharge air heating setpoint of the controller via the network. If a valid value is not present, either a locally wired setpoint knob or the value as configured in nciDAHtSP will be used.

**Valid Range**
The valid range is $10 \, ^\circ C$ to $70 \, ^\circ C$. The value $0x7FFF = 327.67^\circ$ will be handled as an invalid value.

**Default Value**
Default Value is $0x7FFF$. This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

---

**Supply Fan Capacity Input**

network input SNVT_lev_percent nviSupFanCap;

This input network variable is used to command an override of the supply fan capacity from another controller, and can be used to sequence multiple supply fans (ducted in parallel).

**Valid Range**
The valid range is $0\%$ to $100\%$. The value $0x7FFF = 163.835\%$ will be handled as an invalid value.

**Default Value**
Default Value is $0x7FFF$ ($=163.835\%$). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

---

**Exhaust Fan Capacity Input**

network input SNVT_lev_percent nviExhFanCap;

This input network variable is used to connect a network output from another controller to override the local exhaust fan capacity control.

**Valid Range**
The valid range is $0\%$ to $100\%$. The value $0x7FFF = 163.835\%$ will be handled as an invalid value.

**Default Value**
Default Value is $0x7FFF$ ($=163.835\%$). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
**Return Fan Capacity Input**

network input SNVT_lev_percent nviRetFanCap;

This input network variable is used to command an override of the return fan capacity from another controller and can be used to sequence multiple return fans (ducted in parallel)

**Valid Range**
The valid range is 0% to 100%. The value 0x7FFF = 163.835% will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF (=163.835%). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

**Fan Differential Setpoint Input**

network input SNVT_lev_percent nviFanDiffSP;

This input network variable provides a setpoint for the percent capacity difference between the supply and return fans. The return fan will be controlled to maintain this differential in capacity below the supply fan.

**Valid Range**
The valid range is 0% to 50%. The value 0x7FFF = 163.835% will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF (=163.835%). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

**Building Static Pressure Input**

network input SNVT_press_p nviBldgStatPress;

This input network variable is used to connect a network building static pressure sensor or network output from another controller. When a building static pressure sensor is locally wired to the controller, nviBldgStatPress has priority if a valid value is present.

**Valid Range**
The valid range is -125 Pa to 125 Pa. The value 0x7FFF = 32767 Pa will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF (=32767 Pa). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
**Building Static Pressure Setpoint Input**

```
network input SNVT_press_p nviBldgStaticSP;
```

This input network variable is used to connect a network output from another controller to provide the building Static Pressure Setpoint. When valid, this input will have priority over any locally provided building static pressure setpoint.

**Valid Range**

The valid range is -100 to 100 Pa. The value 0x7FFF = 32767 Pa will be handled as an invalid value.

**Default Value**

Default Value is 0x7FFF (= 32767 Pa). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

---

**Primary Cool Enable Input**

```
network input SNVT_switch nviPriCoolEnable;
```

This input network variable is used to connect a network output from another controller to enable or disable the primary cooling outputs of the unit. This input can be used to disable compressor operation or other forms of mechanical cooling.

This input can be used for simple enable/disable functions, or can be used to enable a portion of the unit’s cooling capacity. For example, if a unit has 2 compressors, a value of 100 (50.0%) could indicate that only one compressor is enabled. The interpretation of values less than 100.0% is manufacturer-defined, based on the specific equipment and control algorithms used.

**Valid Range**

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Cooling Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>1 to 199</td>
<td>0.5 to 99.5%</td>
<td>Partially Enabled</td>
</tr>
<tr>
<td>1</td>
<td>200 to 255</td>
<td>100.0%</td>
<td>Enabled</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Enabled (Invalid)</td>
</tr>
</tbody>
</table>

**Default Value**

Default Value is Enable (State = 0xFF). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
Primary Heat Enable Input

network input SNVT_switch nviPriHeatEnable;

This input network variable is used to connect a network output from another controller to enable or disable the primary heating outputs of the unit.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Primary Heat Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>1 to 199</td>
<td>0.5 to 99.5%</td>
<td>Partially Enabled</td>
</tr>
<tr>
<td>1</td>
<td>200 to 255</td>
<td>100.0%</td>
<td>Enabled</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Enabled (Invalid)</td>
</tr>
</tbody>
</table>

Default Value

Default Value is Enable (State = 0xFF). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

Economizer Enable Input

network input SNVT_switch nviEconEnable;

This input is used to enable and disable economizer operation. This input is typically sent from a system supervisor panel to override the local economizer enable/decision. For this input, economizer Auto means that the local decision determines economizer operation. Enabled or Disabled means that economizer operation is allowed or not allowed (respectively), overriding the local decision.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Economizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>1-255</td>
<td>Enabled</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Auto (Invalid)</td>
</tr>
</tbody>
</table>

Default Value

Default Value is Auto (State = 0xFF). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
Outdoor Air Minimum Position Input

network input SNVT_lev_percent nviOAMinPos;

This input network variable is used to set the minimum outdoor air damper position of the controller via the network. When a valid value is present, this input has priority over any local minimum outdoor air damper position setpoint.

Valid Range
The valid range is 0 % to 100 %. The value 0x7FFF = +163.835% will be handled as an invalid value.

Default Value
Default Value is 0x7FFF. This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

Minimum Outdoor Air Flow Setpoint Input

network input SNVT_flow nviMinOAFlowSP;

This input network variable is used to command a minimum outdoor air flow rate setpoint from the network. When a valid value is present, this input has priority over any local minimum outdoor air flow setpoint.

Valid Range
The valid range is 0 to 50,000 l/sec. The value 0xFFFF = 65,535 l/sec will be handled as an invalid value.

Default Value
Default Value is 0xFFFF (= 65,535 l/sec). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

Outdoor Air Temperature Input

network input SNVT_temp_p nviOutdoorTemp;

This input network variable is the measured outdoor air dry bulb temperature. It is typically provided by either a network sensor or a supervisory controller. When an outdoor air temperature sensor is locally wired to the controller, the nviOutdoorTemp has priority if a valid value is present.

Valid Range
The valid range is -40°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value.

Default Value
Default Value is 0x7FFF (=+327.67°C). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
**Outdoor Air Humidity Input**

network input SNVT_lev_percent nviOutdoorRH;

This input network variable is the measured outdoor humidity in percent. It is typically provided by either a network sensor or a supervisory controller. When an outdoor air humidity sensor is locally wired to the controller, the nviOutdoorRH has priority if a valid value is present.

**Valid Range**
The valid range is 0% to 100%. The value 0x7FFF = 163.835% will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF (=163.835%). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

---

**Outdoor Air Enthalpy Input**

network input SNVT_enthalpy nviOAEnthalpy;

This input network variable is used to connect a network Outdoor air enthalpy sensor or network controller output (enthalpy calculated in another controller). When valid, this variable has priority over a locally wired sensor or calculated enthalpy value.

**Valid Range**
The valid range is 20 to 100 K-Joules/Kg. The value 0x7FFF = 327.67 K-Joules/Kg will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF (= 327.67 K-Joules/Kg). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

---

**Mixed Air Temperature Setpoint Input**

network input SNVT_temp_p nviMATSP;

This input network variable is used to command a mixed air temperature setpoint from the network. When a valid value is present, this input has priority over any local mixed air temperature setpoint.

**Valid Range**
The valid range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value.

**Default Value**
Default Value is 0x7FFF (=+327.67°C). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.
Return Air Temperature Input

network input SNVT_temp_p nviRATemp;

This input network variable is used to connect a network return air temperature sensor or network output from another controller. When a return air temperature sensor is locally wired to the controller, the nviRATemp has priority if a valid value is present.

Valid Range
The valid range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value.

Default Value
Default Value is 0x7FFF (= +327.67°C). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

Space Enthalpy Input

network input SNVT_enthalpy nviSpaceEnthalpy;

This input network variable is used to connect a network return air or space enthalpy sensor or network output from another controller. When a return air or space enthalpy sensor is locally wired to the controller, the nviRAEnthalpy has priority if a valid value is present.

Valid Range
The valid range is 20 to 100 K-Joules/Kg. The value 0x7FFF = 327.67 K-Joules/Kg will be handled as an invalid value.

Default Value
Default Value is 0x7FFF (= 327.67 K-Joules/Kg). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

Space Temperature Input

network input SNVT_temp_p nviSpaceTemp;

This input network variable is used to connect a network space temperature sensor or network output from another controller. When a space temperature sensor is locally wired to the controller, the nviSpaceTemp has priority if a valid value is present.

Valid Range
The valid range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value.

Default Value
Default Value is 0x7FFF (= +327.67°C). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.
Space Humidity Input

network input SNVT_lev_percent nviSpaceRH;

This input network variable is used to connect a network return air or space relative humidity sensor or network output from another controller. When a return air or space relative humidity sensor is locally wired to the controller, the nviSpaceRH has priority if a valid value is present.

Valid Range
The valid range is 0% to 100%. The value 0x7FFF = 163.835% will be handled as an invalid value.

Default Value
Default Value is 0x7FFF (=163.835%). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

Humidification Enable Input

network input SNVT_switch nviHumEnable;

This input network variable is used to enable the humidification function in the controller. It is typically set by a supervisory node.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Humidification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>1-255</td>
<td>Enable</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Enable (Invalid)</td>
</tr>
</tbody>
</table>

Default Value
Default Value is Enable (State = 0xFF). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

Space Humidification Setpoint Input

network input SNVT_lev_percent nviSpaceHumSP;

This input network variable is used to connect a network space humidity setpoint or network output from another controller. When valid, this input will have priority over any local space humidity setpoint.

Valid Range
The valid range is 0% to 100%. The value 0x7FFF = 163.835% will be handled as an invalid value.

Default Value
Default Value is 0x7FFF (=163.835%). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.
Dehumidification Enable Input

network input SNVT_switch nviDehumEnable;

This input network variable is used to enable the dehumidification function in the controller. It is typically set by a supervisory node.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Dehumidification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Disable</td>
</tr>
<tr>
<td>1</td>
<td>1-255</td>
<td>Enable</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Enable (Invalid)</td>
</tr>
</tbody>
</table>

Default Value

Default Value is Enable (State = 0xFF). This value will be adopted at power-up and in case of not receiving an update within the specified Receive Heartbeat time.

Space Dehumidification Setpoint Input

network input SNVT_lev_percent nviSpaceDehumSP;

This input network variable is used to connect a network space dehumidification setpoint or network output from another controller. When valid, this input will have priority over any local space dehumidification setpoint.

Valid Range

The valid range is 0% to 100%. The value 0x7FFF = 163.835% will be handled as an invalid value.

Default Value

Default Value is 0x7FFF (=163.835%). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.

Discharge Air Dewpoint Setpoint Input

network input SNVT_temp_p nviDADewPointSP;

This input network variable is used to command a discharge air dewpoint setpoint from the network. When a valid value is present, this input has priority over any local discharge air dewpoint setpoint.

Valid Range

The valid range is -20°C to 30°C. The value 0x7FFF = +327.67°C will be handled as an invalid value.

Default Value

Default Value is 0x7FFF (=+327.67°C). This value will be adopted at power-up, until an update is received. This network variable input does not use the Receive Heartbeat function.
Condenser Water Temperature Input

network input SNVT_temp_p nviCWTemp;

This input network variable is used to connect a network condenser water temperature sensor
or network output from another controller. When a condenser water temperature sensor is
locally wired to the controller, nviCWTemp has priority if a valid value is present.

Valid Range
The valid range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid
value.

Default Value
Default Value is 0x7FFF (≈327.67°C). This value will be adopted at power-up and in case of not
receiving an update within the specified Receive Heartbeat time.

Condenser Water Flow Input

network input SNVT_switch nviCWFlow;

This input network variable indicates the system condenser water flow status. It is typically
provided by either a network sensor or a supervisory controller. When a flow sensor is locally
wired to the controller, nviCWFlow has priority if a valid value is present.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Condenser Water Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>1-255</td>
<td>Yes</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

Default Value
Default Value is Invalid (State = 0xFF). This value will be adopted at power-up and in case of
not receiving an update within the specified Receive Heartbeat time.
Optional Network Variables - Outputs

**Effective Discharge Air Temperature Setpoint Output**

network output SNVT_temp_p nvoEffDATempSP;

This output network variable is used to monitor the effective discharge air temperature setpoint that the Discharge Air Controller is using for control, which may come from nviDAHtSP, nviDAClSP, nciDAHtSP, nciDAClSP, or a locally wired set point knob.

**Typical Range**

Typical Range is 0 °C to 70 °C.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.

---

**Duct Static Pressure Output**

network output SNVT_press_p nvoDuctStatPress;

This output network variable is used for monitoring the effective duct static pressure that the controller is using for control. This value will reflect either the network input nviDuctStatPress or the value from the locally wired duct static pressure sensor, as defined by the manufacturer.

**Typical Range**

The typical range is 0 Pa to 2500 Pa. The value 0x7FFF = 32,767 Pa will be sent as an invalid value.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.
Effective Duct Static Pressure Setpoint Output

```
network output SNVT_press_p nvoEffDuctStatSP;
```

This output network variable is used to monitor the effective duct static pressure setpoint that the Discharge Air Controller is using for control. This value may come from nviDuctStaticSP, nciDuctStatSP, or a locally wired set point knob.

**Typical Range**
The typical range is 0 Pa to 1250 Pa.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.

Effective Heat/Cool Output

```
network output SNVT_hvac_mode nvoHeatCool
```

This output network variable is used to indicate the actual heat/cool mode of the unit. This information is typically reported to a supervisory controller, or provided to another Discharge Air Controller to coordinate the operation of multiple units. The heat/cool mode is determined by nviApplicMode and logic in the controller. The “mode” value reported in nvoUnitStatus is typically the same as nvoHeatCool, except when nviApplicMode is HVAC_TEST.
Valid Range

1 = HVAC_HEAT: Heating only
2 = HVAC_MRNG_WRMUP: Morning warm-up
3 = HVAC_COOL: Cooling only
4 = HVAC_NIGHT_PURGE: Free cooling
5 = HVAC_PRE_COOL: Morning cool-down
6 = HVAC_OFF: No operation allowed
7 = HVAC_TEST: Special test mode, manufacturer-defined
8 = not used
9 = HVAC_FAN_ONLY: No heating or cooling functions operate
10 = not used
11 = not used
12 = HVAC_MAX_HEAT Maximum flow heating
0xFF = HVAC_NUL: Invalid

All other enumerations will be interpreted as manufacturer-defined.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Application Mode Output

The output network variable is used to control the mode of other controllers such as a VAV box controller. This output will typically send a value of HVAC_AUTO except in certain modes where an override of other controllers is required. The function of this output is manufacturer-defined, based on the application of the Discharge Air Controller.

Valid Range

0 = HVAC_AUTO: Full automatic operation - manufacturer defined
1 = HVAC_HEAT: Heating only
2 = HVAC_MRNG_WRMUP: Morning warm-up
3 = HVAC_COOL: Cooling only
4 = HVAC_NIGHT_PURGE: Free cooling
5 = HVAC_PRE_COOL: Morning cool-down
6 = HVAC_OFF: No operation allowed
7 = HVAC_TEST: Special test mode, manufacturer-defined
8 = not used
9 = HVAC_FAN_ONLY: No heating or cooling functions operate
10 = not used
11 = not used
12 = HVAC_MAX_HEAT Maximum flow heating
0xFF = HVAC_NUL: Invalid

All other enumerations will be interpreted as manufacturer-defined.

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
**Effective Occupancy Output**

This output network variable transmits the current Occupancy mode of the Discharge Air Controller for monitoring. The occupancy mode is determined by a combination of input network variables and logic in the controller, as defined by the controller manufacturer. An example of how the Effective Occupancy Output could be determined from various inputs is shown in the table below.

### Valid Range

<table>
<thead>
<tr>
<th>Valid Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = OC_OCCUPIED</td>
<td>The Discharge Air Controller should operate in the occupied mode as defined by the manufacturer.</td>
</tr>
<tr>
<td>1 = OC_UNOCCUPIED</td>
<td>The Discharge Air Controller should operate in the unoccupied mode as defined by the manufacturer.</td>
</tr>
<tr>
<td>2 = OC_BYPASS</td>
<td>The Discharge Air Controller should operate in the occupied mode for a period of time defined by nciBypassTime.</td>
</tr>
<tr>
<td>3 = OC_STANDBY</td>
<td>The Discharge Air Controller should operate in the standby mode as defined by the manufacturer.</td>
</tr>
</tbody>
</table>

### Effective Occupancy Output (example application)

<table>
<thead>
<tr>
<th>nviOccManCmd</th>
<th>nviOccSchedule</th>
<th>nvoEffectOccup</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC_OCCUPIED</td>
<td>Don’t Care</td>
<td>OC_OCCUPIED</td>
</tr>
<tr>
<td>OC_UNOCCUPIED</td>
<td>Don’t Care</td>
<td>OC_UNOCCUPIED</td>
</tr>
<tr>
<td>OC_BYPASS(^1)</td>
<td>OC_OCCUPIED</td>
<td>OC_OCCUPIED</td>
</tr>
<tr>
<td></td>
<td>OC_UNOCCUPIED</td>
<td>OC_BYPASS(^1)</td>
</tr>
<tr>
<td></td>
<td>OC_STANDBY</td>
<td>OC_BYPASS(^1)</td>
</tr>
<tr>
<td></td>
<td>OC_NUL</td>
<td>OC_OCCUPIED</td>
</tr>
<tr>
<td>OC_STANDBY</td>
<td>Don’t Care</td>
<td>OC_STANDBY</td>
</tr>
<tr>
<td>OC_NUL</td>
<td>OC_OCCUPIED</td>
<td>OC_OCCUPIED</td>
</tr>
<tr>
<td></td>
<td>OC_UNOCCUPIED</td>
<td>OC_UNOCCUPIED</td>
</tr>
<tr>
<td></td>
<td>OC_STANDBY</td>
<td>OC_STANDBY</td>
</tr>
<tr>
<td></td>
<td>OC_NUL</td>
<td>OC_OCCUPIED</td>
</tr>
</tbody>
</table>

### Notes:

1. OC_BYPASS can be initiated by either nviOccManCmd or a local input. nvoEffectOccup will only be OC_BYPASS for the duration of the Local Bypass Time (nciBypassTime), until re-initiated by either a transition of the local input or an update to nviOccManCmd.

2. For nviOccSchedule, this refers to the “current state” field.
When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Supply Fan Status Output

network output SNVT_switch nvoSupFanStatus;

This output network variable reflects the actual status of the supply fan for monitoring.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Actual Fan State</th>
<th>Actual Fan Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>1 to 200</td>
<td>0.5 to 100%</td>
<td>ON</td>
<td>0.5 to 100%</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Invalid</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Supply Fan On/Off Control Output

network output SNVT_switch nvoSupFanOnOff;

This output network variable is used to start and stop the supply fan. It is typically used to interface with a variable speed motor drive. If it is used as the sole interface to the motor drive, it will contain the on/off as well as the speed signal. If it is used in conjunction with nvoSupFanCap, then this output should only be used for on/off control (see note 1).

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Requested Fan State</th>
<th>Requested Fan Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>1 to 199</td>
<td>0.5 to 99.5%</td>
<td>ON</td>
<td>0.5 to 99.5%</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
<td>100% (note 1)</td>
<td>ON</td>
<td>100% (note 1)</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Invalid</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

Note 1: When this output is used in conjunction with nvoSupFanCap to interface to a variable speed motor drive, the value should be set to 200 (100%) whenever the fan is requested to be On. The fan speed will be defined by nvoSupFanCap.

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
**Supply Fan Capacity Output**

network output SNVT_lev_percent nvoSupFanCap;

This output network variable is used to command the supply fan speed or capacity. It is typically used to interface with a variable speed motor drive.

**Valid Range**

The valid range is 0 % to 100 % of supply fan capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.

**Exhaust Fan Status Output**

network output SNVT_switch nvoExhFanStatus;

This output network variable reflects the actual status of the exhaust fan for monitoring.

**Valid Range**

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Actual Fan State</th>
<th>Actual Fan Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>1 to 200</td>
<td>0.5 to 100%</td>
<td>ON</td>
<td>0.5 to 100%</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Invalid</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.
Exhaust Fan On/Off Control Output

network output SNVT_switch nvoExhFanOnOff;

This output network variable is used to start and stop the exhaust fan. It is typically used to interface with a variable speed motor drive. If it is used as the sole interface to the motor drive, it will contain the on/off as well as the speed signal. If it is used in conjunction with nvoExhFanCap, then this output should only be used for on/off control (see note 1).

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Requested Fan State</th>
<th>Requested Fan Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>1 to 199</td>
<td>0.5 to 99.5%</td>
<td>ON</td>
<td>0.5 to 99.5%</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
<td>100% (note 1)</td>
<td>ON</td>
<td>100% (note 1)</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Invalid</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

Note 1: When this output is used in conjunction with nvoExhFanCap to interface to a variable speed motor drive, the value should be set to 200 (100%) whenever the fan is requested to be On. The fan speed will be defined by nvoExhFanCap.

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
Exhaust Fan Capacity Output

network output SNVT_lev_percent nvoExhFanCap;

This output network variable is used to command the exhaust fan speed or capacity. It is typically used to interface with a variable speed motor drive.

Valid Range
The valid range is 0 % to 100 % of exhaust capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Exhaust Damper Control Output

network output SNVT_lev_percent nvoExhDamper;

This output network variable reflects the current status of the Exhaust Damper output for monitoring or control.

Valid Range
The valid range is 0 % to 100 % of Exhaust Damper stroke. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Return Fan Status Output

```c
network output SNVT_switch nvoRetFanStatus;
```

This output network variable reflects the actual status of the return fan for monitoring.

### Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Actual Fan State</th>
<th>Actual Fan Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>1 to 200</td>
<td>0.5 to 100%</td>
<td>ON</td>
<td>0.5 to 100%</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Invalid</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

### When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (`nciSndHrtBt`) configuration value.

### Update Rate

This value will be updated no faster than the Minimum Send Time (`nciMinOutTm`) configuration value, if used (manufacturer-defined).

### Default Service Type

The default service type is unacknowledged.
Return Fan On/Off Control Output

network output SNVT_switch nvoRetFanOnOff;

This output network variable is used to start and stop the return fan. It is typically used to interface with a variable speed motor drive. If it is used as the sole interface to the motor drive, it will contain the on/off as well as the speed signal. If it is used in conjunction with nvoRetFanCap, then this output should only be used for on/off control (see note 1).

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Equivalent Percent</th>
<th>Requested Fan State</th>
<th>Requested Fan Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>OFF</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>1 to 199</td>
<td>0.5 to 99.5%</td>
<td>ON</td>
<td>0.5 to 99.5%</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
<td>100% (note 1)</td>
<td>ON</td>
<td>100% (note 1)</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>n/a</td>
<td>Invalid</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

Note 1: When this output is used in conjunction with nvoRetFanCap to interface to a variable speed motor drive, the value should be set to 200 (100%) whenever the fan is requested to be On. The fan speed will be defined by nvoRetFanCap.

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
**Return Fan Capacity Output**

network output SNVT_lev_percent nvoRetFanCap;

This output network variable is used to command the return fan speed or capacity. It is typically used to interface with a variable speed motor drive.

**Valid Range**
The valid range is 0 % to 100 % of return fan capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.

---

**Return Fan Pressure Output**

network output SNVT_press_p nvoRetFanPress;

This output network variable reflects the current value of the return fan static pressure for monitoring.

**Typical Range**
The typical range is -25 to 100 Pa. The value 0x7FFF = 32,767 Pa will be sent as an invalid value.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.
Building Static Pressure Output

network output SNVT_press_p nvoBldgStatPress;

This output network variable reflects the current value of the building static pressure for monitoring.

Typical Range
The typical range is -125 to 125 Pa. The value 0x7FFF = 32,767 Pa will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Economizer Enabled Output

network output SNVT_switch nvoEconEnabled;

This output network variable reflects the current Enable/Disable status of the economizer for monitoring.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Economizer Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
<td>Enabled</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
**Outdoor Air Damper Output**

network output SNVT_lev_percent nvoOADamper;

This output network variable reflects the current level of the outdoor air damper or injection fan capacity output for monitoring or control.

**Valid Range**

The valid range is 0 % to 100 % of the outdoor air damper range. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.

---

**Outdoor Air Flow Output**

network output SNVT_flow nvoOAFlow;

This output network variable indicates the current value of the outdoor Air Flow for monitoring. This value will reflect the network input nviOAFlow if it is valid or the value from a locally wired air flow sensor.

**Typical Range**

The typical range is 0 to 50,000 l/sec. The value 0xFFFF = 65,535 l/sec will be sent as an invalid value.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.
**Local Outdoor Air Temperature Output**

network output SNVT_temp_p nvoLocalOATemp;

This output network variable indicates the value of a locally wired Outdoor Air Temperature sensor.

**Typical Range**
The typical range is -40°C to 70°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.

---

**Outdoor Air Temperature Output**

network output SNVT_temp_p nvoOutdoorTemp;

This output network variable indicates the current value of the outdoor air temperature for monitoring. This value will reflect the network input nviOutdoorTemp (if valid) or the value from a locally wired sensor.

**Typical Range**
The valid range is -40°C to 70°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.
Local Outdoor Air Humidity Output

network output SNVT_lev_percent nvoLocalOARH;

This output network variable indicates the value of a locally wired Outdoor Air Relative Humidity sensor.

Valid Range
The valid range is 0 % to 100 % relative humidity. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Outdoor Air Humidity Output

network output SNVT_lev_percent nvoOutdoorRH;

This output network variable indicates the current value of the outdoor air humidity for monitoring. This value will reflect the network input nviOutdoorRH (if valid) or the value from a locally wired sensor.

Valid Range
The valid range is 0 % to 100 % relative humidity. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Outdoor Air Enthalpy Output

network output SNVT_enthalpy nvoOAEnthalpy;

This output network variable indicates the current value of the outdoor air enthalpy. This output will reflect the value of nviOAEnthalpy (if valid), or the value may be calculated by the controller or measured by a hardwired input.

**Typical Range**
The typical range is 20 to 100 K-Joules/Kg. The value 0x7FFF = 327.67 K-Joules/Kg will be sent as an invalid value.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.

Primary Cooling Output

network output SNVT_lev_percent nvoCoolPrimary;

This output network variable reflects the current level of the primary (mechanical) cooling capacity. It can be used for monitoring or to control a remote cooling actuator.

**Valid Range**
The valid range is 0 % to 100 % of the primary cooling capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.
Primary Heating Output

network output SNVT_lev_percent nvoHeatPrimary;

This output network variable reflects the current level of the primary heating capacity. It can be used for monitoring or to control a remote heating actuator.

Valid Range
The valid range is 0 % to 100 % of the primary heating capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Mixed Air Temperature Output

network output SNVT_temp_p nvoMATemp;

This output network variable indicates the current value of the mixed air dry bulb temperature.

Typical Range
The typical range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Space Temperature Output

network output SNVT_temp_p nvoSpaceTemp;

This output network variable indicates the current value of the space temperature for monitoring. This value will reflect the network input nviSpaceTemp (if valid) or the value from a locally wired sensor.

**Typical Range**
The valid range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.
**Return Air Temperature Output**

network output SNVT_temp_p nvoRATemp;

This output network variable indicates the current value of the return air temperature for monitoring. This value will reflect the network input nviRATemp (if valid) or the value from a locally wired sensor.

**Typical Range**
The typical range is -10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.

---

**Space Humidity Output**

network output SNVT_lev_percent nvoSpaceRH;

This output network variable indicates the current value of the space relative humidity for monitoring. This value will reflect the network input nviSpaceRH (if valid) or the value from a locally wired sensor.

**Valid Range**
The valid range is 0 % to 100 % relative humidity. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.
**Space Enthalpy Output**

```plaintext
network output SNVT_enthalpy nvoSpaceEnthalpy;
```

This output network variable indicates the current value of the space enthalpy. This output will reflect the value of nviSpaceEnthalpy (if valid), or the value may be calculated by the controller or measured by a hardwired input.

**Typical Range**

The typical range is 20 to 100 K-Joules/Kg. The value 0x7FFF = 327.67 K-Joules/Kg will be sent as an invalid value.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.

**Effective Space Humidification Setpoint Output**

```plaintext
network output SNVT_lev_percent nvoEffSpaceHumSP;
```

This output network variable reflects the effective Space Low Limit Humidity Setpoint for monitoring.

**Valid Range**

The valid range is 0 % to 100 % RH. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**

The default service type is unacknowledged.
Humidification Status Output

network output SNVT_lev_percent nvoHumidifier;
This output network variable reflects the current level of the humidifier output for monitoring.

Valid Range
The valid range is 0 % to 100 % of humidification capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Effective Space Dehumidification Setpoint Output

network output SNVT_lev_percent nvoEffSpaceDHSP;
This output network variable reflects the effective Space High Limit Humidity Setpoint for monitoring.

Valid Range
The valid range is 0 % to 100 % RH. The value 0x7FFF = +163.835% will be sent as an invalid value.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Dehumidification Status Output

network output SNVT_switch nvoDehumidifier;

This output network variable reflects the current status of dehumidification control for monitoring.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Dehumidification Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Enabled and Inactive</td>
</tr>
<tr>
<td>1</td>
<td>1-200</td>
<td>Enabled and Active</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.

Effective Discharge Air Dewpoint Setpoint Output

network output SNVT_temp_p nvoEffDADewPtSP;

This output network variable is used to monitor the effective discharge air dewpoint setpoint that the Discharge Air Controller is using for control.

Typical Range

Typical Range is -20 °C to 30 °C.

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
**Discharge Air Dewpoint Temperature Output**

```cpp
network output SNVT_temp_p nvoDADEwPoint;
```

This output network variable indicates the current value of the discharge air dewpoint temperature.

**Typical Range**
The typical range is -20°C to 30°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.

---

**Condenser Capacity Output**

```cpp
network output SNVT_lev_percent nvoCondCap;
```

This output network variable reflects the current value of the condenser capacity control output for monitoring. This output variable can be used to provide condenser fan status for air cooled units or water valve status for water cooled units.

**Valid Range**
The valid range is 0 % to 100 % of condenser capacity. The value 0x7FFF = +163.835% will be sent as an invalid value.

**When Transmitted**
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

**Update Rate**
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

**Default Service Type**
The default service type is unacknowledged.
Local Condenser Water Temperature Output

network output SNVT_temp_p nvoLocalCWTemp;

This output network variable transmits the value of a locally wired Condenser Water Temperature sensor.

Typical Range
The typical range is 10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.

Condenser Water Temperature Output

network output SNVT_temp_p nvoCWTemp;

This output network variable indicates the current value of the condenser water temperature for monitoring. This value will reflect the network input nviCWTemp (if valid) or the value from a locally wired sensor.

Typical Range
The typical range is 10°C to 50°C. The value 0x7FFF = +327.67°C will be handled as an invalid value in case of a sensor failure.

When Transmitted
This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate
This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type
The default service type is unacknowledged.
Condenser Water Flow Output

network output SNVT_switch nvoCWFlow;

This output network variable transmits the current status of the condenser water flow sensor for monitoring.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Condenser Water Flow Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>No Flow</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
<td>Flow</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
Condenser Water Pump Output

network output SNVT_switch nvoCWpump;

This output network variable transmits the current state of the Condenser Water Pump output for monitoring or control.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Condenser Water Pump Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Pump Off</td>
</tr>
<tr>
<td>1</td>
<td>1-200</td>
<td>Pump On</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

When Transmitted

This variable is transmitted immediately when its value has changed significantly. Additionally, this network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Update Rate

This value will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value, if used (manufacturer-defined).

Default Service Type

The default service type is unacknowledged.
**Mandatory Configuration Properties**

### Send Heartbeat

```
network input config SNVT_time_sec nciSndHrtBt;
```

This configuration property defines the maximum period of time that expires before the specified network variable outputs will automatically be updated. The specific method for sending heartbeat updates is manufacturer-defined.

Network variable outputs can be defined in 2 categories for the use of send heartbeat, based upon whether they are specified for send heartbeat in the Network Variable Outputs Table, as shown below:

<table>
<thead>
<tr>
<th>Network Variable Output</th>
<th>Specified for Send Heartbeat in Table?</th>
<th>Result: Use Send Heartbeat?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Category 2</td>
<td>No</td>
<td>Manufacturer-defined</td>
</tr>
</tbody>
</table>

**Valid Range**

The valid range is any value between 0.0 sec and 6,553.4 sec. Setting `nciSndHrtBt = 0.0` disables the Send Heartbeat mechanism.

**Typical Default Value**

0 (no automatic update)

**SCPT Reference**

`SCPTmaxSendTime (49)`

### Discharge Air Cooling Setpoint

```
network input config SNVT_temp_p nciDAClSP;
```

This configuration property defines a default Discharge Air Cooling setpoint for the Discharge Air Controller.

**Typical Range**

0°C to 30°C

**Typical Default Value**

13°C

**SCPT Reference**

`SCPTdAClSP (TBD)`
**Discharge Air Heating Setpoint**

network input config SNVT_temp_p nciDAHtSP;

This configuration property defines a default Discharge Air Heating setpoint for the Discharge Air Controller.

**Typical Range**

10°C to 70°C

**Typical Default Value**

40°C

**SCPTReference**

SCPTdAHtSP (TBD)
Optional Configuration Properties

**Occupancy Temperature Setpoints**

```
network input config SNVT_temp_setpt nciSetpoints;
```

This configuration property defines the space temperature setpoints for the various heat, cool and occupancy modes. The specific use of these setpoints is manufacturer-defined. Some possible applications include using the unoccupied setpoints for setback/setup strategies and/or using the occupied heating setpoint for a morning warmup sequence.

The values of the individual setpoints within nciSetpoints must be kept in ascending order as follows: unoccupied_heat ≤ standby_heat ≤ occupied_heat ≤ occupied_cool ≤ standby_cool ≤ unoccupied_cool.

**Typical Range and Default Values**

<table>
<thead>
<tr>
<th>Setpoint</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>occupied_cool</td>
<td>10°C</td>
<td>35°C</td>
<td>23°C</td>
</tr>
<tr>
<td>standby_cool</td>
<td>10°C</td>
<td>35°C</td>
<td>25°C</td>
</tr>
<tr>
<td>unoccupied_cool</td>
<td>10°C</td>
<td>35°C</td>
<td>28°C</td>
</tr>
<tr>
<td>occupied_heat</td>
<td>10°C</td>
<td>35°C</td>
<td>21°C</td>
</tr>
<tr>
<td>standby_heat</td>
<td>10°C</td>
<td>35°C</td>
<td>19°C</td>
</tr>
<tr>
<td>unoccupied_heat</td>
<td>10°C</td>
<td>35°C</td>
<td>16°C</td>
</tr>
</tbody>
</table>

**SCPTReference**

SCPTsetPnts (60)

**Minimum Send Time**

```
network input config SNVT_time_sec nciMinOutTm;
```

This configuration property defines the minimum period of time between automatic network variable output transmissions. The specific use of nciMinOutTm is manufacturer-defined. For example, it can be applied to some network variable outputs (such as sensor values) but not to all network variable outputs.

Although this configuration property is optional, it must be provided if the minimum send time function is used in the controller. If this configuration property is not present, the controller cannot use the minimum send time function.

**Valid Range**

The valid range is any value between 0.0 sec and 6,553.4 sec. Setting nciMinOutTm = 0.0 disables the Minimum Send Time mechanism.

**Typical Default Value**

0 (no minimum send time)

**SCPTReference**

SCPTminSendTime (52)
**Receive Heartbeat**

network input config SNVT_time_sec  nciRcvHrtBt;

This configuration property is used to control the maximum time that elapses after the last update to a specified network variable input before the Discharge Air Controller starts to use its default values. Network variable inputs can be defined in 3 categories for use of receive heartbeat, based upon whether they are specified for receive heartbeat in the Network Variable Inputs Table and whether they are bound, as shown below:

<table>
<thead>
<tr>
<th>Category</th>
<th>Specified for Receive Heartbeat in Table?</th>
<th>Bound?</th>
<th>Result: Use Receive Heartbeat?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Category 2</td>
<td>Yes</td>
<td>No</td>
<td>Manufacturer-defined</td>
</tr>
<tr>
<td>Category 3</td>
<td>No</td>
<td>Don't Care</td>
<td>No</td>
</tr>
</tbody>
</table>

**Valid Range**
The valid range is any value between 0.0 sec and 6,553.4 sec. Setting nciRcvHrtBt = 0.0 disables the Receive Heartbeat mechanism.

**Typical Default Value**
0 (no failure detect)

**SCPTReference**
SCPTmaxRcvTime (48)

---

**Location Label**

network input config SNVT_str_asc  nciLocation;

This configuration property can optionally be used to provide more descriptive physical location information than can be provided by the Neuron Chip's 6 byte location string. The location relates to the object and not to the node.

**Valid Range**
Any NULL terminated ASCII string of 31 bytes total length.

**Typical Default Value**
The typical default value is an ASCII string containing all zeros ("\0").

**SCPTReference**
SCPTLocation (17)
**Local Bypass Time**

network input config SNVT_time_min nciBypassTime;

This configuration property defines the maximum amount of time that the controller can be in the Bypass (occupancy) mode following a single Bypass request from either a local (hardwired) bypass switch or nviOccManCmd. Additional Bypass requests can restart the timer.

**Typical Range**

The typical range is 0 to 240 minutes (4 hours). Setting nciBypassTime = 0 disables the Bypass function.

**Typical Default Value**

0 (no bypass allowed)

**SCPT Reference**

SCPTbypassTime (34)

---

**Maximum Supply Fan Capacity**

network input config SNVT_lev_percent nciMaxSupFanCap;

This configuration property defines the Maximum Supply Fan Capacity setpoint for the Discharge Air Controller. It is used in a manufacturer-specified way to limit the supply fan capacity.

**Valid Range**

0% to 100%

**Typical Default Value**

100%

**SCPT Reference**

SCPTmaxSupFanCap (TBD)
**Minimum Supply Fan Capacity**

network input config SNVT_lev_percent nciMinSupFanCap;

This configuration property defines the Minimum Supply Fan Capacity setpoint for the Discharge Air Controller. It is used in a manufacturer-specified way to limit the supply fan capacity.

**Valid Range**

0% to 100%

**Typical Default Value**

0%

**SCPT Reference**

SCPTminSupFanCap (TBD)

---

**Maximum Return/Exhaust Fan Capacity**

network input config SNVT_lev_percent nciMaxREFanCap;

This configuration property defines the Maximum Return/Exhaust Fan Capacity setpoint for the Discharge Air Controller. It is used in a manufacturer-specified way to limit the fan capacity.

**Valid Range**

0% to 100%

**Typical Default Value**

100%

**SCPT Reference**

SCPTmaxREFanCap (TBD)

---

**Minimum Return/Exhaust Fan Capacity**

network input config SNVT_lev_percent nciMinREFanCap;

This configuration property defines the Minimum Return/Exhaust Fan Capacity setpoint for the Discharge Air Controller. It is used in a manufacturer-specified way to limit the fan capacity.

**Valid Range**

0% to 100%

**Typical Default Value**

0%

**SCPT Reference**

SCPTminREFanCap (TBD)
Duct Static Pressure Setpoint

network input config SNVT_press_p nciDuctStatSP;

This configuration property defines a default Duct Static Pressure setpoint for the Discharge Air Controller.

Typical Range
0 Pascals (Pa) to 2500 Pa

Typical Default Value
500 Pa

SCPT Reference
SCPTductStatSP (TBD)

Maximum Duct Static Pressure Setpoint

network input config SNVT_press_p nciMaxDuctStatSP;

This configuration property defines the Maximum Duct Static Pressure setpoint for the Discharge Air Controller.

Typical Range
0 Pa to 2500 Pa

Typical Default Value
1000 Pa

SCPT Reference
SCPTmaxDuctStatSP (TBD)

Minimum Duct Static Pressure Setpoint

network input config SNVT_press_p nciMinDuctStatSP;

This configuration property defines the Minimum Duct Static Pressure setpoint for the Discharge Air Controller.

Typical Range
0 Pa to 2500 Pa

Typical Default Value
100 Pa

SCPT Reference
SCPTminDuctStatSP (TBD)
Duct Static Pressure Limit

network input config SNVT_press_p nciDuctStatLim;

This configuration property defines the Duct Static Pressure Limit for the Discharge Air Controller. This limit is used for equipment protection. Typically, if the duct static pressure exceeds this limit, unit operation will be stopped.

Typical Range
0 Pa to 4000 Pa

Typical Default Value
1500 Pa

SCPT Reference
SCPTDuctStatLim (TBD)

Building Static Pressure Setpoint

network input config SNVT_press_p nciBldgStaticSP;

This configuration property defines the Default Building Static Pressure setpoint for the Discharge Air Controller.

Typical Range
-100 Pa to 100 Pa

Typical Default Value
25 Pa

SCPT Reference
SCPTbldgStaticSP (TBD)

Return Fan Pressure Setpoint

network input config SNVT_press_p nciRetFanPressSP;

This configuration property defines the Return Fan Static Pressure setpoint for the Discharge Air Controller.

Typical Range
0 Pa to 50 Pa

Typical Default Value
10 Pa

SCPT Reference
SCPTretFanPresSP (TBD)
**Fan Differential Setpoint**

```plaintext
network input config SNVT_lev_percent nciFanDiffSP;
```

This configuration property defines the default setpoint for the percent capacity difference between the supply and return fans. The return fan will be controlled to maintain this differential in capacity below the supply fan.

**Typical Range**
0% to 50%

**Typical Default Value**
10%

**SCPT Reference**
SCPTfanDiffSP (TBD)

---

**Mixed Air Low Limit Setpoint**

```plaintext
network input config SNVT_temp_p nciMALowLimitSP;
```

This configuration property defines the mixed air low limit setpoint for the Discharge Air Controller.

**Typical Range**
-20°C to 40°C

**Typical Default Value**
7°C

**SCPT Reference**
SCPTmALowLimitSP (TBD)

---

**Mixed Air Temperature Setpoint**

```plaintext
network input config SNVT_temp_p nciMATSP;
```

This configuration property defines the default mixed air temperature setpoint for the Discharge Air Controller.

**Typical Range**
-20°C to 40°C

**Typical Default Value**
11°C

**SCPT Reference**
SCPTmATSP (TBD)
Outdoor Air Damper Minimum Position

network input config SNVT_lev_percent nciOAMinPos;
This configuration property defines a default Minimum Outdoor Air Damper Position setpoint for the Discharge Air Controller.

Typical Range
0% to 100%

Typical Default Value
10%

SCPT Reference
SCPTminRnge (23)

Minimum Outdoor Air Flow Setpoint

network input config SNVT_flow nciMinOAFlowSP;
This configuration property defines the default minimum outdoor air flow setpoint for the Discharge Air Controller.

Typical Range
0 to 50,000 l/sec

Typical Default Value
0 l/sec

SCPT Reference
SCPTminOAFlowSP (TBD)

Outdoor Air Flow Calibration

network input config SNVT_multiplier nciOAFlowCalib;
This configuration property defines the gain for the outdoor air flow calibration for the Discharge Air Controller.

Typical Range
0.000 to 2.000

Typical Default Value
1.000

SCPT Reference
SCPTsensConstVAV (67)
**Outdoor Air Inlet Area**

network input config SNVT_area nciOAInletArea;

This configuration property defines the Area of the Outdoor Air Inlet for the Discharge Air Controller. This value is used to determine the outdoor air flow.

**Typical Range**

0 to 10 square meters

**Typical Default Value**

0 square meters

**SCPT Reference**

SCPTductArea (46)

---

**Outdoor Air Temperature Setpoint**

network input config SNVT_temp_p nciOATSP;

This configuration property defines the airside economizer outdoor air temperature enable setpoint for the Discharge Air Controller.

**Typical Range**

0°C to 50°C

**Typical Default Value**

10°C

**SCPT Reference**

SCPToATSP (TBD)

---

**Outdoor Air Enthalpy Setpoint**

network input config SNVT_enthalpy nciOAEnthSP;

This configuration property defines the default airside economizer outdoor air enthalpy enable setpoint for the Discharge Controller.

**Typical Range**

25 to 80 K-Joules/Kg

**Typical Default Value**

40 K-Joules/Kg

**SCPT Reference**

SCPToAEnthSP (TBD)
**Economizer Enable Differential Temperature Setpoint**

network input config SNVT_temp_p nciTempDiff;

This configuration property defines the differential between entering (mixed) air temp and entering condenser water temp to enable economizer operation for the Discharge Air Controller.

**Typical Range**

0°C to 10°C

**Typical Default Value**

5°C

**SCPT Reference**

SCPTtempDiff (TBD)

---

**Exhaust Enable Position**

network input config SNVT_lev_percent nciExhStartPos;

This configuration property defines the exhaust enable outdoor air damper position setpoint for the Discharge Air Controller.

**Typical Range**

0% to 100%

**Typical Default Value**

25%

**SCPT Reference**

SCPtexhStartPos (TBD)

---

**Space Humidification Setpoint**

network input config SNVT_lev_percent nciSpaceHumSP;

This configuration property defines the default space humidification setpoint for the Discharge Air Controller.

**Valid Range**

0% to 100%

**Typical Default Value**

30%

**SCPT Reference**

SCPTspaceHumSP (TBD)
**Space Dehumidification Setpoint**

network input config SNVT_lev_percent nciSpaceDehumSP;

This configuration property defines the default space dehumidification setpoint for the Discharge Air Controller.

**Valid Range**

0% to 100%

**Typical Default Value**

60%

**SCPT Reference**

SCPTHumSetpt (36)

---

**Discharge Air Dewpoint Setpoint**

network input config SNVT_temp_p nciDADewPointSP;

This configuration property defines the default discharge air dewpoint setpoint for the Discharge Air Controller.

**Typical Range**

-20°C to 30°C

**Typical Default Value**

15°C

**SCPT Reference**

SCPTdADewPtSP (TBD)

---

**Maximum Discharge Air Cooling Setpoint**

network input config SNVT_temp_p nciMaxDAClSP;

This configuration property defines the maximum discharge air cooling setpoint for the Discharge Air Controller. It is used to limit the discharge air cooling setpoint determined by the discharge air temperature reset function.

**Typical Range**

0°C to 30°C

**Typical Default Value**

20°C

**SCPT Reference**

SCPTmaxDAClSP (TBD)
Minimum Discharge Air Cooling Setpoint

network input config SNVT_temp_p nciMinDAClSP;

This configuration property defines the minimum discharge air cooling setpoint for the Discharge Air Controller. It is used to limit the discharge air cooling setpoint determined by the discharge air temperature reset function.

**Typical Range**

0°C to 30°C

**Typical Default Value**

10°C

**SCPT Reference**

SCPTminDAClSP (TBD)

---

Maximum Discharge Air Heating Setpoint

network input config SNVT_temp_p nciMaxDAHtSP;

This configuration property defines the maximum discharge air heating setpoint for the Discharge Air Controller. It is used to limit the discharge air heating setpoint determined by the discharge air temperature reset function.

**Typical Range**

10°C to 70°C

**Typical Default Value**

50°C

**SCPT Reference**

SCPTmaxDAHtSP (TBD)

---

Minimum Discharge Air Heating Setpoint

network input config SNVT_temp_p nciMinDAHtSP;

This configuration property defines the minimum discharge air heating setpoint for the Discharge Air Controller. It is used to limit the discharge air heating setpoint determined by the discharge air temperature reset function.

**Typical Range**

10°C to 70°C

**Typical Default Value**

30°C

**SCPT Reference**

SCPTminDAHtSP (TBD)
**Cooling Lockout Temperature Setpoint**

network input config SNVT_temp_p nciCoolLockout;

This configuration property defines the outdoor air temperature cooling lockout setpoint for the Discharge Air Controller. When the outdoor air temperature is below this value, mechanical cooling will be disabled.

**Typical Range**

-10°C to 20°C. A value of 327.67°C (invalid) will disable this function.

**Typical Default Value**

10°C

**SCPT Reference**

SCPTcoolLockout (TBD)

---

**Heating Lockout Temperature Setpoint**

network input config SNVT_temp_p nciHeatLockout;

This configuration property defines the outdoor air temperature heating lockout setpoint for the Discharge Air Controller. When the outdoor air temperature is above this value, heating will be disabled.

**Typical Range**

0°C to 40°C. A value of 327.67°C (invalid) will disable this function.

**Typical Default Value**

20°C

**SCPT Reference**

SCPTheatLockout (TBD)
Cooling Reset Enable

network input config SNVT_switch nciCoolResetEn;

This configuration property is used to enable/disable the discharge air temperature cooling reset control for the Discharge Air Controller.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Cooling Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>1-255</td>
<td>Enabled</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Enabled (Invalid)</td>
</tr>
</tbody>
</table>

Typical Default Value

Disabled.

SCPTReference

SCPTcoolResetEn (TBD)

Heating Reset Enable

network input config SNVT_switch nciHeatResetEn;

This configuration property is used to enable/disable the discharge air temperature heating reset control for the Discharge Air Controller.

Valid Range

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Heating Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>n/a</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Disabled</td>
</tr>
<tr>
<td>1</td>
<td>1-255</td>
<td>Enabled</td>
</tr>
<tr>
<td>0xFF</td>
<td>n/a</td>
<td>Enabled (Invalid)</td>
</tr>
</tbody>
</table>

Typical Default Value

Disabled.

SCPTReference

SCPTheatResetEn (TBD)