MicroTech 2000™ Water Source Heat Pump Unit Controller Protocol Information

LonWorks® Networks

LONMARK® 3.3

DAIKIN

Table of Contents

Reivison History

ED 15054-0	December 13, 2001	Initial release.
ED 15054-1	August 5, 2004	Added LonMark 3.3 certification statement.
ED 15054-1	December 22, 2004	Minor revisions.
ED 15054-2	June, 2012	Added FT-X1 transciever and other minor revisions for new hardware design. Updated Daikin logo and associated references.
ED 15054-3	October, 2012	Correct formula for calculating occupied heat/cool on p.24

Software Revision

This edition documents revision 3D of the standard Daikin MicroTech 2000 Water Source Heat Pump Unit Controller application software version WHPE3D and all subsequent revisions until otherwise indicated. It may be read directly from the controller from the neoIdent network variable (See Software Identification). Please contact the Controls Customer Support group at 866-462-7829 for a later version of this document if you encounter a software identification string other than what is shown in the above table.

Reference Documents

Company	Number	Title	Source
Daikin	IM 660	MicroTech 2000 WSHP Installation and Maintenance Manual	www.DaikinApplied.com
Daikin	OM128	MicroTech 2000 WSHP Operation Manual	www.DaikinApplied.com
LonMark Interoperability Association	8051	LonMark Functional Profile: Heat Pump with Temperature Control	www.lonmark.org

Notice

Limited Warranty

Consult your local Daikin Representative for warranty details. Refer to Form 933-430285Y. To find your local Daikin Representative, go to www.DaikinApplied.com.

Introduction

This document contains the information required to interface directly to MicroTech 2000™ Water Source Heat Pump Unit Controllers. If the network has already been wired and commissioned, you can skip to the section listing the LONWORKS network variables.

LONWORKS Networks

LONWORKS technology, developed by Echelon Corporation, is the basis for LONMARK interoperable systems. This technology is independent of the communications media. The LONMARK Interoperable Association has developed standards for interoperable LONWORKS technology systems. In particular they have published standards for HVAC equipment including the Water Source Heat Pump Functional Profile. These profiles specify a number of required and optional standard network variables and standard configuration parameters. This manual defines these variables and parameters available in the MicroTech 2000 Water Source Heat Pump Unit Controller.

Compatibility

The MicroTech 2000 Water Source Heat Pump Unit Controllers operate in accordance with the Water Source Heat Pump (WSHP) functional profile from LONMARK International.

LONWORKS Variables

MicroTech 2000 Water Source Heat Pump Unit Controllers incorporate LONWORKS network variables to access unit data points. The controller uses LONWORKS Standard Network Variable Types (SNVT) from the profile. Some data points can be adjusted (input network variables, nvi and configuration variables, nci, e.g., setpoints) from the network and others can only be interrogated (output network variables, nvo, e.g., status information).

Each data point accessible from a LONWORKS network is described with a table that gives the LONWORKS Name, Profile, SNVT Type, and SNVT Number. If the variable is a standard configuration variable, the table also includes the SCPT Reference and the SCPT Number. Refer to www.lonmark.org for additional information and XIF files.

Field Wiring

Following are descriptions of the various field wiring requirements and options. All possible field-wiring connections are shown in Figure 1.

Note: Wiring must comply with the National Electrical Code and all local codes and ordinances. The warranty is void if the field wiring is not in accordance with these instructions.

MicroTech 2000 Network Communications

All MicroTech 2000 controllers communicate on the LON via an FTT-10A or FT-X1 transceiver. This transceiver allows for (1) *free topology* network wiring schemes using twisted pair (unshielded) cable and (2) polarity insensitive terminations at each node.

As shown in Figure 1, free topology means that the following network topologies are possible:

Bus

Ring

Star

Any combination of Bus, Ring, and Star

Figure 1. Free Topology Networks
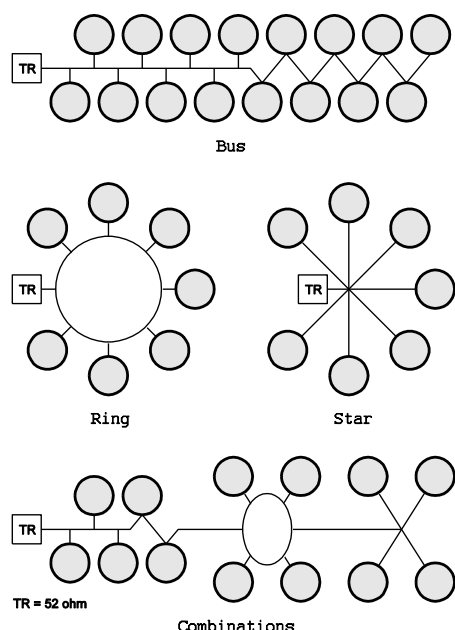
Although free topology wiring is flexible, there are a few restrictions:

1.   The maximum number of nodes per segment is 64.

2.   The maximum node-to-node distance is 1312 ft (400m).

3.   The longest cable path between any possible pair of nodes on a segment must not exceed the maximum node-to-node distance. If two or more paths exist between a pair of nodes (e.g., a loop topology), the longest path should be considered. Note that in a bus topology, the longest node-to-node distance is equal to the total cable length.

4.   The maximum total cable length is 1640 ft (500m).

5.   The total length of all cable in a segment must not exceed the maximum total cable length.

6.   One 52.3-ohm (0.25 W, 1%) termination resistor is required in each segment.

Qualified Cables

Echelon has qualified three twisted-pair network communications cables that are available from a large number of different sources. Some local codes or applications may require the use of plenum rated cable. The following cables meet this specification.

1.   TIA568A Category 5 cable (24AWG/0.51mm)

2.   NEMA Level IV cable (22AWG/0.65mm)

3.	Generic 16AWG (1.3mm) (similar to Belden 85102)

Do not install the cable in the same conduit with power wiring. The temperature of the cable must not exceed 131×F (55×C).

Note:	Ideally, one continuous piece of cable should connect any two controllers. This reduces the risk of communications errors. If the cable must be spliced, use crimp-type butt connectors (better) or solder (best). Do not use wire nuts.

Wiring Instructions

Wiring a MicroTech 2000 network is simplified by the following:

1.	Free topology may be used.
2.	Only two terminations are required at each node.
3.	Those terminations may be made without regard for polarity.

MicroTech 2000 controllers are equipped with field terminals for the network communications terminations, which are summarized in Table 1. Internal factory wiring connects the node to the field terminals. Refer to Figure 4 for a typical wiring schematic.

Table 1: Network Communications Field Wiring Terminals

MicroTech 2000 Controller	Terminal "A"	Terminal "B"
WSHP	5 on TB1	6 on TB1

Figure 4. Typical Field Wiring Schematic (Free Topology shown)
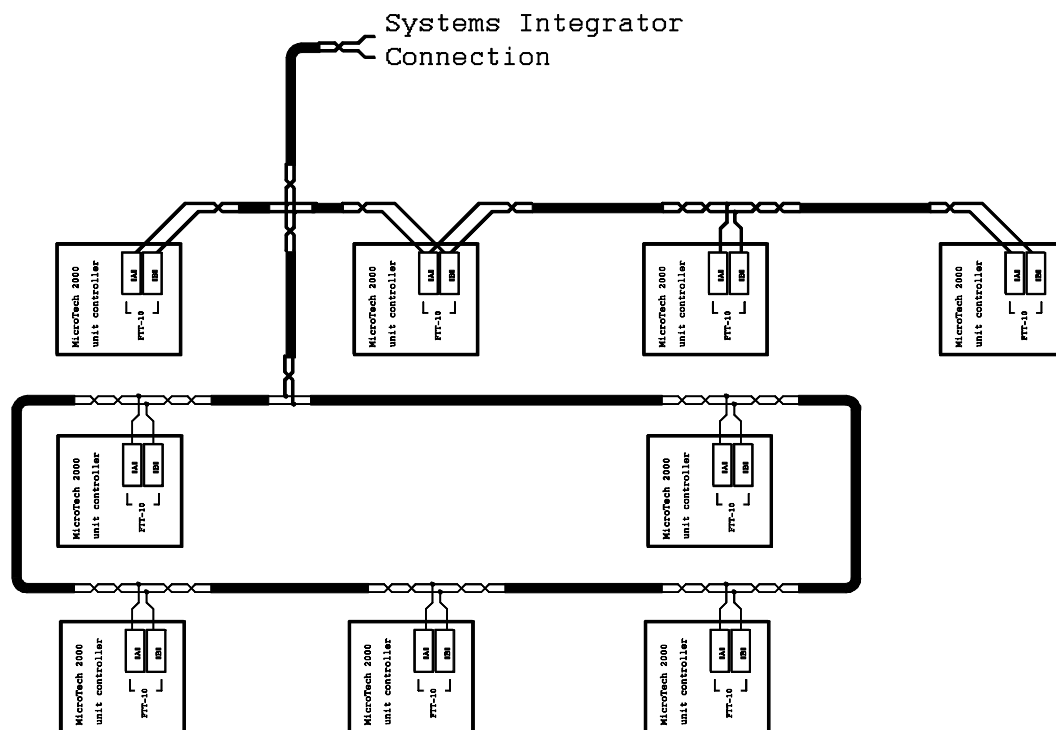
Note:	Network wiring is completely independent of controller addressing. Therefore, the networked controllers can be wired in any order. This allows, for example, an electrician to perform the wiring and a technician—who has no knowledge of the wiring—to perform the addressing later during the commissioning process.

Use the following guidelines as you wire the network:

- Observe the topology restrictions described above.
- Use care to assure that no shorts or opens exist in the network.

Note: The resistance across the conductors from the termination resistor(s) should be approximately 52 ohms, *but this resistance can only be measured on an ohmmeter when all nodes are* disconnected *from the network cable.* This is true because the impedance across an unpowered FT-X1* or FTT-10A transceiver is approximately 6 ohms. Because disconnecting all nodes may be difficult and time consuming, we recommend not doing it unless communications problems arise during the commissioning process.

*As of 2012, MicroTech 2000 WSHP unit controllers ship with the FT-X1 transceiver. The specifications, wiring, and communication capability is identical to the FTT-10A transceiver found on older controllers.

When making wire splices and multiple-wire terminations, always match wire color to reduce the risk of shorts. This precaution is especially important when wiring ring topologies.

Although free topology allows for very flexible, ad hoc wiring, it is recommended that the installing contractor record the physical positions of the cable runs and the controllers on a floor plan. This facilitates troubleshooting any network communications problems that may occur during installation or later.

By looking at the internal factory wiring, assure that each node is connected to the network. The connection at a MicroTech 2000 controller is typically an insulation-displacement type (IDC) plug-in connector. These connectors should be connected to their controllers. Since controller addressing can be done remotely, this eliminates the need for a technician to return to each unit during the commissioning process.

Output Network Variables

Active Cooling Setpoint

This output network variable indicates the active cooling setpoint to which the unit is controlling.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoActiveClgSpt	Proprietary	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Active Heating Setpoint

This output network variable indicates the active heating setpoint to which the unit is controlling.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoActiveHtgSpt	Proprietary	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Current Compressor 1 Fault

This output network variable indicates the current fault condition for compressor number one. A compressor fault disables the compressor until you clear the fault.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoCompFaults1	Proprietary	SNVT_count	8

Measurment	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Value (Decimal)	Binary	Hexadecimal	Definition
205	11001101	CD	Low Temp
206	11001110	CE	Low Pressure
207	11001111	CF	Hi Pressure
255	11111111	FF	None

Current Compressor 2 Fault

This output network variable indicates the current fault condition for the second compressor in a dual compressor unit. A compressor fault disables the compressor until you clear the fault.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
NvoCompFaults2	Proprietary	SNVT_count	8

Measurment	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Value (Decimal)	Binary	Hexadecimal	Definition
205	11001101	CD	Low Temp
206	11001110	CE	Low Pressure
207	11001111	CF	Hi Pressure
255	11111111	FF	None

Current Unit Fault

This output network variable indicates the current unit fault for the heat pump. A fault disables the unit until you clear the fault.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoCurrentFault	Proprietary	SNVT_count	8

Measurment	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Value (Decimal)	Binary	Hexadecimal	Definition
204	11001100	CC	Room Sensor Fail
205	11001101	CD	Low Temp
206	11001110	CE	Low Pressure
207	11001111	CF	Hi Pressure
255	11111111	FF	None

Discharge Air Temperature

This output network variable indicates the discharge air temperature.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoDischAirTemp	Proprietary	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Lead Compressor

This output network variable indicates which compressor is acting as the lead compressor in a dual compressor unit. The controller handles lead/lag control of the compressors based on compressor run time (see input network variable nviComp1Hours [Compressor 1 Run Hours] and nviComp2Hours [Compressor 2 Run Hours]). The compressor with the fewest run hours is selected as the lead compressor when there is a call for cooling or heating.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoLeadComp	Proprietary	SNVT_count	8

Measurement	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Value	Definition
0	Compressor 1
1	Compressor 2

Leaving Water Temperature

This output network variable indicates the temperature of the leaving water.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoLvgWtrTemp	Proprietary	SNVT_temp_p	105

Measurment	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Daikin Unit Status

This output network variable indicates the operating status of the heat pump. It is an extension of the information found in the heat pump functional profile's unit status network variable output.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoUnitStatMcQ	Proprietary	SNVT_count	8

Measurment	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Value (Decimal)	Binary	Hexadecimal	Definition
0	00000000	00	Unoccupied
1	00000001	01	Occupied
2	00000010	02	Override
6	00000110	06	Fan and Compressor Diable
9	00001001	09	Fan Only
12	00001100	0C	Can't Heat
16	00010000	10	Can't Cool
190	101111110	BE	Condenser Overflow
191	10111111	BF	Brownout
204	11001100	CC	Room Sensor Failure
205	11001101	CD	Low Temperature
206	11001110	CE	Low Pressure
207	11001111	CF	High Pressure

Previous Unit Fault

This output network variable indicates the previous unit fault for the heat pump.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoPrevFault	Proprietary	SNVT_count	8

Measurment	Even Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Value (Decimal)	Binary	Hexadecimal	Definition
204	11001100	CC	Room Sensor Fail
205	11001101	CD	Low Temp
206	11001110	CE	Low Pressure
207	11001111	CF	Hi Pressure
255	11111111	FF	None

Remote Room Setpoint Adjustment

This output network variable indicates the current temperature offset based on the space temperature sensor slide potentiometer. The slide potentiometer must be available on the space temperature sensor and the network variable nciRmSptAdjSpan (see Remote Room Setpoint Adjustment Enable/Disable) must be enabled in order to read a valid value from this variable. If the slide potentiometer is not present or the nciRmSptAdjSpan is not enabled, nvoRoomTSptAdj displays a value of 32°F.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoRoomTSptAdj	Proprietary	SNVT_temp_p	105

Measurment	Even Count
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes

Enumeration

29 = -3°F setpoint adjustment

30 = -2°F setpoint adjustment

31 = -1°F setpoint adjustment

32 = No setpoint adjustment

33 = +1°F setpoint adjustment

34 = +2°F setpoint adjustment

35 = +3°F setpoint adjustment

Note: Values on left represent format modifiers set to #US. Values on right represent format modifiers set to #US_diff. Since nvoRoomTSptAdj is an offset, the SNVT_temp_p#US_diff format is preferred.

Software Identification

This output network variable indicates the current software identification in the unit. The identification is six characters long.

Note: Verify that the software identification is compatible with information in this document. See Software Revision.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
neoIdent	Proprietary	SNVT_temp_p	36

Measurment	Character string
Type Category	Structure
Type Size	31 bytes

Structure

Typedef struct {

        unsigned char ascii[31];   // 0..30 chars

} SNVT_str_asc;   // NUL terminator

Enumeration

Position	Definition	Example
Byte 0	Program identification 1st character	W
Byte 1	Program identification 2 nd character	H
Byte 2	Program identification 3 rd character	P
Byte 3	Program identification 4 th character	E
Byte 4	Program identification 5 th character	2
Byte 5	Program identification 6 th character	E
Byte 6-30	Not Used	Example

Space Temperature Output (Required)

This output network variable indicates the value of the controlled space temperature from the locally connected space temperature sensor. It is required for the profile.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoSpaceTemp	Proprietary	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66 °C (0.01 °C). The value 0x7FFF represents invalid data.

Valid Range

10°C (50°F) to 35°C (95°F)

Tenant Override Countdown Timer

This output network variable indicates the time remaining in tenant override. The unit must have a sensor with the tenant override option for this to have a non-zero value.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoTenOvrdTimer	Proprietary	SNVT_time_min	123

Measurment	Minutes
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 minutes (1 minute)

Unit Status Output (Required)

This output network variable reports the unit status. It combines the operating mode, the capacity of heating and cooling used and an indication if any alarms are present in the object. It is required for the profile.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoUnitStatus	WSHP	SNVT_hvac_status	112

Measurment	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

Typedef struct {

hvac_t	mode;	See hvac_t Enumeration
signed long	heat_output_primary;	0% - 100%
signed long	heat_output_secondary;	(Not Used)
signed long	cool_output;	0% - 100%
signed long	econ_output;	(Not Used)
signed long	fan_output;	0% - 100%
unsigned	in_alarm;	0 = No Alarm
		1 = Alarm

} SNVT_hvac_status;

Field Definitions

Field	Units	Range	Notes
Mode	hvac_t		compatible with SNVT_hvac_mode
heat_output_primary	SNVT_lev_percent	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	SNVT_lev_percent	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	SNVT_lev_percent	-163.83 .. +163.83% (percentage of full scale)	cooling output
Econ_output	SNVT_lev_percent	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	SNVT_lev_percent	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	Boolean	0 .. 1	1 means unit is in alarm
Field	Units	Range	Notes

hvac_t Enumeration

Value	Identifier	Notes	
0	HVAC_AUTO	Controller automatically changes between application modes	(Not Used)
1	HVAC_HEAT	Heating only	
2	HVAC_MRNG_WRMUP	Application-specific morning warm-up	(Not Used)
3	HVAC_COOL	Cooling only	
4	HVAC_NIGHT_PURGE	Application-specific night purge	(Not Used)
5	HVAC_PRE_COOL	Application-specific pre-cool	(Not Used)
6	HVAC_OFF	Controller not controlling outputs	
7	HVAC_TEST	Equipment being tested	(Not Used)
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)	(Not Used)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on	
10	HVAC_FREE_COOL	Cooling with compressor not running	(Not Used)
11	HVAC_ICE	Ice-making mode	(Not Used)
0xFF	HVAC_NUL	Value not available	

Warning Information

This output network variable indicates warning information for the unit. Warnings do not disable the unit.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nvoWarn_Request	Proprietary	SNVT_state	83

Measurment	State
Type Category	Structure
Type Size	2 bytes

Structure

Typedef struct {

        unsigned bit0

        unsigned bit1

        ...

}   unsigned bit5

SNVT_str_asc;

Field Definitions

Each bit indicates the state of the Boolean.

Enumeration

For Byte 0:

Bit	Definition
0	(MSB) Request Loop Flow (0 = No call for loop flow, 1 = Request Loop Flow)
1	Unused (Always 0)
2	Bad Leaving Water Temp Sensor (0= Sensor ok, 1 = Bad Leaving Water Temp Sensor)
3	Bad Discharge Air Temp Sensor (0 = Sensor ok, 1 = Bad Discharge Air Temp Sensor)
4	Unused (Always 0)
5	Change Filter (0 = Filter ok, 1 = Change Filter)
6	Room Too Cool (0 = Room temp ok, 1 = Room Too Cool)
7	Room Too Warm (0 = Room temp ok, 1 = Room Too Warm)

Where MSB = Most Significant Bit

Byte 1 not used.

Input Network Variables

Application Mode Input

This input network variable coordinates the Heat Pump with any supervisory controller or intelligent human interface device. This network variable is required for Water Source Heat Pumps that do not have another way of detecting water flow to the unit. This network variable is used to lock out compressor operation when a supervisory controller determines that water is not being provided to the unit. In this case, the HVAC_FANONLY state is necessary to provide ventilation to the space and disable compressor operation at the same time.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviApplicMode	WSHP	SNVT_hvac_mode	108

Measurment	HVAC Mode
Type Category	Enumeration Scalar
Type Size	1 byte
Valid Range (Resolution)	hvac_t Enumeration

hvac_t Enumeration

Value	Identifier	Notes	
0	HVAC_AUTO	Controller automatically changes between application modes	
1	HVAC_HEAT	Heating only	
2	HVAC_MRNG_WRMUP	Application-specific morning warm-up	(Not Used)
3	HVAC_COOL	Cooling only	
4	HVAC_NIGHT_PURGE	Application-specific night purge	(Not Used)
5	HVAC_PRE_COOL	Application-specific pre-cool	(Not Used)
6	HVAC_OFF	Controller not controlling outputs	
7	HVAC_TEST	Equipment being tested	(Not Used)
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)	(Not Used)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on	
10	HVAC_FREE_COOL	Cooling with compressor not running	(Not Used)
11	HVAC_ICE	Ice-making mode	(Not Used)

Clear Fault

This input network variable clears a unit fault. Investigate the cause of the fault before resetting the unit. The control application immediately resets this value to zero after a one (1) is written to it.

Note: The value portion of the clear fault SNVT_switch is not used.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviClearFault	Proprietary	SNVT_switch	95

Measurment   Switch
Type Category   Structure
Type Size   2 bytes

Structure

Typedef struct {

          unsigned   value;

          signed   state;

} SNVT_switch;

Field Definitions

Field	Units	Valid Range	Notes
value	8 bit percentage	0 .. 100%	intensity as percentage of full scale, resolution 0.5%
state	state	0 .. 1, 0xFF	0 means off, 1 means on, 0xFF means undefined

Enumeration

0	No Clear Fault
1	Clear Fault (Changes Back To 0 Immediately)

Compressor 1 Run Hours

This input network variable records the number of run hours for the first compressor. This variable should be monitored-only by the systems integrator. Reset this value when you install a new compressor.

Note: The value of nviComp1Hours is written and stored in the controller's non-volatile EEPROM memory once every 24 hours. If power is lost, that day's compressor run hours are not stored.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviComp1Hours	Proprietary	SNVT_count	8

Measurment   Event Count
Type Category   Fixed Point Scalar - unsigned long
Type Size   2 bytes
Valid Range (Resolution)   0 .. 65,535 counts (1 count = 1 hour)

Compressor 2 Run Hours

This input network variable records the number of run hours for the second compressor in a dual compressor unit. This variable should be monitored-only by the systems integrator. Reset this value when you install a new compressor.

Note: The value of nviComp2Hours is written and stored in the controller's non-volatile EEPROM memory once every 24 hours. If power is lost, that day's compressor run hours are not stored.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviComp2Hours	Proprietary	SNVT_count	8

Measurment   Event Count
Type Category   Fixed Point Scalar - unsigned long
Type Size   2 bytes
Valid Range (Resolution) 0 .. 65,535 counts (1 count = 1 hour)

Compressor 1 Starts

This input network variable indicates the number of starts for the first compressor. This variable should be monitored-only by the systems integrator. Reset this value when you install a new compressor.

Note: The value of nviCompStarts1 is written and stored in the controller's non-volatile EEPROM memory once every 24 hours. If power is lost, that day's compressor starts are not stored.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviCompStarts1	Proprietary	SNVT_count	8

Measurment   Event Count
Type Category   Fixed Point Scalar - unsigned long
Type Size   2 bytes
Valid Range (Resolution) 0 .. 65,535 counts (1 count = 1 hour)

Compressor 2 Starts

This input network variable indicates number of starts for the second compressor in a dual compressor unit. This variable should be monitored-only by the systems integrator. Reset this value when you install a new compressor.

Note: The value of nviCompStarts2 is written and stored in the controller's non-volatile EEPROM memory once every 24 hours. If power is lost, that day's compressor starts are not stored.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
NviCompStarts2	Proprietary	SNVT_count	8

Measurment   Event Count
Type Category   Fixed Point Scalar - unsigned long
Type Size   2 bytes
Valid Range (Resolution) 0 .. 65,535 counts (1 count = 1 hour)

Change Filter Timer

This input network variable indicates the current countdown status of the filter before a change filter warning is generated. It is based upon the unit's fan run hours. After this counts down to zero and a warning is generated, it needs to be reset to restart the countdown. This value cannot be greater than the maximum filter hours setpoint. The Change Filter Timer is set by the Change Filter Warning Setpoint. See Change Filter Warning Setpoint.

Note: The value of nviFilterStatus is written and stored in the controller's non-volatile EEPROM memory once every 24 hours. If power is lost, that day's filter hours are not stored.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviFilterStatus	Proprietary	SNVT_count	8

Measurment	Event Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count = 8 hours)

Default Value
75

Fan Run Hours

This input network variable records the number of run hours for the fan. This variable should be monitored-only by the systems integrator. This variable should be reset when you install a new fan.

Note: The value of nviFanHours is written and stored in the controller's non-volatile EEPROM memory once every 24 hours. If power is lost, that day's fan run hours are not stored.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviFan Hours	Proprietary	SNVT_count	8

Measurment	Event Count
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count = 1 hour)

Optional Output 1 Configuration

This input network variable is used to configure the heat pump unit controller's spare output. The heat pump unit controller has one spare output that can be set up to control a motorized water valve, a fresh air damper, or auxiliary heat device. Caution: The information contained in nviOptOut1 is stored in the controller's EEPROM memory so the number of writes to this variable should be limited.

Note:	If the spare output is configured to control a motorized water valve, the spare output mimics the operation of the compressor. When the compressor is energized/de-energized, the spare output energizes/de-energizes. If the spare output is configured to control a freshair damper, the spare output follows the occupancy of the unit. When the unit is in Occupied mode, the spare output energizes and de-energizes when the unit enters the Unoccupied mode. Finally, if the spare output is configured to control an auxiliary heat device, the spare output energizes when the space temperature reaches the heating setpoint and de-energizes when the space temperature reaches the heating setpoint + nciOptOut1Temp (See Variable Details for a description of the nciOptOut1Temp configuration network variable).

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviOptOut1	Proprietary	SNVT_state	83

Measurment   State

Type Category   Structure

Type Size   2 bytes

Structure

Typedef struct {

        unsigned bit0

        unsigned bit1

        ...

}   unsigned bit15

SNVT_state;

Field Definitions

Each bit indicates the state of the Boolean.

Byte 0 used; Byte 1 unused

Enumeration

For Byte 0:

Bit	Definition
0 (MSB	Available for use (0 = N/A, 1 = Avail.)
1	Valve control (Set bit 1 of byte 0 to 1 for valve control)
2	Damper control (Set bit 2 of byte 0 to 1 for damper control)
3	Skin heat control (Set bit 3 of byte 0 to 1 for aux. Heat control)
All bits clear	No control

Where MSB = Most Significant Bit

Default Value

{1,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0} (defaulted to Motorized Water Valve)

Optional Output 2 Configuration

This input network variable is used to configure the heat pump auxiliary controller's spare outputs if an auxiliary controller is provided. The optional auxiliary controller offers two spare outputs that can be configured to control a motorized water valve, a fresh air damper, or auxiliary heat device. This input network variable is used to configure the first of those two spare outputs. Caution: The information contained in nviOptOut2 is stored in the controller's EEPROM memory so the number of writes to this variable should be limited.

Note:	If the first spare output is configured to control a motorized water valve, the spare output mimics the operation of the compressor. When the compressor is energized/de-energized, the spare output energizes/de-energizes. If the spare output is configured to control a freshair damper, the spare output follows the occupancy of the unit. When the unit is in Occupied mode, the spare output energizes and de-energizes when the unit enters Unoccupied mode. Finally, if the spare output is configured to control an auxiliary heat device, the spare output energizes when the space temperature reaches the heating setpoint and de-energizes when the space temperature reaches the heating setpoint + nciOptOut2Temp (see Variable Details for a description of the nciOptOut2Temp configuration network variable).

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
NviOptOut2	Proprietary	SNVT_state	83

Measurment   State
Type Category   Structure
Type Size   2 bytes

Structure

Typedef struct {

        unsigned bit0

        unsigned bit1

        ...

}   unsigned bit15

SNVT_state;

Field Definitions

Each bit indicates the state of the Boolean.

Byte 0 used; Byte 1 unused

Enumeration

For Byte 0:

Bit	Definition
0 (MSB	Available for use (0 = N/A, 1 = Avail.)
1	Valve control (Set bit 1 of byte 0 to 1 for valve control)
2	Damper control (Set bit 2 of byte 0 to 1 for damper control)
3	Skin heat control (Set bit 3 of byte 0 to 1 for aux. heat control)
All bits clear	No control

Where MSB = Most Significant Bit

Default Value

{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0}

Optional Output 3 Configuration

This input network variable is used to configure the heat pump auxiliary controller's spare outputs if an auxiliary controller has been provided. The optional auxiliary controller provides two spare outputs that can be configured to control a motorized water valve, a fresh air damper, or auxiliary heat device. This input network variable is used to configure the second of those two spare outputs. Caution: The information contained in nviOptOut3 is stored in the controller's EEPROM memory so the number of writes to this variable should be limited.

Note: If the second spare output is configured to control a motorized water valve, the spare output mimics the operation of the compressor. When the compressor is energized/de-energized, the spare output energizes/de-energizes. If the spare output is configured to control a freshair damper, the spare output follows the occupancy of the unit. When the unit is in Occupied mode, the spare output energizes and de-energizes when the unit enters the Unoccupied mode. Finally, if the spare output is configured to control an auxiliary heat device, the spare output energizes when the space temperature reaches the heating setpoint and de-energizes when the space temperature reaches the heating setpoint + nciOptOut3Temp (see Variable Details for a description of the nciOptOut3Temp configuration network variable).

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
NviOptOut3	Proprietary	SNVT_state	83

Measurment	State
Type Category	Structure
Type Size	2 bytes

Structure

Typedef struct {

　　　　　　unsigned bit0

　　　　　　unsigned bit1

　　　　　　...

} 　　　　　unsigned bit15

SNVT_state;

Field Definitions

Each bit indicates the state of the Boolean.

Byte 0 used; Byte 1 unused

Enumeration

For Byte 0:

Bit	Definition
0 (MSB	Available for use (0 = N/A, 1 = Avail.)
1	Valve control (Set bit 1 of byte 0 to 1 for valve control)
2	Damper control (Set bit 2 of byte 0 to 1 for damper control)
3	Skin heat control (Set bit 3 of byte 0 to 1 for aux. heat control)
All bits clear	No control

Where MSB = Most Significant Bit

Default Value

{1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0}

Simple Occupancy Input

This input network variable changes the occupancy mode of the unit from Occupied to Unoccupied by setting the state portion of the switch from 1 to 0. The value portion of the switch network variable is not used.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviOccupSw	Proprietary	SNVT_switch	95

Measurment	Switch
Type Category	Structure
Type Size	2 bytes

Structure

Typedef struct {

	unsigned	value;
	signed	state;

} SNVT_switch;

Field Definitions

Field	Units	Valid Range	Notes
value	8 bit percentage	0 .. 100%	intensity as percentage of full scale, resolution 0.5%
state	state	0 .. 1, 0xFF	0 means off, 1 means on, 0xFF means undefined

A SNVT_switch network variable with state=TRUE is interpreted as the ON state if value > 0, and as the OFF state if value = 0. A SNVT_switch input network variable with state=FALSE should be interpreted as the OFF state, whether or not value = 0.

A state value of 0xFF indicates the switch value is undefined.

State Enumeration

0	Unoccupied
1	Occupied
-1	Invalid (Default)

Space Temperature Input (Required)

This input network variable is used to connect an external space temperature sensor to the node. It is required per the profile, but it does not have to be bound to a sensor node. The heat pump can have a locally wired space temperature sensor. Valid values of nviSpaceTemp have priority over locally wired space sensor values.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviSpaceTemp	WSHP	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Default Value

The default value is the invalid value of 0x7FF which equals 327.67°C (621.806°F). This value is adopted at power up and remains in effect until an update is received over the network.

Temperature Setpoint Input (Required)

This input network variable can change the temperature setpoint for the occupied mode via the network. It is required for the profile. The individual internal heat/cool setpoints for occupied are then calculated using this network input and the setpoint configuration properties using the following formulas:

$$occupied\ heat = nviSetPoint - \frac{(occupied\ cool\ config - occupied\ heat\ config)}{2}$$

$$occupied\ cool = nviSetPoint + \frac{(occupied\ cool\ config - occupied\ heat\ config)}{2}$$

Although this network variable input is Required to the profile, it does not have to be bound to any setpoint node. If a valid setpoint value is written to nviSetPoint, it is used as the center setpoint. If an invalid setpoint is written to nviSetPoint, either a locally wired setpoint knob or the appropriate setpoint as configured in nciTempSetPnts is used.

The unoccupied setpoints are not affected by this input.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number
nviSetPoint	WSHP	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Valid Range

10°C (50°F) to 35°C (95°F)

Configuration Properties

Brownout Differential Setpoint

This configuration property is the factory set limit that is the difference before a change occurs in relation to the brownout setpoints. **A default value is assigned to the unit controller. Record this value so that you can reset it when you replace the controller or download new code.**

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciBrnoutAdjSpt	Proprietary	Unsigned Long	8

Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1) - (1 count=0.00488 VDC)

Default Value

22

Brownout Recover Setpoint

This configuration property is the factory set limit above which the unit recovers and enables the compressor to run. A default value is assigned to the unit controller. Record this value so that you can reset it when you replace the controller or download new code.

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciBrnoutRecSpt	Proprietary	Unsigned Long	9

Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1) - (1 count=0.00488 VDC)

Default Value

643

Brownout Trip Setpoint

This configuration property is the factory set limit below which the compressor is disabled due to low power to the controller. **A default value is assigned to the unit controller. Record this value so that you can reset it when you replace the controller or download new code.**

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciBrnoutTrpSpt	Proprietary	Unsigned Long	10

Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1) - (1 count=0.00488 VDC)

Default Value

586

Change Filter Warning Setpoint

This configuration property sets the number of fan run hours before the filter needs to be changed on the unit. The default value is set at 600 hours and rarely needs to be changed. Once the fan run hours reaches this value, a Change Filter warning is generated (see Warning Information.)

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciMaxFilterHrs	Proprietary	Unsigned Long	17

Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1) - (1 count=0.00488 VDC)

Default Value

75

Condensate Overflow Fault Setpoint

This configuration property serves as the setpoint at which a condensate overflow condition turns off the compressor. A default value is assigned to the unit controller. Record this value so that you can reset it when you replace the controller or download new code.

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciCondSenTripPt	Proprietary	Unsigned Long	14

Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1) - (1 count=0.00488 VDC)

Default Value

639

High Space Temperature Warning Setpoint

This configuration property indicates the limit above which a unit warning is activated (see Warning Information.)

Variable Details

LonWorks Name	Profile	SCPT Reference	SCPT Number	SNVT Type	SNVT Number
nciHiTWarnSpt	Proprietary	SCPThighLimTemp	123	SNVT_temp_p	105

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Default Value

35°C (95°F)

Initial Delay Setpoint

This configuration property is used to set the unit's initial start-up delay, therefore providing staggered start control in the event of power loss.

Variable Details

LonWorks Name	Profile	SCPT Reference	SCPT Number	SNVT Type	SNVT Number
nciInitialDelay	Proprietary	SCPTstrtupDelay	111	SNVT_time_sec	107

Measurment   Elapsed Time
Type Category   Signed long
Type Size   2 bytes
Valid Range (Resolution)   0 .. 6553.4 sec (0.1 sec) The value 0x7FFF represents invalid data.

Default Value

5.0 sec

Leaving Water Temperature Sensor Present

This configuration property is factory set to indicate whether or not a leaving water temperature sensor is present. Do not adjust.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
nciLWTSenPresent	Proprietary	SNVT_switch	95	16

Measurment   Switch
Type Category   Structure
Type Size   2 bytes

Structure

Typedef struct {

    unsigned   value;
    signed   state;

} SNVT_switch;

Field Definitions

Field	Units	Valid Range	Notes
value	8 bit percentage	0 .. 100%	intensity as percentage of full scale, resolution 0.5%
state	state	0 .. 1, 0xFF	0 means off, 1 means on, 0xFF means undefined

Enumeration

0   No
1   Yes

Default Value

200, True

Low Space Temperature Warning Setpoint

This configuration property specifies the limit below which a unit warning is activated (see Warning Information.)

Variable Details

LonWorks Name	Profile	SCPT Reference	SCPT Number	SNVT Type	SNVT Number
nciLowTWarnSpt	Proprietary	SCPTlowLimTemp	128	SNVT_temp_p	105

Measurment   Temperature
Type Category   Fixed Point Scalar - signed long
Type Size   2 bytes
Valid Range (Resolution)   -273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Default Value

12.8°C (55°F)

Occupied Fan Operating Mode Setpoint

This configuration property allows the end user to select the desired fan operation in Occupied mode. The default setting is for the fan to be ON continuously in Occupied mode.

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciOccFan Mode	Proprietary	Unsigned Short	15

Type Category   Unsigned short
Type Size   2 bytes

Enumeration

0=   Fan cycles with compressor
1=   Fan ON continuously
2=   Fan cycles in heating, On in cooling

Default Value

1 = Fan ON continuously

Remote Room Setpoint Adjustment Enable/Disable

This configuration property is used to enable/disable the optional tenant setpoint adjustment potentiometer on the space temperature sensor. If a space temperature sensor is purchased with the tenant setpoint adjustment option, adjust the nciRmSptAdjSpan to any value other than the default (32×F) to enable the potentiometer.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
nciRmSptAdjSpan	Proprietary	SNVT_temp_p	105	24

Measurment   Temperature
Type Category   Fixed Point Scalar - signed long
Type Size   2 bytes
Valid Range (Resolution)   -273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Default Value

32.054°F (When format modifier set to #US)
0.054°F (When format modifier set to #US_diff)

Room Temperature Differential Setpoint

This configuration property sets the change of room temperature necessary to enable the lag compressor in a two-compressor unit in order to satisfy the heating/cooling requirement. The default value enables the second compressor in a dual compressor unit when the space temperature exceeds the cooling setpoint + 2°F and/or the heating setpoint - 2°F.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
nciStgDiffTSpt	Proprietary	SNVT_temp_p	105	26

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Valid Range

32.98°F - 41.98°F (When format modifier set to #US)

1°F - 10°F (When format modifier set to #US_diff)

Default Value

33.98°F (When format modifier set to #US)

1.98°F (When format modifier set to #US_diff)

Note: Since this configuration property is used to set a temperature differential, the preferred format for nciStgDiffTSpt is SNVT_temp_p#US_diff.

Send Heartbeat (Required)

This configuration property is required for the profile. It defines the maximum period of time that elapses before the following network variable outputs are automatically updated:

- nvoSpaceTemp
- nvoUnitStatus
- nvoEffectSetPt (Not Used)

A value of 0 disables the auto update.

Variable Details

LonWorks Name	Profile	SCPT Reference	SCPT Number	SNVT Type	SNVT Number
nciSndHrtBt	WSHP	SCPTMaxSendTime	49	SNVT_time_sec	107

Measurment	Elapsed Time
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 6553.4 sec (0.1 sec) The value 0x7FFF represents invalid data.

Default Value

0 seconds = No Update.

Skin Heat Temperature Differential Setpoint for Optional Output 1

This configuration property sets the temperature differential for when the spare output on the main controller is to de-energize if it has been configured to control an auxiliary heat device. If configured to control an auxiliary heat device, the spare output energizes when the space temperature drops to the heating setpoint and de-energizes when the space temperature reaches the heating setpoint + nciOptOut1Temp.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
nciOptOut1Temp	Proprietary	SNVT_temp_p	105	19

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Valid Range

33.06°F - 35.06°F (When format modifier set to #US)

1°F - 3°F (When format modifier set to #US_diff)

Default Value

35.06°F (When format modifier set to #US)

3°F (When format modifier set to #US_diff)

Note: Since this configuration property is used to set a temperature differential, the preferred format for nciOptOut1Temp is SNVT_temp_p#US_diff.

Skin Heat Temperature Differential Setpoint for Optional Output 2

This configuration property sets the temperature differential for when the first spare output on the auxiliary controller (if one has been provided) is to de-energize if it has been configured to control an auxiliary heat device. If configured to control an auxiliary heat device, the first spare output energizes when the space temperature drops to the heating setpoint and de-energizes when the space temperature reaches the heating setpoint + nciOptOut2Temp.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
NciOptOut2Temp	Proprietary	SNVT_temp_p	105	19

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Valid Range

33.06°F - 35.06°F (When format modifier set to #US)
1°F - 3°F (When format modifier set to #US_diff)

Default Value

35.06°F (When format modifier set to #US)

3°F (When format modifier set to #US_diff)

Note: Since this configuration property is used to set a temperature differential, the preferred format for nciOptOut2Temp is SNVT_temp_p#US_diff.

Skin Heat Temperature Differential Setpoint for Optional Output 3

This configuration property sets the temperature differential for when the second spare output on the auxiliary controller (if one has been provided) is to de-energize if it has been configured to control an auxiliary heat device. If configured to control an auxiliary heat device, the second spare output energizes when the space temperature drops to the heating setpoint and de-energizes when the space temperature reaches the heating setpoint + nciOptOut3Temp.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
NciOptOut3Temp	Proprietary	SNVT_temp_p	105	23

Measurment	Temperature
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-273.17 .. +327.66°C (0.01°C). The value 0x7FFF represents invalid data.

Valid Range

33.06°F - 35.06°F (When format modifier set to #US)
1°F - 3°F (When format modifier set to #US_diff)

Default Value

35.06°F (When format modifier set to #US)
3°F (When format modifier set to #US_diff)

Note: Since this configuration property is used to set a temperature differential, the preferred format for nciOptOut3Temp is SNVT_temp_p#US_diff.

Temperature Setpoints (Required)

This configuration property defines the occupancy temperature setpoints for heat and cool mode. It is required for the profile.

Variable Details

LonWorks Name	Profile	SCPT Reference	SCPT Number	SNVT Type	SNVT Number
nciTempSetPts	WSHP	SCPTsetPnts	60	SNVT_temp_setpt	106

Measurment	Temperature Setpoints
Type Category	Structure
Type Size	12 bytes

Structure

Typedef struct {

signed long	occupied_cool
signed long	standby_cool
signed long	unoccupied_cool
signed long	occupied_heat
signed long	standby_heat
signed long	unoccupied_heat

} SNVT_temp_setpt;

Field Definitions

Field	Units	Notes
occupied_cool	SNVT_temp_p	resolution 0.01 degC; 0x7FFF means data unavailable
standby_cool	SNVT_temp_p	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_cool	SNVT_temp_p	resolution 0.01 degC; 0x7FFF means data unavailable
occupied_heat	SNVT_temp_p	resolution 0.01 degC; 0x7FFF means data unavailable
standby_heat	SNVT_temp_p	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_heat	SNVT_temp_p	resolution 0.01 degC; 0x7FFF means data unavailable

Valid Range and Default Values

	Minimum	Maximum	Default	
occupied_cool	10°C (50°F)	35°C (95°F)	23°C (73.4°F)	
standby_cool	10°C (50°F)	35°C (95°F)	25°C (77°F)	(not used)
unoccupied_cool	10°C (50°F)	35°C (95°F)	28°C (82.4°F)	
occupied_heat	10°C (50°F)	35°C (95°F)	21°C (69°F)	
standby_heat	10°C (50°F)	35°C (95°F)	19°C (66.2°F)	(not used)
unoccupied_heat	10°C (50°F)	35°C (95°F)	16°C (60°F)	

Tenant Override First Press Setpoint

This configuration property sets the duration the unit runs in tenant override mode from the first press of the tenant override button, located on the space temperature sensor. When this time has elapsed, assuming the tenant override button has only been pressed once, the unit returns to Unoccupied mode.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
nciTenOvrdTSpt1	Proprietary	SNVT_time_sec	106	28

Measurment	Elapsed Time
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 6553.4 sec (0.1 sec) The value 0x7FFF represents invalid data.

Default Value

3600.0 seconds

Tenant Override Second Press Setpoint

This configuration property sets the time the unit runs in tenant override mode after a second press of the tenant override button. When this time has elapsed, the unit returns to Unoccupied mode. The default value of 0 seconds means that pressing the tenant override button a second time puts the unit back into Unoccupied mode.

Variable Details

LonWorks Name	Profile	SNVT Type	SNVT Number	UCPT Number
NciTenOvrdTSpt2	Proprietary	SNVT_time_sec	106	28

Measurment	Elapsed Time
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 6553.4 sec (0.1 sec) The value 0x7FFF represents invalid data.

Default Value

0.0 seconds

Unit Type

This configuration property indicates whether the unit typeas a single or dual compressor system.

> ⚠ **CAUTION**
>
> A default value is assigned to the unit controller. Changing this value could damage the unit!

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciUnitType	Proprietary	Unsigned Long	29

Type Category	Unsigned long
Type Size	2 bytes
Valid Range (Resolution)	0 .. 65,535 counts (1 count)

Enumeration

Count	Definition
1	Single Compressor
2	Dual Compressor
3	Console Unit (Single Compressor) Enables start/stop switch.

Default Value

Single Compressor

Unoccupied Fan Operating Mode Setpoint

This configuration property allows the end user to select the desired fan operation in Unoccupied mode. The default setting is for the fan to cycle with the compressor in Unoccupied mode.

Variable Details

LonWorks Name	Profile	Data Type Category	UCPT Number
nciUnoccFanMode	Proprietary	Unsigned Short	15

Type Category	Unsigned long
Type Size	2 bytes

Enumeration

0=   Fan cycles with compressor
1=   Fan ON continuously

Default Value

0=   Fan cycles with compressor

This document contains the most current product information as of this printing. For the most current product information, please go to **www.DaikinApplied.com**.

Daikin Applied Solutions
800.432.1342
www.DaikinApplied.com