Viconics VT7600 Series PIR-Ready Rooftop Unit Controllers
Part 1
General – The VT7600 series is designed for single-stage and multi-stage control of heating/cooling equipment such as rooftop and self-contained units. Non-communicating stand-alone as well as communicating BACnet, Echelon and Zigbee wireless models are available depending on the application. Programmable and non-programmable models, multi-stage with economizer function models as well as a heat pump model for three heating / two cooling stages are also available depending on the applications. All VT760xx5x00 models can be supplied or retrofitted with the VI-PIR cover with integrated PIR (passive infrared) motion sensors with advanced active occupancy logic.

Quality Assurance - The thermostat shall be manufactured within a certified **ISO-9001** and **ISO-14001** facility and must have the following industry approvals:
> **All models**:
> - UL 873 (US)
> - CSA C22.2 No.24 (CANADA)
> - File E27734 with CCN XAPX (US)
> - XAPX7 (CANADA)
> - Industry Canada : ICES-003 (Canada)
>
> **Stand-Alone, BACnet & LON models:**
> - FCC Compliant to CFR 47, Part 15, Subpart B, Class A (US)
> - CE EMC Directive 89/336/EEC (Europe Union)
> - C-Tick AS/NZS CISPR 22 Compliant (Australia / New Zealand) Supplier Code number N10696
>
> **Wireless models**
> - FCC: Compliant to: Part 15, Subpart C

VT7600 Series
General – The low-voltage rooftop unit thermostat shall be capable of (**single stage heating and cooling, multi-stage 2 heating / 2 cooling**) and shall be (**programmable / non-programmable**). The thermostat shall be (**a non-communicating stand-alone model, BACnet MS_TP communicating model, Echelon Lontalk communicating model or Zigbee wireless communicating model**).
- Thermostat shall be equipped with large, 2 line, 16 character LCD dual intensity backlit display with three status LEDs showing FAN, HEAT, COOL.
- Thermostat shall be supplied with (standard non-integrated PIR cover, VI-PIR cover with integrated motion sensor and advanced active occupancy logic) See below for sequence of operation.
- Thermostat shall achieve accurate temperature control using a PI proportional-integral algorithm. Traditional differential-based thermostats are not acceptable.
- Thermostat shall have an embedded local "real text" configuration utility for simplified sequence selection, start-up and configuration using an integrated five-button keypad. Thermostats requiring external configuration tools or network interface for start-up and configuration are not acceptable.
- Thermostat shall be supplied (**without networking interface, BACnet MS/TP network interface, Echelon Lontalk network interface, Zigbee wireless network interface**). BACnet MS/TP versions shall be provided with Protocol Implementation Conformance Statement or Lonmark approval disclosing all object/SNVT properties and instance numbers to facilitate the integration process. Echelon-Lontalk Communicating versions shall be provided with appropriate application files and LNS plug-in as required free of charge from the manufacturer.
- Thermostat shall utilize EEPROM memory to back up local configuration parameters in the event of power failure. Thermostats requiring batteries, or have no provisions for retention during loss of power shall not be acceptable. Thermostat shall have a 6 hour reserve time for internal clock in case of a power outage.
- Thermostat shall support continuous, "smart" and auto-fan sequences.
- Thermostat shall have integrated changeover function, which will allow seamless switching between cooling and heating mode based upon temperature or network value input.
- Thermostat shall be capable of local or remote override during unoccupied mode. The thermostat shall resume occupied setpoints and will revert back to unoccupied setpoints after a certain amount of time (adjustable from 0 – 24hours in one hour increments).
- Thermostat shall have configurable temporary or permanent local override setpoints. When the "temporary setpoints" mode is enabled, once the temporary occupancy timer expires, the setpoints will revert back to their default values.

- Thermostat shall have an adjustable deadband between heating and cooling setpoints (from 2°F to 4°F, 1°C to 2.0°C).
- Thermostat shall have an adjustable proportional band (from 2°F to 8°F, 1.1°C to 4.4°C).
- Thermostat shall have a unique configuration key with password protection to minimize parameter tampering.
- Thermostat shall have three (3) adjustable keypad lockout levels limiting access as follows:

Level	Resume/ Override scheduling	Permanent Occupied and Unoccupied Setpoints	Temporary setpoints using arrows	System mode setting	Fan mode setting	Schedules setting	Clock setting	Permanent hold
0	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access	Yes access
1	Yes access	No access	Yes access	No access	No access	No access	Yes access	No access
2	No access	No access	No access	No access	No access	No access	Yes access	No access

- Thermostat shall provide the following local monitoring capabilities:

  ❑ DI-1
  1. **None:** No function will be associated with the input (free input to be used for alarming or monitoring of a remote digital contact to be shared over a communications network).
  2. **Remote Night Setback:** Remote night setback timer clock input. Scheduling shall be set as per the binary input providing low cost setback operation via a dry contact.
  3. **Remote Override:** Temporary occupancy remote override contact. Local keypad override shall be disabled. Override function shall be controlled only by a manual remote toggle signal.
  4. **Filter:** A backlit flashing "Filter" alarm shall be displayed on the local thermostat LCD screen when input (from a differential pressure switch) is energized.
  5. **Service:** A backlit flashing Service alarm shall be displayed on the local thermostat LCD screen when input (ex. rooftop unit malfunction) is energized.
  6. **Fanlock:** A back-lit flashing "Fan lock" alarm shall be displayed on local the thermostat LCD screen when the input is not energized. Used in conjunction with a local airflow sensor connected to the input. The thermostat heating and cooling action shall be locked out if no airflow is detected 10 seconds after the fan (G terminal) is energized. Open contact = no airflow, Closed contacts = airflow present.

  ❑ DI-2
  1. **None:** No function will be associated with the input (free input to be used for alarming or monitoring of a remote digital contact to be shared over a communications network).
  2. **Remote Night Setback:** Remote night setback timer clock input. Scheduling shall be set as per the binary input providing low cost setback operation via a dry contact.
  3. **Remote Override:** Temporary occupancy remote override contact. Local keypad override shall be disabled. Override function shall be controlled only by a manual remote toggle signal.
  4. **Filter:** A backlit flashing "Filter" alarm shall be displayed on the local thermostat LCD screen when input (from a differential pressure switch) is energized.
  5. **Service:** A backlit flashing "Service" alarm shall be displayed on the local thermostat LCD screen when input (ex. rooftop unit malfunction) is energized.

- Thermostat shall have an auxiliary contact that can be used to energize peripheral devices such as lighting equipment, exhaust fans, economizers etc. This contact shall operate in parallel with the internal occupied / unoccupied schedule of the thermostat or the remote night setback contact. This auxiliary contact can be configured normally open or normally closed.
- Thermostat shall be pre-programmed, containing all required I/O to accomplish local HVAC temperature control.
- Thermostats shall be provided with intelligent HMI, to which will display services only as are available as switched through local digital input or network layer such as:

  - Outdoor air temperature display only enabled when outdoor air temperature sensor is connected
  - COM Address and various other parameters when a communication module is integrated inside the unit.

Heat pump model specific features:

- Heat pump model shall have adjustable high and low balance points to cut off either the heat pump or the auxiliary heating based on outside air temperature (when outside air temperature sensor is installed).
- Heat pump model shall have a "comfort" and "economy". When the thermostat is in "heating mode" and "comfort" mode is enabled, the auxiliary heating will turn on if the heat pump is not able to satisfy the heating setpoint. When "economy" mode is enabled, the auxiliary heating will only be energized when the temperature has dropped 2°F below the heating setpoint.

Economizer model specific features

- Economizer model shall have an adjustable changeover setpoint from 14°F to 70°F (-10.0°C to 21.0°C) based on outside air temperature. The thermostat will switch between mechanical (compressor) cooling or free cooling (economizer) based on this setpoint.
- Economizer model shall have an adjustable minimum outside air damper position from 0% to 100%. This function shall be enabled on when the thermostat is in "occupied" mode.
- Economizer model shall have an adjustable free cooling mixed air setpoint 50°F to 90°F (10.0°C to 32.0°C) if mixed air temperature sensor is installed. The thermostat shall have the ability to display the mixed air temperature directly on the local LCD screen.

VI-PIR Viconics Passive Infrared Cover

- Thermostat shall be supplied with (or capable of being retrofitted on site) with the VI-PIR cover. Passive infrared sensor shall be integrated into the cover of the thermostat. Controls with remote motion detectors are not acceptable.
- Thermostat shall have an adjustable "Unoccupied timer" integrated to change the occupancy mode from "Occupied" to "Unoccupied" if no motion is detected. Controls with motion detectors that only switch from "Unoccupied" mode to "Occupied" mode without a third occupancy mode are not acceptable.

Thermostats shall be Viconics, model **VT76xxx5000x**

Thermostats shall be Viconics, **model VT76xxx5500x** with integrated motion sensor and advanced active occupancy logic.

BACnet Integration -Objects

Objects Table

Object Name	Type and Instance	Object Property	VT7600 A5x00B	VT7652 A5x00B	VT7600 B5x00B	VT7652 B5x00B	VT7606 B5x00B	VT7656 B5x00B	VT7607 B5x00B	VT7657 B5x00B	VT7600 H5x00B	VT7652 H5x00B
Room Temperature	AV 7	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Room Temp Override	BV 8	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Outdoor Temperature	AV 9	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Outdoor Temp Override	BV 10	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Room Humidity	AV 11	Present_Value (R)							√	√		
Occupancy Command	MV 12	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
System Mode HP	MV 13	Present_Value (R,W)									√	√
System Mode RTU	MV 14	Present_Value (R,W)	√	√	√	√	√	√	√	√		
Fan Mode	MV 15	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Supply Temp	AI 16	Present_Value (R)	√	√	√	√	√	√			√	√
Supply RH	AV 17	Present_Value (R)							√	√		
Keypad Lockout	MV 18	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Control Output	GR 19	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
PI Heating Demand	AV 20	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
PI Cooling Demand	AV 21	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Economizer Output	AV 22	Present_Value (R)					√	√				

5

BACnet Integration -Objects

Object Name	Type and Instance	Object Property	VT7600A5x00B	VT7652A5x00B	VT7600B5x00B	VT7652B5x00B	VT7605B5x00B	VT7656B5x00B	VT7607B5x00B	VT7657B5x00B	VT7600H5x00B	VT7652H5x00B
Controller Status	GRP 23	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
AUX	BI 24	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
G Fan	BI 25	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Y1 Cool	BI 26	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Y2 Cool	BI 27	Present_Value (R)			√	√	√	√	√	√	√	√
W1 Heat	BI 28	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
W2 Heat	BI 29	Present_Value (R)		√	√	√	√	√	√			
Reversing Valve	BI 30	Present_Value (R)									√	√
DI 1 Status	BI 31	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
DI 2 Status	BI 32	Present_Value (R)	√	√	√	√	√	√			√	√
Local Motion	BI 33	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Effective Occupancy	MV 34	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Controller Alarms	GRP 35	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Frost Alarm	BI 36	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Clock Alarm	BI 37	Present_Value (R)		√		√		√		√		√
Filter Alarm	BI 38	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Service Alarm	BI 39	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Fan Lock Alarm	BI 40	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Temperature Setpoints	GRP 41	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Occupled Heat Setpoint	AV 42	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Occupled Cool Setpoint	AV 43	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Unoccupied Heat Setpoint	AV 44	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Unoccupied Cool Setpoint	AV 45	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√

BACnet Integration -Objects

Object Name	Type and Instance	Object Property	VT7600A5x00B	VT7652A5x00B	VT7600B5x00B	VT7652B5x00B	VT7605B5x00B	VT7656B5x00B	VT7607B5x00B	VT7657B5x00B	VT7600H5x00B	VT7652H5x00B
General Options 1-	GRP 46	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Temperature Scale	BV 47	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Heating Setpoint Limit	AV 48	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Cooling Setpoint Limit	AV 49	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Heating Lockout Temperature	AV 50	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Cooling Lockout Temperature	AV 51	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Deadband	AV 52	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Heating CPH	MV 53	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Cooling CPH	MV 54	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Frost Protection	BV 55	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Aux Contact	BV 56	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Menu Scroll	BV 57	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
General Options 2-	GRP 58	Present_Value (R)	√	√	√	√	√	√	√	√	√	√
Password Value	AV 59	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Power-up Delay	AV 60	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Temporary Occupancy Time	MV 61	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Fan Control	BV 62	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Anticycle	MV 63	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Fan Purge Delay	BV 64	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
DI 1 Configuration	MV 65	Present_Value (R,W)	√	√	√	√	√	√	√		√	√
DI 2 Configuration	MV 66	Present_Value (R,W)	√	√	√	√	√	√			√	√
Proportional Band	MV 67	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√
Unoccupied Time	AV 68	Present_Value (R,W)	√	√	√	√	√	√	√	√	√	√

BACnet Integration -Objects

Object Name	Type and Instance	Object Property	VT7600A5x00B	VT7652A5x00B	VT7600B5x00B	VT7652B5x00B	VT7605B5x00B	VT7656B5x00B	VT7607B5x00B	VT7657B5x00B	VT7600H5x00B	VT7652H5x00B
Programmable Model Configuration Options	GRP 69	Present_Value (R)		√		√		√		√		√
Progressive Recovery	BV 70	Present_Value (R,W)		√		√		√		√		√
Event Display	MV 71	Present_Value (R,W)		√		√		√		√		√
Stages Configuration Options	GRP 72	Present_Value (R)			√	√	√	√	√	√	√	√
Heating Stages	MV 73	Present_Value (R,W)			√	√	√	√	√	√		
Cooling Stages	MV 74	Present_Value (R,W)			√	√	√	√	√	√		
Heatpump Stages	MV 75	Present_Value (R,W)									√	√
Economizer Model Configuration Options	GRP 76	Present_Value (R)					√	√				
Economizer Changeover Setpoint	AV 77	Present_Value (R,W)					√	√				
Economizer Minimum Position	AV 78	Present_Value (R,W)					√	√				
Mechanical Cooling Enabled	BV 79	Present_Value (R,W)					√	√				
Mixed Air Setpoint	AV 80	Present_Value (R,W)					√	√				
Heatpump Model Configuration Options	GRP 81	Present_Value (R)									√	√
High Balance Point	AV 82	Present_Value (R,W)									√	√
Low Balance Point	AV 83	Present_Value (R,W)									√	√
Comfort Mode	BV 84	Present_Value (R,W)									√	√
Reversing Valve Configuration	BV 85	Present_Value (R,W)									√	√
Compressor Interlock	BV 86	Present_Value (R,W)									√	√

8

BACnet Integration -Objects

Object Name	Type and Instance	Object Property	VT7600A5x00B	VT7652A5x00B	VT7600B5x00B	VT7652B5x00B	VT7605B5x00B	VT7656B5x00B	VT7607B5x00B	VT7657B5x00B	VT7600H5x00B	VT7652H5x00B
Dehumidification Model Configuration Options	GRP 87	Present_Value (R)							√	√		
RH Display	BV 88	Present_Value (R,W)							√	√		
Dehumidification RH Setpoint	AV 89	Present_Value (R,W)							√	√		
Dehumidification Hysterisys	AV 90	Present_Value (R,W)							√	√		
Dehumidification Low OA Lockout	AV 91	Present_Value (R,W)							√	√		
Dehumidification Lockout Functions	BV 92	Present_Value (R,W)							√	√		
Dehumidification Output Status	BI 93	Present_Value (R)							√	√		
Humidification Model Configuration Options	GRP 94	Present_Value (R)							√	√		
Humidification RH Setpoint	AV 95	Present_Value (R,W)							√	√		
Eff (Effective) Reset Humidification RH Spt (Setpoint)	AV 96	Present_Value (R)							√	√		
Humidification High Limit Spt (Setpoint)	AV 97	Present_Value (R,W)							√	√		
Low RH Setpoint	AV 98	Present_Value (R,W)							√	√		
Low Temp Reset RH Setpoint	AV 99	Present_Value (R,W)							√	√		
High Temp Reset RH Setpoint	AV 100	Present_Value (R,W)							√	√		
Humidifier Output	AV 101	Present_Value (R)							√	√		
Local Schedule	SCH 102	Present_Value (R,W)		√		√		√		√		√

ECHELON -LON Integration

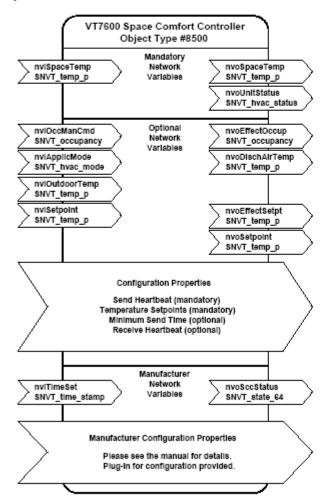PID History Revision Table ————————————————————————————

XIF, APB and NXE File Names and Corresponding PIDs. This manual information is to be used only with the current released VT7600 PIR ready thermostats.

Used on current released thermostat	APB / NXE / XIF file names	Revision Level	Associated PID
PIR Ready VT7600 Series	VT76_PIR.XIF	Rev 3.0	80:00:C5:55:00:04:04:21

This manual information is *NOT* to be used only with the previously released VT7600 thermostats.

Previously released thermostat	APB / NXE / XIF file names	Revision Level	Associated PID
Non-RoHS VT7600 Series	VT7600.XIF	Rev 2.0 to 2.5	80:00:C5:55:00:04:04:02
RoHS VT7600 Series	VT7600r.XIF	Rev 2.0 to 2.5	80:00:C5:55:00:04:04:12
Non-RoHS T7600 Series	T7600.XIF	Rev 1.0	80:00:C5:55:00:04:04:0A

Thermostat Objects ————————————————————————————

VT7600 Space Comfort Controller
Object Type #8500

Mandatory Network Variables

nviSpaceTemp SNVT_temp_p → nvoSpaceTemp SNVT_temp_p
nvoUnitStatus SNVT_hvac_status

Optional Network Variables

nviOccManCmd SNVT_occupancy → nvoEffectOccup SNVT_occupancy
nviApplicMode SNVT_hvac_mode → nvoDischAirTemp SNVT_temp_p
nviOutdoorTemp SNVT_temp_p
nviSetpoint SNVT_temp_p → nvoEffectSetpt SNVT_temp_p
nvoSetpoint SNVT_temp_p

Configuration Properties

Send Heartbeat (mandatory)
Temperature Setpoints (mandatory)
Minimum Send Time (optional)
Receive Heartbeat (optional)

Manufacturer Network Variables

nviTimeSet SNVT_time_stamp → nvoSccStatus SNVT_state_64

Manufacturer Configuration Properties

Please see the manual for details.
Plug-In for configuration provided.

3

ECHELON -LON Integration

SNVTs[1] and SCPTs[2] Table Per Model ————————————————

No	Sub	Point Name	Type	VT7656B5x00E	VT7600B5x00E	VT7652B5x00E	VT7600B5x00E	VT7652A5x00E	VT7600A5x00E	VT7652H5x00E	VT7600H5x00E
0		nviSpaceTemp	SNVT_temp_p	X	X	X	X	X	X	X	X
1		nviOutdoorTemp	SNVT_temp_p	X	X	X	X	X	X	X	X
2		nviOccManCmd	SNVT_occupancy	X	X	X	X	X	X	X	X
3		nviApplicMode	SNVT_hvac_mode	X	X	X	X	X	X	X	X
4		nviSetpoint	SNVT_temp_p	X	X	X	X	X	X	X	X
5		nviTimeSet	SNVT_time_stamp	X	N/A	X	N/A	X	N/A	X	N/A
6		nciDaySched[0]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
7		nciDaySched[1]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
8		nciDaySched[2]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
9		nciDaySched[3]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
10		nciDaySched[4]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
11		nciDaySched[5]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
12		nciDaySched[6]	UNVT_day_sched	X	N/A	X	N/A	X	N/A	X	N/A
13		nciSetPts	SNVT_temp_setpt	X	X	X	X	X	X	X	X
	1	occupied_cool		x	x	x	x	x	x	x	x
	3	unoccupied_cool		x	x	x	x	x	x	x	x
	4	occupied_heat		x	x	x	x	x	x	x	x
	6	unoccupied_heat		x	x	x	x	x	x	x	x
14		nciCfg1RtuHp	UNVT_cfg_1_rtu_hp	X	X	X	X	X	X	X	X
Associate with UNVT_cfg_1_rtu_hp format file											
	1	password	Unsigned-Long	x	x	x	x	x	x	x	x
	2	unoccupied_timer	Unsigned-Short	x	x	x	x	x	x	x	x
	3	anticycle	Unsigned-Short	x	x	x	x	x	x	x	x
	4	power_up_delay	Unsigned-Short	x	x	x	x	x	x	x	x
	5	temporary_occ_time	Unsigned-Short	x	x	x	x	x	x	x	x
	6	heating_stages_CPH	Unsigned-Short	x	x	x	x	x	x	x	x
	7	cooling_stages_CPH	Unsigned-Short	x	x	x	x	x	x	x	x
	8	heat_max_setpoint	SNVT_temp_p	x	x	x	x	x	x	x	x
	9	cool_min_setpoint	SNVT_temp_p	x	x	x	x	x	x	x	x
	10	OA_temp_heat_lockout	SNVT_temp_p	x	x	x	x	x	x	x	x
	11	OA_temp_cool_lockout	SNVT_temp_p	x	x	x	x	x	x	x	x
	12	calib_room_sensor	SNVT_temp_diff_p	x	x	x	x	x	x	x	x
	13	calib_outside_air_sensor	SNVT_temp_diff_p	x	x	x	x	x	x	x	x
	14	deadband	Unsigned-Short	x	x	x	x	x	x	x	x
	15	fan_mode	Enumeration Set Used: fan_mode_b-t	x	x	x	x	x	x	x	x
	16	fan_control	Enumeration Set Used: off_on_state_t	x	x	x	x	x	x	x	x
	17	fan_delay	Enumeration Set Used: off_on_state_t	x	x	x	x	x	x	x	x
	18	keypad_lockout	Enumeration Set Used: rem_lock_t	x	x	x	x	x	x	x	x
	19	proportional_band	Unsigned-Short	x	x	x	x	x	x	x	x
	20	temperature_units	Enumeration Set Used: temp_unit_t	x	x	x	x	x	x	x	x
	21	frost_protection	Enumeration Set Used: off_on_state_t	x	x	x	x	x	x	x	x
	22	menu_scroll	Enumeration Set Used: scroll_type_t	x	x	x	x	x	x	x	x

1: SNVTs: Standard Network Variables Types
2: SCPTs: Standard Configuration Parameters Types

ECHELON -LON Integration

No	Sub	Point Name	Type	VT7656B5x00E	VT7605B5x00E	VT7652B5x00E	VT7600B5x00E	VT7652A5x00E	VT7600A5x00E	VT7652H5x00E	VT7600H5x00E
15		nciCfg2RtuHp	UNVT_cfg_2_rtu_hp	X	X	X	X	N/A	N/A	X	X
Associate with UNVT_cfg_2_rtu_hp format file											
	1	di1_config	Enumeration Set Used: input_cfg_model_d_t	x	x	x	x	x	x	x	x
	2	di2_config	Enumeration Set Used: input_cfg_model_d_t	x	x	x	x	x	x	x	x
	3	aux_contact_config	Enumeration Set Used: aux_contact_cfg_t	x	x	x	x	x	x	x	x
	4	number_of_events	Enumeration Set Used: nb_of_events_t	x	N/A	x	N/A	x	N/A	x	N/A
	5	progresive_recovery	Enumeration Set Used: off_on_state_t	x	N/A	x	N/A	x	N/A	x	N/A
	6	a.hp_rev_valve_config	Enumeration Set Used: rev_valve_b_t	N/A	N/A	N/A	N/A	N/A	N/A	x	x
	7	a.number_of_heating_stages	Enumeration Set Used: nb_stages_t	x	x	x	x	N/A	N/A	N/A	N/A
	8	number_of_cool_or_hp_stages	Enumeration Set Used: nb_stages_t	x	x	x	x	N/A	N/A	x	x
	9	econo_min_position	SNVT_lev_percent	x	x	N/A	N/A	N/A	N/A	N/A	N/A
	10	b.hp_high_balance_point	SNVT_temp_p	N/A	N/A	N/A	N/A	N/A	N/A	x	X
	11	b.econo_changeover_setpoint	SNVT_temp_p	x	x	N/A	N/A	N/A	N/A	N/A	N/A
	12	c.hp_low_balance_point	SNVT_temp_p	N/A	N/A	N/A	N/A	N/A	N/A	x	x
	13	c.econo_mixed_air_setpoint	SNVT_temp_p	x	x	N/A	N/A	N/A	N/A	N/A	N/A
	14	d.hp_comfort_or_economy_mode	Enumeration Set Used: mode_t	N/A	N/A	N/A	N/A	N/A	N/A	x	x
	15	d.econo_mechanical_cool_enable	Enumeration Set Used: off_on_state_t	x	x	N/A	N/A	N/A	N/A	N/A	N/A
	16	hp_compressor_auxheat_interlock	Enumeration Set Used: off_on_state_t	N/A	N/A	N/A	N/A	N/A	N/A	x	x
16		nciHvacType	SNVT_hvac_type	X	X	X	X	X	X	X	X
17		nciSccModel	UNVT_model_numbe	X	X	X	X	X	X	X	X
	1	Thermostat Model		x	x	x	x	x	x	x	x
	2	Software Version		x	x	x	x	x	x	x	x
18		nvoSpaceTemp	SNVT_temp_p	X	X	X	X	X	X	X	X
19		nvoUnitStatus	SNVT_hvac_status	X	X	X	X	X	X	X	X
	1	mode		x	x	x	x	x	x	x	x
	2	heat_output_primary		x	x	x	x	x	x	x	x
	3	heat_output_secondary		N/A	N/A	N/A	N/A	N/A	N/A	x	x
	4	cool_output		x	x	x	x	x	x	x	x
	5	econo_output		x	x	N/A	N/A	N/A	N/A	N/A	N/A
	6	Fan_output		x	x	x	x	x	x	x	x
	7	in_alarm		x	x	x	x	x	x	x	x
20		nvoDischAirTemp	SNVT_temp_p	X	X	X	X	X	X	X	X
21		nvoEffectOccup	SNVT_occupancy	X	X	X	X	X	X	X	X

5

ECHELON -LON Integration

No	Sub	Point Name	Type	VT7656B5x00E	VT7605B5x00E	VT7652B5x00E	VT7600B5x00E	VT7652A5x00E	VT7600A5x00E	VT7652H5x00E	VT7600H5x00E
22		nvoSccStatus	UNVT_thermo_state_rtu UNVT_thermo_state_hp	X	X	X	X	X	X	X	X
For all non heatpump models, associate with UNVT_thermo_state_rtu											
	1	fan_output	True bit index 2	x	x	x	x	x	x	x	x
	2	cooling_stage_1	True bit index 3	x	x	x	x	x	x	x	x
	3	cooling_stage_2	True bit index 4	x	x	x	x	N/A	N/A	x	x
	4	auxiliary_contact	True bit index 5	x	x	x	x	x	x	x	x
	5	heating_stage_1	True bit index 6	x	x	x	x	x	x	x	x
	6	heating_stage_2	True bit index 7	x	x	x	x	x	x	x	x
	7	service_alarm	True bit index 12	x	x	x	x	x	x	x	x
	8	filter_alarm	True bit index 13	x	x	x	x	x	x	x	x
	9	di2_direct_status	True bit index 17	x	x	x	x	x	x	x	x
	10	di1_direct_status	True bit index 18	x	x	x	x	x	x	x	x
	11	set_clock_alarm	True bit index 22	x	N/A	x	N/A	x	N/A	x	N/A
	12	frost_protection_alarm	True bit index 23	x	x	x	x	x	x	x	x
	13	local_pir_motion	True bit index 24	x	x	x	x	x	x	x	x
	14	fan_lock_alarm	True bit index 25								
For all heatpump models, associate with UNVT_thermo_state_hp											
	1	fan_output	True bit index 2	x	x	x	x	x	x	x	x
	2	compressor_stage_1	True bit index 3	x	x	x	x	x	x	x	x
	3	compressor_stage_2	True bit index 4	x	x	x	x	N/A	N/A	x	x
	4	auxiliary_contact	True bit index 5	x	x	x	x	x	x	x	x
	5	heating_stage_1	True bit index 6	x	x	x	x	x	x	x	x
	6	reversing valve	True bit index 7	x	x	x	x	x	x	x	x
	7	service_alarm	True bit index 12	x	x	x	x	x	x	x	x
	8	filter_alarm	True bit index 13	x	x	x	x	x	x	x	x
	9	di2_direct_status	True bit index 17	x	x	x	x	x	x	x	x
	10	di1_direct_status	True bit index 18	x	x	x	x	x	x	x	x
	11	set_clock_alarm	True bit index 22	x	N/A	x	N/A	x	N/A	x	N/A
	12	frost_protection_alarm	True bit index 23	x	x	x	x	x	x	x	x
	13	local_pir_motion	True bit index 24	x	x	x	x	x	x	x	x
	14	fan_lock_alarm	True bit index 25								
23		nvoEffectSetpt	SNVT_temp_p	X	X	X	X	X	X	X	X
24		nvoSetpoint	SNVT_temp_p	X	X	X	X	X	X	X	X
25		nciSndHrtBt	SNVT_time_sec	X	X	X	X	X	X	X	X
26		nciMinOutTm	SNVT_time_sec	X	X	X	X	X	X	X	X
27		nciRcvHrtBt	SNVT_time_sec	X	X	X	X	X	X	X	X
28		nciMajVer	SCPT_maj_ver	X	X	X	X	X	X	X	X
29		nciMinVer	SCPT_min_ver	X	X	X	X	X	X	X	X
30		nciLocation	SNVT_str_asc	X	X	X	X	X	X	X	X

6