

Partner: Nest
Model: Thermostat
Device Type: Thermostat



GENERAL INFORMATION

SIMPLWINDOWS NAME:	Nest Interface v2.0
CATEGORY:	HVAC
VERSION:	V2.0
SUMMARY:	This module will control/monitor up to 40 Nest thermostats via IP.
GENERAL NOTES:	<p>NOTE: This driver requires Crestron Database and Crestron Device Database v200 or newer</p> <p>This module will control/monitor up to 40 Nest thermostats via IP (2 locations with 20 thermostats per location). The module will need access to the internet, as it will communicate with the Nest devices via the Nest service.</p> <p>To interact with the Nest thermostats please go to the following link: https://home.nest.com/login/oauth2?client_id=9df7b1f9-6156-4aab-8f6a-7dafec71a0a7&state=STATE</p> <p>This will present a Works with Nest page that asks the user to grant access to our processor. This page also displays the permissions and justifications as well.</p> <p>Once "ACCEPT" is selected, a Pincode will be displayed. That Pincode will need to be entered in our module using the "Enter Pincode" text field located on the setup page of the Crestron demo interface. Press "Send" to submit the entered Pincode.</p> <p>If the Pincode is correct and an access token is received, "Authorization Successful" will be displayed on the screen and the list will populate with all of the Nest thermostats associated with the users account.</p> <p>NOTE: Each access token has a limited number of calls. Data rate limits apply to the commands send to the Nest service. These limits are designed to prevent overutilization of the Nest service. So, if too many commands are sent to a Nest thermostat, "Please try later" will appear on the GUI.</p>
CRESTRON HARDWARE REQUIRED:	3-Series Processor w/Ethernet port
SETUP OF CRESTRON HARDWARE:	Crestron processor will need access to the internet.
VENDOR FIRMWARE:	v5.1.8.-3
VENDOR SETUP:	N/A
CABLE DIAGRAM:	N/A

CONTROL:

Call_Up_Structures	D	Pulse to display the structures (homes) subpage if more than one home is present in the system.
Home_Away	D	Pulse to set the currently selected structure's away mode to either on or off.
Select_Structure_<1/2>	D	Pulse to select structure 1 or 2.

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Select_Thermostat_<1-20>	D	Pulse to select a thermostat within the currently selected structure.
Target_Temperature_<Up/Down>	D	Press to adjust the target temperature in heat or cool mode.
Target_Temperature_High_<Up/Down>	D	Press to adjust the high target temperature in heat-cool mode.
Target_Temperature_Low_<Up/Down>	D	Press to adjust the low target temperature in heat-cool mode.
HVAC_Mode_<Heat/Cool/Heat-Cool/Off>	D	Pulse to set the currently selected thermostat to mode.
PIN_Code_In	S	Use this serial input to add PIN code required to gain access to the Nest service.
Send_PIN_Code	D	Pulse to submit the added PIN code for access to the Nest service.
Retrieve_Status	D	Pulse to get the status of all devices in the current Nest account.

FEEDBACK:

Display_Structures_Subpage	D	Latches high to display structures selection subpage. Should only appear if more than one structure is available in the Nest account.
Selected_Structure_Text	S	Displays the name of the currently selected structure.
Selected_Structure_Away_Text	S	Displays the away status of the currently selected structure.
Structure_<1/2>_Is_Selected	D	Latches high to indicate which structure is selected.
Structure_<1/2>_Selection_Text	S	Displays the name of the structures.
Structure_<1/2>_Away_Text	S	Displays the away states of the structures.
Selected_Thermostat_Text	S	Displays the name of the currently selected thermostat.
Thermostat_<1-20>_Is_Selected	D	Latches high to indicate which thermostat is selected.
Thermostat_<1-20>_Selection_Text	S	Displays the names of the thermostats in the currently selected structure.
Number_Of_Thermostats	A	Indicates the number of thermostats available in the currently selected structure. To be connected to the "Set Num of Items" input on a Button List smart object.
Thermostat_Selected_Value	A	Indicates the index number of the currently selected thermostat. To be connected to the "Select Item" input on a Button List smart object.
Target_Temperature_<C/F>_Text	S	Displays the target temperature for heat or cool mode.
Target_Temperature_High_<C/F>_Text	S	Displays the high target temperature for heat-cool mode.

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Target_Temperature_Low_<C/F>_Text	S	Displays the low target temperature for heat-cool mode.
Ambient_Temperature_<C/F>_Text	S	Displays the current temperature.
Mode_Is_<Heat/Cool/Heat-Cool/Off>	D	Indicates that the mode of the currently selected thermostat is set to heat.
Error_Indicator	D	Indicates that an error has occurred. Use to enable error text message or display a subpage.
Error_Text	S	Displays the description of the error that occurred.
HVAC_Mode_Text	S	Displays the mode of the currently selected thermostat.
Is_Using_Emergency_Heat	D	Indicates that the currently selected thermostat is using emergency heat.
Fan_Timer_Is_Active	D	Indicates that the currently selected thermostat's fan timer is active.
Has_Leaf	D	Indicates that the currently selected thermostat has leaf status active.
Is_Online	D	Indicates that the currently selected thermostat is online.
Is_Offline	D	Indicates that the currently selected thermostat is offline.
Locale_Text	S	Displays the location of the currently selected thermostat.
Software_Version_Text	S	Displays the software version of the currently selected thermostat.
HVAC_State_Text	S	Displays the HVAC state of the currently selected thermostat (heating, cooling)
Humidity_Text	S	Displays the humidity reporting from the currently selected thermostat.
Display_Heat_Or_Cool_F	D	Latches high to display the heat or cool Fahrenheit subpage.
Display_Heat_Or_Cool_C	D	Latches high to display the heat or cool Celsius subpage.
Display_Heat-Cool_F	D	Latches high to display the heat-cool Fahrenheit subpage.
Display_Heat-Cool_C	D	Latches high to display the heat-cool Celsius subpage.
Display_Off_F	D	Latches high to display the off Fahrenheit subpage.
Display_Off_C	D	Latches high to display the off Celsius subpage.
Token_Status_Indicator	D	Indicates that an authorization status is available. Use to enable token status text message or display a subpage.
Token_Status_Text	S	Displays the status of the authorization after the PIN code is submitted to the Nest

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TESTING:

OPS USED FOR TESTING:	3-Series: v1.500.0013
SIMPL WINDOWS USED FOR TESTING:	4.14.20
DEVICE DB USED FOR TESTING:	200.00.015.00
CRES DB USED FOR TESTING:	200.00.004.00
SYMBOL LIBRARY USED FOR TESTING:	1112
SAMPLE PROGRAM/S:	Nest Interface v2.0 Demo PRO3.smw
REVISION HISTORY:	<p>v1.0 – Original release.</p> <p>v1.1 – Modified to handle error code 429.</p> <p>v1.2 – Modified to handle modified “rate limit reached” response.</p> <p>v1.3 - Added HVAC State and Humidity reporting. Added the ability to control 20 thermostats x 2 locations = 40 thermostats total.</p> <p>v1.4 – Resolved issue with controlling thermostats located in structure 2 immediately after system initialization.</p> <p>V2.0 – Update to Newtonsoft v4.0.8.0. Requires Crestron Database and Crestron Device Database v200 or newer</p>