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MicroTech II®
Vertical Self-Contained Unit Controller
Protocol Information

BACnet® Networks
LONWORKS® Networks

- SWP Self-Contained Air Conditioning System
- SWT Modular Self-Contained Air Conditioning System

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Revision History

ED15061-0	May, 2002	Preliminary release.
ED15061-1	June, 2004	Incorporated changes of application software revision 1.21 for individual alarm notification.
ED15061-2	December, 2004	Removed several Properties and made other techincal corrections to provide consistency with related Protocol Information documents.
ED15061-3	February, 2006	Updated Object Identifier and Object Type fields in Table 1. Corrected several variables from "nci" to "nvi."
ED15061-4	April, 2008	Relocated Occ Schedule point to Occupancy section in BACnet and LON data tables. Added Cooling Reset Enable State, Cooling Reset Enable Value, Heating Reset Enable State & Heating Reset Enable Value to BACnet and LON data tables.
ED15061-5	September 2008	Removed 56400 bps baud rate option from Data Link Layer Options in PICS appendix. Updated software versions in PICS & Software Revision section. Changed the following: Application Mode instance number to 3715 & Type ID to 2, Effective Heating Discharge Spt to 105 in data table, Fan Operation Output Instance number to 3945 in detailed data section, Effective Cooling Discharge Spt Type ID to 2, Instance to 3745 in detailed data, nvoEffectSetpt to 105, nciSetpoints to 106 in Lon table & misc typos in Lon table
ED 15061-6	May 2012	Updated Daikin logo and references. Clarified Application Mode description.

Software Revision

This edition documents revision 1.28 of the standard MicroTech II® Vertical Self-Contained Unit Controller application software and all subsequent revisions until otherwise indicated. However, if your software is of a later revision (for example, 1.29), some of the information in this document may not completely describe your software. You can determine the revision of the application software from the keypad/display. The path for this information from the main menu is: Setup\Service\Unit Configuration\AHU ID=.

Reference Documents

Company	Number	Title	Source
Daikin	IM710	MicroTech II Vertical Self-Contained Unit Controller Installation Manual	www.DaikinApplied.com
Daikin	OM711	MicroTech II Vertical Self-Contained Discharge Air Controller Operation Manual	www.DaikinApplied.com
Daikin	OM712	MicroTech II Vertical Self-Contained Space Comfort Controller Operation Manual	www.DaikinApplied.com
ASHRAE	ANSI/ ASHRAE 135-2001	BACnet® A Data Communication Protocol for Building Automation and Control Networks	www.ashrae.org
LonMark Interoperability Association	078-0014-01E	LonMark® Layers 1-6 Interoperability Guidelines, Version 3.0	www.lonmark.org
LonMark Interoperability Association	078-0120-01E	LonMark Application Layer Interoperability Guidelines, Version 3.2	www.lonmark.org
LonMark Interoperability Association	8500_10	LonMark Functional Profile: Space Comfort Controller, Version 1.0	www.lonmark.org
LonMark Interoperability Association	8600_10	LonMark Functional Profile: Discharge Air Controller, Version	www.lonmark.org
Echelon Corporation	078-0156-01G	LonWorks® FTT-10A Free Topology Transceiver Users Guide	www.echelon.com

Notice

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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 necessary information you need to incorporate a MicroTech II Vertical Self-Contained Unit Controller into your building automation system. It lists all necessary BACnet® properties, LONWORKS® variables, and corresponding MicroTech II Vertical Self-Contained Unit Controller data points. It also contains the BACnet Protocol Implementation Conformance Statement (PICS). BACnet and LONWORKS terms are not defined. Refer to the appropriate specifications and functional profile for definitions and details.

Unit Controller Data Points

The MicroTech II Vertical Self-Contained Unit Controller contains data points or unit variables that are accessible from three user interfaces: the unit keypad, a BACnet network (BACnet/IP or MS/TP), or a LONWORKS network. Not all points are accessible from each interface. This manual lists all important data points and the corresponding path for each applicable interface. Refer to the applicable Operation Manual for keypad details. See Reference Documents on page 4 for manual part numbers. This manual contains the network details necessary to incorporate the unit controller into your network.

Protocol Definitions

The MicroTech II Vertical Self-Contained Unit Controller can be configured in either an interoperable BACnet or LONWORKS network. The controller must have the corresponding network communications module installed. There are three network communications modules: BACnet/IP, BACnet MS/TP (Master/Slave Token Passing), and LONWORKS. There are two LONWORKS modules: one in accordance with the LonMark® Space Comfort Controller functional profile and one in accordance with the Discharge Air Controller functional profile.

BACnet Protocol

BACnet is a standard communication protocol for Building Automation and Control Networks developed by the American National Standards Institute (ANSI) and American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE) specified in ANSI/ASHRAE standard "135-2001". It addresses all aspects of the various systems that are applied to building control systems. BACnet provides the communication infrastructure needed to integrate products manufactured by different vendors and to integrate building services that are now independent.

LONWORKS Networks

A control network specification for information exchange built upon the use of LonTalk for transmitting data developed by the Echelon Corporation.

LonTalk Protocol

A protocol developed and owned by the Echelon Corporation. It describes how information should be transmitted between devices on a LONWORKS network.

LONMARK Certification

LONMARK certification is an official aknowledgement by the LONMARK Interoperability Association that a product communicates using the LonTalk protocol and transmits and receives data per a standard LONMARK functional profile.

Basic Protocol Information

Setting the Unit Controller Communication Parameters

There are 12 communication parameters involved in setting up the unit controller for proper communication with the various communication module options (BACnet IP, BACnet MS/TP or LON). These parameters are set differently depending on which communication module is ordered and shipped with the unit. The table below lists the four possible sets of default parameter settings. Not all the parameters apply to all the module options. The entries in the table that are shown in **bold** font apply to a particular module option. **Changing these parameters requires the MicroTech II ServiceTools for Rooftop and Self-Contained units.**

Communication Setup Parameter Settings

Parameter Name	BACnet IP	BACnet MS/TP	LON (DAC or SCC)	No Communication Module
IP Address	**172.16.83.46**	172.16.83.46	172.16.83.46	172.16.83.46
IP Subnet Mask	**255.255.0.0**	255.255.0.0	255.255.0.0	255.255.0.0
UDP Port Number	**47808**	47808	47808	47808
IP Router Address	**172.16.128.0**	172.16.128.0	172.16.128.0	172.16.128.0
IP Network Address	**1001**	1001	1001	1001
MSTP Network Address	2001	**2001**	**2001**	2001
MSTP MAC Address[1]	129	**2**	**129**	129
MSTP Baud Rate	19200	**19200**	**19200**	19200
Communication Option[5]	**None**	**MSTP**	**MSTP**	MSTP
Device Instance Number[2]	**XXXXXX**	**XXXXXX**	XXXXXX	XXXXXX
Max APDU Length[3]	**1024**	**501**	501	501
Device Object Name[4]	**MTII SCUC XXXXXXXXX**	**MTII SCUC XXXXXXXXX**	MTII SCUC XXXXXXXXX	MTII SCUC XXXXXXXXX

Notes:

1. The MSTP MAC Address is not adjustable from the MicroTech II ServiceTools. It is set via the dip-switch block on the MS/TP communication module.
2. The Device Instance Number is factory set equal to the last six significant digits of the 18 digit number on the bar-code label on the unit's main control board (MCB). For example if the last six digits are 043.066, then the Device Instance Number is set to 43066.
3. The Max APDU Length automatically changes based on the Communication Option parameter. It should be 1024 for BACnet IP and 501 for BACnet MS/TP.
4. The Device Object Name is factory set as indicated in the table where the Xs are replaced by the last nine digits of the 18 digit number on the bar-code label on the unit's main control board (MCB). For example if the last nine digits are 000.043.066, then the Device Object Name is set to MTII RTUC 000043066 for an applied rooftop unit or MTII SCUC 000043066 for a vertical self-contained unit.
5. **If the Communication Option is changed in the field, a Reset, Archive and Cold Reset (in that order) must be performed on the controller after all the communication related parameters are set as required.**

BACnet Networks

Compatibility

The MicroTech II Vertical Self-Contained Unit Controller conforms to the BACnet Standard (ANSI/ASHRAE 135-1995) as stated in the Protocol Implementation and Conformance Statement (PICS) (See Appendix A Protocol Implementation Conformance Statement on page 95).

BACnet Objects

Keypad Menu Path Airflow\Airflow Summary\Disch Fan=

MicroTech II Vertical Self-Contained Unit Controllers incorporate standard BACnet object types (i.e., object types defined in the BACnet Standard) and additional proprietary BACnet object types that conform to the BACnet Standard. Each object has properties that control unit variables or data points. Some object types occur more than once in the MicroTech II Vertical Self-Contained Unit Controller; each occurrence or instance has different properties and controls different unit

variables or data points. Each instance is designated with a unique instance index. Some properties can be adjusted (read/write properties, e.g., setpoints) from the network and others can only be interrogated (read-only properties, e.g., status information).

Data points accessible from a BACnet network are described with a table that gives the Object Identifier, Property Identifier, Full BACnet Reference or path, and the Name enumeration of the property.

Example of BACnet Data Point

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Output	4	325	Present_Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Start Stop Control.DF On Off.Present Value				

Enumeration
0 = Off
1 = On

Object Identifier

Object Identifiers are each designated with an Object type as defined in the BACnet specification. The first column of the data point definition gives the object type. This object is Discharge Fan Status (See page 44).

Each object in a unit controller has a unique identifier. BACnet object identifiers are two-part numbers of BACnet Object Identifier data type. The first part identifies the object type (the higher 10 bits of the 32-bit BACnet Object Identifier [See ANSI/ASHRAE 135-2001 BACnet A Data Communication Protocol for Building Automation and Control Networks]). The first column of the data point definition gives the object type. The second part identifies the instances of that particular object type (the lower 22 bits of the 32-bit BACnet Object Identifier).

The object identifier is shown in the data points listing as two numbers. The first number is shown in the Type ID column and designates the Object type enumeration. The second number is shown in the Instance column and designates the instance of that particular object type.

The object identifier is a property of the object that you can read from the object code. The name of the property is "Object_Identifier" and the property identifier is 75. The ASHRAE BACnet specification reserves the first 128 numbers for ASHRAE defined objects. Manufactures may define additional object types and assign a number above 127 as long as they conform to the requirements of the ASHRAE BACnet specification.

Each object can also have a name. Object names are character strings. The object name is a property of the object that you can read from the object. The name of the property is "Object_Name" and the property identifier is 77.

Objects are sometimes referred to as an object type and instance number as they are in the BACnet specification. The example object above would be: Binary Output, Instance 325.

Property Identifier

Each object has a number of properties or attributes. Each property has a unique identifier of BACnet Property Identifier data type. Property identifiers are an enumerated set; a number identifies each member. The Property Identifier enumeration number is shown in the Property ID column. In the example above the property identifier is 85.

Property Name

Each property also has a unique name. Property names are character strings and shown in the Property Name column. In the example above the property name is Present Value

⚠ CAUTION

Do not change the character string of object and property names because the MicroTech II service tools use the name to identify the object.

Full Reference

The full reference is the path of the property within the MicroTech II Vertical Self-Contained Unit Controller. It is a character string equivalent to the object identifier and the property identifier. In the example above the full reference is MTII SCUC #########.App.Daikin.SC.Start Stop Control.DF On Off.Present Value.

Enumerated Values

Some properties are standard data types and some are enumerated sets. If the property value is an enumerated set, all enumerated values and corresponding meaning are given in the Enumeration column of the data point listing.

MicroTech II Vertical Self-Contained Unit Controller Device Object

Each BACnet compatible device must have one and only one BACnet Device Object.

Device Object Identifier

The MicroTech II Vertical Self-Contained Unit Controller Device Object Identifier uniquely specifies the unit within the network. The device object type for all devices is fixed by ASHRAE at 8. Therefore the device object instance number must be unique. The initial Device Object identifier is set at manufacturing. The device object identifier can be read from the unit controller. The name of the property is "Object_Identifier" and the property identifier is 75.

The initial device object instance number is derived from the unit controller serial number. The serial number is also the Ethernet MAC address of the controller. An Ethernet MAC address is a unique 18-bit number separated into 6 groups of 8 bits (an 8 bit group is also known as an octet) and declared as a series of independent decimal values with periods (.) between decimal values (for example: 000.016.141.000.941.229). Each decimal value represents one octet and ranges from 0 to 255.

The serial number is printed on a label fixed to the unit controller Main Control Board in both decimal value form and as a bar code of the decimal values.

The device object instance number is initially assigned as series of six decimal digits equal to the last six digits (two octets) of the serial number (for example for the serial number given above: 941229).

⚠ CAUTION

If another device in the network already has this object identifier (instance number), you must change the instance number of one device object, so that all devices in the network have a unique device identifier.

Device Object Name

The Device Object Identifier uniquely specifies the MicroTech II Vertical Self-Contained Unit Controller in the BACnet network. It must be unique in the network. The device name for the MicroTech II Vertical Self-Contained Unit Controller device is MTII SCUC #########. The ######### is a unique nine digit number. It is the last 9 digits of a unique 18-digit number assigned during the manufacturing process. The device name property is the "prefix" of all object names in the MicroTech II Vertical Self-Contained Unit Controller. All objects include the device name and a period "." (MTII SCUC #########.) preceding the object name.

You can find the 18-digit number printed on a label fixed to the MicroTech II Vertical Self-Contained Unit Controller Main Control Board. The label includes both a bar code version and a text version of the unique 18-digit number.

The Device Object name is also available to the network in the device object (device object identifier is 8, instance 100). The property name is "Object_Name" and property identifier is 77.

The Device Object Name is changeable with AAHU ServiceTool software. However, please note that an archive must be performed following a Device Object Name change. Failure to do so can lead to controller problems requiring that the entire application be re-downloaded.

Device Object Properties

The device object contains many other informative properties as shown in Table 1.

Table 1. MicroTech II Vertical Self-Contained Device Object Properties

Property	Identifier	Value	Data Type
Object Identifier	75	100	BACnet Object Identifier
Object Name	77	MTII SCUC #########	Character String
Object Type	79	8	BACnet Object Type
Vendor Name	121	Daikin	Character String
Vendor Identifier	120	3	Unsigned 16
Model Name	70	Mdcu_	Character String
Firmware Version	44	variable	Character String
Application Software Revision	12	variable	Character String
Description	28	Used by MDCU ActiveX Control Only	Character String
Local Time	57	variable	Time
Local Date	56	variable	Date
IP Address	1135	variable	Array
IP Mask	1136	variable	Array
IP Router Address	1137	variable	Array
Communications Option	2159	Enumerated	None, MSTP
Network Address	875	1001	Unsigned 16
MS/TP Baud Rate	2173	Enumerated	9600, 19200, and 38400
MS/TP Network Address	2161	variable	Integer
Max APDU Length Accepted	62	Variable	Unsigned 16

Network Considerations

Access to Properties

Object properties are accessible from the network by specifying the device object identifier, object identifier, and the property identifier. To access a property, you must specify the object identifier including the device object identifier or the object name including the device object name and the property identifier.

BACnet/IP Addressing

The BACnet/Internet Protocol (BACnet/IP) address of the MicroTech II Vertical Self-Contained Unit Controller in a BACnet/IP network consists of the four-octet Internet Protocol address followed by the two-octet UDP (User Datagram Protocol) port number. The BACnet/IP address is a six-octet value analogous to a MAC address. The IP address portion of the BACnet/IP address must be unique in the BACnet/IP network segment. The default UDP port number in the MicroTech II Vertical Self-Contained Unit Controller is 47808 (BAC0 in hexadecimal).

The device object of the MicroTech II Vertical Self-Contained Unit Controller contains an Internet Protocol Subnet Mask (Default is 255.255.0.0) and a default IP address of 172.16.83.46. The controller does not support DHCP (Dynamic Host Configuration Protocol) IP addressing.

The MicroTech II Vertical Self-Contained Unit Controller can be incorporated into either a BACnet/IP network dedicated to BACnet devices only or an IP network shared with BACnet devices and other devices.

Shared Ethernet Networks

Integrating the MicroTech II Vertical Self-Contained Unit Controller into a shared Ethernet LAN requires close cooperation with the network administrator of the shared Ethernet network. First, obtain the IP Subnet Mask of the shared network from the network administrator. Then, obtain ***static*** IP Addresses for all MicroTech II Unit Controllers you are integrating into the shared network. Finally, obtain the address of an IP Router to use for sending IP messages to and from the BACnet IP subnets. Once you have these, write them to the IP Address, IP Mask, and IP Router Address properties of the device object in the MicroTech II Vertical Self-Contained Unit Controller.

The default BACnet/IP Network Address in the MicroTech II Unit Controller is 1001. The Network Address must be unique for each BACnet network segment. All BACnet/IP devices on each individual BACnet/IP segment must have the same BACnet/IP Network Address. This is the Network Address property of the device object of the MicroTech II Vertical Self-Contained Unit Controller.

Finally, the Communication Option property of the MicroTech II Vertical Self-Contained Unit Controller device object must be set to NONE for BACnet/IP communications to take place. MSTP is the default value for this property.

Configuring the Unit Controller

The MicroTech II Main Control Board is designed, programmed, and configured at the factory to be a MicroTech II Vertical Self-Contained Unit Controller. The unit is ready to operate with the default values of the various parameters set at the factory. Default values can be changed with the unit's keypad or via the network. See the appropriate operation manual for default values and keypad operating instructions. See Reference Documents on page 4 for part numbers.

BACnet MS/TP Network Addressing

The BACnet MS/TP device address (Media Access Control [MAC] address) of the MicroTech II Vertical Self-Contained Unit Controller in a BACnet Master Slave/Token Passing (MS/TP) Local Area Network (LAN) is set in an eight-position DIP switch on the BACnet MS/TP Communications Module. The MAC Address is physically set in eight binary switches. Bit 0 of the address corresponds to switch position 1 and bit 7 of the address corresponds to switch position 8. All MicroTech II Vertical Self-Contained Unit Controllers must be master controllers; therefore, bit 7 is always equal to 0 (open). An open switch (switch handle up) is a 0, and a closed switch (switch handle down) is a 1. This address must be unique and is determined during installation. After you set the address in the switches, you must cycle power (turn the controller off and then on again) to the controller in order for the new address to take effect.

The receive LED flickers when the module is receiving data from the network, and the transmit LED flickers when the module is sending data to the network. The default data transmission rate is set to 19,200 bps (baud). You can change the data transmission rate to 9600 or 38,400 bps (see the MS/TP Baud Rate on page 10).

The default BACnet MS/TP network address of the MicroTech II Vertical Self-Contained Unit Controller is 2001. You can change this address data point (see the MS/TP Network Addressing on page 10).

Configuring the Unit Controller

The MicroTech II Main Control Board is designed, programmed, and configured at the factory to be a Vertical Self-Contained Unit Controller. The unit is ready to operate with the default values of the various parameters set at the factory. Default values can be changed with the unit's keypad or via the network. See the appropriate operation manual for default values and keypad operating instructions. See Reference Documents on page 4 for part numbers.

The MS/TP Network Address and the MS/TP Baud Rate of the MicroTech II unit controller must be the same as all other BACnet devices on the network for devices to communicate with each other. Also, the Communication Option property of the MicroTech II unit controller device object must be set to MSTP.

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 network technology systems. In particular they have published standards for HVAC equipment including the Discharge Air Controller functional profile and the Space Comfort Controller functional profile. These profiles specify a number of mandatory and optional standard network variables and standard configuration parameters. This manual defines these variables and parameters available in the MicroTech II Self-Contained Unit Controller.

Compatibility

MicroTech II Vertical Self-Contained Unit Controllers with a LONWORKS communications module operates in accordance with either the Discharge Air Controller (DAC) functional profile or the Space Comfort Controller (SCC) functional profile of the LonMark Interoperability standard.

LONWORKS Variables

MicroTech II Vertical Self-Contained Unit Controllers incorporate LONWORKS network variables to access unit data points. The controller uses LONWORKS Standard Network Variable Types (SNVT) from each profile. Some data points can be adjusted (input network variables, nvi) (read/write attributes, e.g., setpoints) from the network and others can only be interrogated (output network variables, nvo) (read only attributes, e.g., status information). Configuration variables (nci) are included with the read/write attributes.

Each data point accessible from a LONWORKS network is described with a table that gives the LONWORKS Name, Profile, SNVT Type, and SNVT Index. If the variable is a configuration variable the table also includes the SCPT Reference and the SCPT Index.

Example of LONWORKS Data Point

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoBldgStatPress	DAC, SCC	SNVT_press_p	113

LONWORKS Name

Each network variable has a name that you use to access the data point. This is the name of the variable from the profile. In the example above, the name network variable is nvoBldgStatPress.

Profile

The profile column designates the MicroTech II Communications Module that incorporates this network variable. The variable itself may not be a standard component of that particular profile, but the communications module does implement and it is available to the network.

SNVT Type

This column gives the name of the standard network variable type from the master list.

SNVT Index

This column gives the number of the standard network variable type from the master list.

SCPT Reference

This column gives the name of the Standard Configuration Parameter Type (SCPT) from the master list.

SCPT Index

This column gives the number of the Standard Configuration Parameter Type (SCPT) from the master list.

Network Considerations

Network Topology

Each MicroTech II LONWORKS Communications Module is equipped with an FTT-10A transceiver for network communications. This transceiver allows for (1) free topology network wiring schemes using twisted pair (unshielded) cable and (2) polarity insensitive connections at each node. These features greatly simplify installation and reduce network commissioning problems. Additional nodes may be added with little regard to existing cable routing.

Free Topology Networks

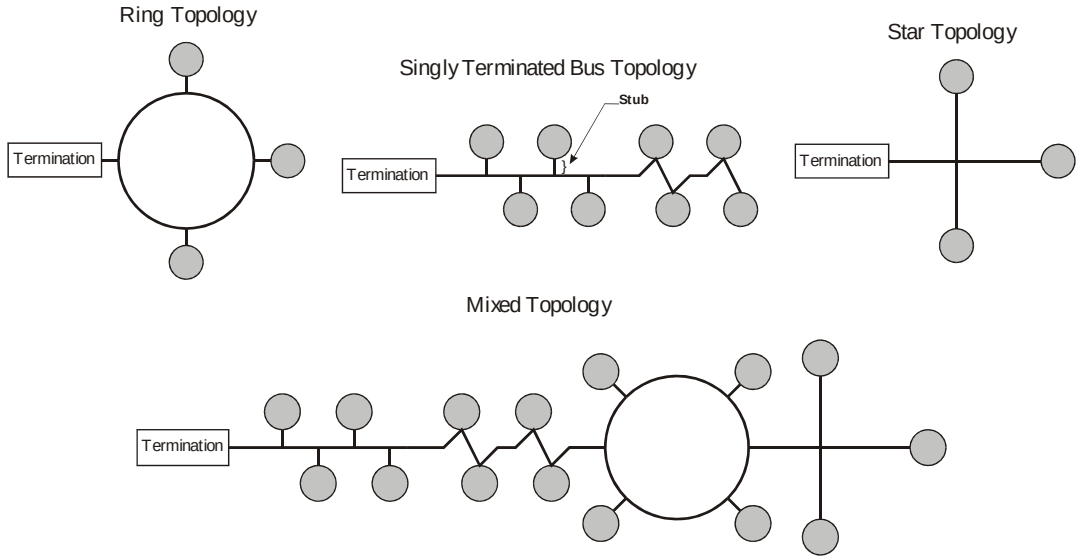
A LONWORKS free topology network means that devices (nodes) can be connected to the network in a variety of geometric configurations. For example, devices can be daisy-chained from one device to the next, connected with stub cables branching off from a main cable, connected using a tree or star topology, or any of these configurations can be mixed on the same network. As shown in Figure 1. Free topology segments require termination for proper transmission performance. Only one termination is required. It may be placed anywhere along the segment**. Refer to Echelon LONWORKS FTT-10A Transceiver User's Guide.** See Reference Documents on page 4 for part numbers.

Free topology networks may take on the following topologies:

- Bus
- Ring
- Star
- Mixed - Any combination of Bus, Ring, and Star

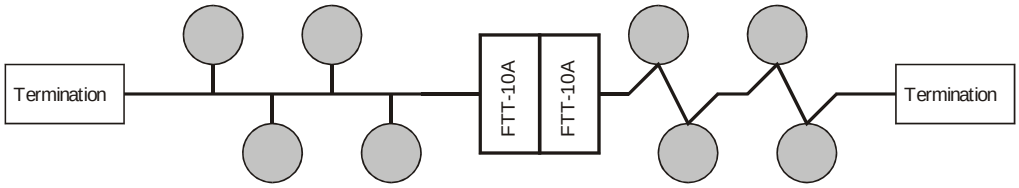
Note: Limitations to wire lengths apply and must be observed.

Figure 1: Singly Terminated Free Topology



A network segment is any part of the free topology network in which each conductor is electrically continuous. Each of the four diagrams in the illustration is a network segment. Some applications may require two or more segments; see "Free Topology Restrictions." If necessary, segments can be joined with FTT-10A-to-FTT-10A physical layer repeaters. See Figure 2. **Refer to Echelon LONWORKS FTT-10A Transceiver User's Guide.** See Reference Documents on page 4 for part number.

Figure 2: Combining Network Segments with a Repeater



Free Topology Restrictions

Although free topology wiring is very flexible, there are restrictions. A summary follows, refer to the **Echelon FTT-10A User's Guide** for details. See Reference Documents on page 4 for part numbers.

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

2. The maximum total bus length depends on the wire size

Wire Size	Maximum Node to Node Length	Maximum Cable Length
24 AWG	820 ft (250 m)	1476 ft (450 m)
22 AWG	1312 ft (400 m)	1312 ft (400 m)
16 AWG	1640 ft (500 m)	1640 ft (500 m)

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.

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

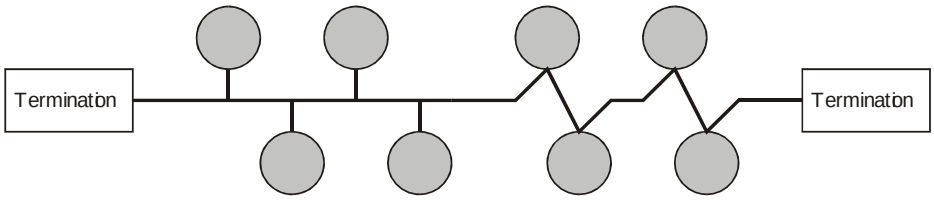
3. One termination is required in each segment. It may be located anywhere along the segment.

Doubly Terminated Networks

You can extend the maximum total cable length without using a repeater by using doubly-terminated network topology. The trade-offs are (1) this network topology must be rigorously followed during the installation and subsequent retrofits and (2) two terminations must be installed at the ends of the bus for proper transmission performance. **Refer to Echelon LONWORKS FTT-10A Transceiver User's Guide.** See Reference Documents on page 4 for part numbers.

Note: Limitations to wire lengths apply and must be observed.

Figure 3: Doubly Terminated Network Topology



Doubly Terminated Topology Restrictions

The restrictions on doubly-terminated bus topology:

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

2. The maximum total bus length depends on the wire size:

Wire Size	Maximum Cable Length
24 AWG	2952 ft (900 m)
22 AWG	4590 ft (1400 m)
16 AWG	8855 ft (2700 m)

3. The maximum stub length is 9.8 ft (3 m). The length of the MicroTech II Vertical Self-Contained LONWORKS cable harness stub is 7.2 ft (2.19 m).

A stub is a piece of cable that is wired between the node and the bus (See Figure 1). Note that if the bus is wired directly to the node, there is no stub, and thus the stub length is zero. If you are wiring to a field terminal strip on a unit, be sure to account for any factory wiring between the terminal strip and the controller. This wiring is considered part of the stub.

4. Two terminations are required in each segment. One must be located at each end of the bus.

Network Cable Termination

LONWORKS network segments require termination for proper data transmission performance. The type and number of terminations depend on network topology. Refer to Echelon LONWORKS FTT-10A Transceiver User's Guide. See Reference Documents for part number.

LonWorks Network Addressing

Every Neuron Chip has a unique 48-bit Neuron ID or physical address. This address is generally used only at initial installation or for diagnostic purposes. For normal network operation, a device address is used.

Device addresses are defined at the time of network configuration. All device addresses have three parts. The first part is the Domain ID, designating the domain. Devices must be in the same domain in order to communicate with each other. The second part is the Subnet ID that specifies a collection of up to 127 devices that are on a single channel or a set of channels connected by repeaters. There may be up to 255 subnets in a domain. The third part is the Node ID that identifies an individual device within the subnet.

A group is a logical collection of devices within a domain. Groups are assembled with regard for their physical location in the domain. There may be up to 256 groups in domain. A group address is the address that identifies all devices of the group. There may be any number of devices in a group when unacknowledged messaging is used. Groups are limited to 64 devices if acknowledged messaging is used.

A broadcast address identifies all devices within a subnet or domain.

LONWORKS network variables for both the Discharge Air Controller and the Space Comfort Controller are defined below. Variables are used in both the Space Comfort Controller and Discharge Air Controller profiles unless marked otherwise.

Commissioning the Network

Pressing the service pin, switch on the MicroTech II LONWORKS Communications Module, generates a service pin message, which contains the Neuron ID and the program code identification of the node. A service pin message is a network message that is generated by a node and broadcast on the network. It can be used to commission the LONWORKS network.

A network configuration tool maps device Neuron IDs to the domain/subnet/node logical addressing scheme when it creates the network image, the logical network addresses and connection information for all devices (nodes) on the network.

External Interface File (XIF)

LonMark guidelines specify strict documentation rules so that proprietary configuration tools are not required to commission and configure LONWORKS devices. The MicroTech II LONWORKS Self-Contained Communications Module is self-documenting so that any network management tool can obtain all the information needed over the network to connect it into the system and to configure and manage it. An External Interface File (a specially formatted PC text file with an extension .XIF) is also available so that any network tool can design and configure it prior to installation. For a copy of the XIF file contact your local Daikin representative.

Configuring the Unit Controller

The MicroTech II Vertical Self-Contained Unit Controller Main Control is designed, programmed, and configured at the factory to be a self-contained unit controller in accordance with either the LonMark Discharge Air Controller (DAC) or LonMark Space Comfort Controller (SCC) functional profile. The unit is ready to operate with the default values of the various parameters set at the factory. Default values can be changed with the unit's keypad or via the network. See the appropriate operation manual for default values and keypad operating instructions. See Reference Documents for part numbers.

Note: The Communications Option property (See Communication Option on page 9) in the device object must be set to MSTP for communications on a LONWORKS network.

Data Integrity

The integrity of some data depends on a valid network connection to maintain current values. The following data points require a valid network connection if bound. If data points listed in Table 2 do not change after a given time, the controller reverts to the default values of the variables.

Table 2: Receive Heart Beat Variables

Data Point	LONWORKS Variable
Occupancy Scheduler Input	nviOccSchedule
Application Mode	nviApplicMode
Remote Discharge Fan Capacity Setpoint	nviSupFanCap
Building Static Pressure	nviBldgStatPress
Outdoor Air Temperature	nviOutdoorTemp
Return Air Temperature	nviRATemp
Space Temperature	nviSpaceTemp
Relative Humidity	nviSpaceRH

Typical Application: Minimum Integration

When you have integrated the unit into your network, you can monitor and control unit operation from your workstation. At a minimum, you can:

- Display and monitor a minimum of important data points on your workstation display
- Turn the unit on or off from your workstation
- Set the schedule from your workstation and
- Operate the unit safely

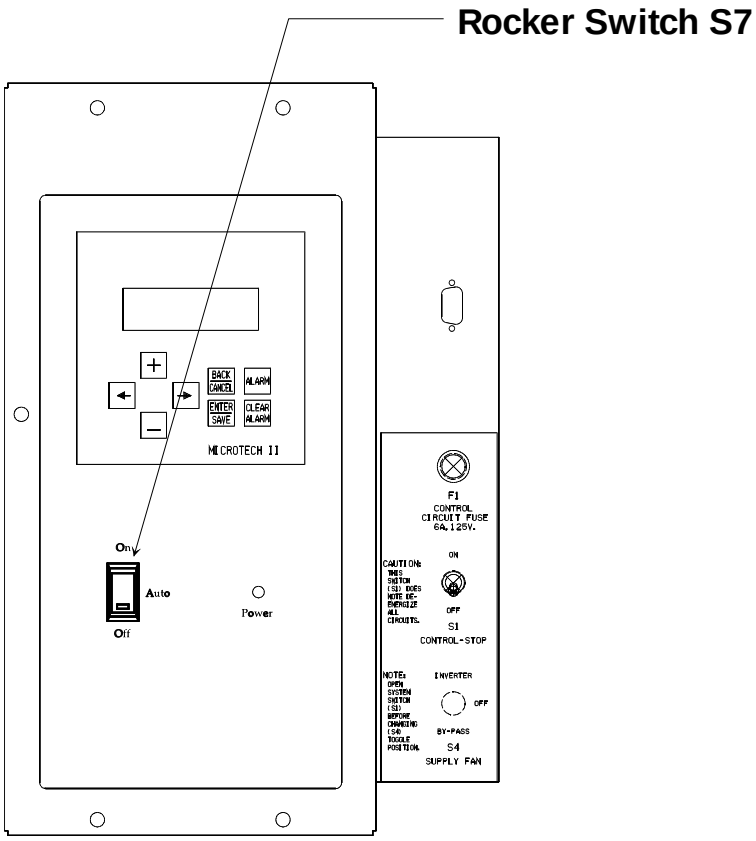
This section gives you the basic information and outlines a procedure to set up the unit for network control.

Set up the Unit for Network Control

To control the MicroTech II device over the network, perform the following setup steps at the unit.

1. Set the S7 rocker switch on the control panel to AUTO. Figure 4 shows the general location of a typical installation. Some models have variations of this switch panel, but all are in the same general location.

Figure 4: Location of Switch S7



2. On the unit keypad, set the Control Mode function to AUTO. The keypad password (4545) is required to edit this function. For a detailed description of how to use the keypad refer to the appropriate Operation Manual (See Reference Documents on page 4.) The keypad can be very useful to verify network operation.

Display Important Data Points

Typical workstation displays of MicroTech II unit controller attributes include the following significant data points (page number of detailed description in parenthesis). Each data point is identified with a number that also identifies it in the Comprehensive Data Points Tables (See page 18). These data points are also shaded in the comprehensive tables so that you can distinguish them from the rest of the data points in the table. References in the text of this section also identify these data points with a number and shading.

Table 3: Significant Data Points

No	Configuration	No	Temperature/Pressure	No	Setpoints	No	Clear Alarms
1	Unit Status (84)	5	Discharge Air Temperature (41)	11	Duct Static Pressure Setpoint (44)	16	Alarm, Faults: Clear All (87)
2	Application Mode (24)	6	Return Air Temperature (75)	12	Unoccupied Cooling Setpoint (81)	17	Alarm, Problems: Clear All (88)
3	Occupancy (64)	7	Mixed Air Temperature (63)	13	Occupied Cooling Setpoint (67)	18	Alarm, Warnings: Clear All (91)
4	Occupancy Scheduler Input (66)	8	Duct Static Pressure (44)	14	Occupied Heating Setpoint (68)		
		9	Entering Water Temperature (51)	15	Unoccupied Heating Setpoint (82)		
		10	Leaving Water Temperature (59)				

Integrators can display any number of additional data points based on job requirements or individual preference. See LONWORKS Variables on page 11 for a list of all LONWORKS Network. See BACnet Standard Objects on page 18 for list of all Standard BACnet Objects available to a BACnet network. For a more detailed description of these objects, see the Detailed Data Point Information section on page 25 of this document.

Network Off

The unit can be turned off over the network by writing to the (2) Application Mode variable. Writing AUTO to (2) Application Mode allows the unit controller to determine its mode of operation based on input conditions. Writing OFF to Application Mode shuts down the unit, etc.

The Emergency Override Mode Flag (See page 52) can also be used to shut down the unit from the network.

Network Occupancy Scheduling

Using the keypad, set the Occupancy Mode to Auto. Schedule unit operation over the network with the Occ Scheduler input (See page 68). Switching from OCC, UNOCC, BYPASS, or AUTO commands the unit into the mode you select.

Note: MicroTech II unit controllers use an internal keypad schedule during stand-alone operation. In BACnet the keypad schedule writes to the commandable Present Value property of the Occupancy Scheduler Input object at priority 15. To command the schedule from the supervisory controller you must write this property at a higher priority, for example, priority 8. If network scheduling is abandoned later and you want to schedule from the keypad again, you must relinquish command from the supervisory controller (that is, write NULL to the commandable Present Value of the Occupancy Scheduler Input object at the same priority as you were commanding the schedule).

Alarms

Alarms in a MicroTech II controller are divided into three classes: Faults, Problems, and Warnings.

- Fault Alarms have the highest priority.
- Problem Alarms have medium priority.
- Warning Alarms have the lowest priority.

Notification

BACnet

MicroTech II unit controllers with application software version 1.21 may have their alarms monitored by one of two methods: 1) individually by three BACnet Analog Values, or 2) by alarm class using three BACnet Binary Values.

1. To monitor alarms individually, read the desired instance based on the three BACnet Analog Value objects for Fault alarms, Problem Alarms, and Warning Alarms. The value of each of these objects described in the tables that follow will be the largest number in its enumeration that corresponds to an active alarm. Each of these objects will be set to zero if no alarms are active in that group. These objects are explained in further detail in 1) Alarm, Faults: Clear Individual, 2 Alarm, Problems: Clear Individual, or 3) Alarm, Warnings: Clear Individual: valid alarm values of 12 through 252 (Alarm), 0 (Normal).
2. To monitor alarms by alarm class, read the Present_Value property of any one of three Binary Value objects; 1) Alarm, Faults: Clear All, 2) Alarm, Problems: Clear All or 3) Alarm, Warnings: Clear All. If the Present_Value property of these objects reads ACTIVE, an alarm in that class has occurred.

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Alarms within MicroTech II unit controllers can be monitored individually by using the In Alarm attribute of the Unit Status Network Variable Output; nvoUnitStatus_in_alarm. This attribute displays a value that corresponds to the highest priority alarm that is active. It is possible to have multiple active alarms, but only the highest priority is displayed in this attribute. For example, if there is a Dirty Filter Warning (value of 24) and a Freeze Fault (value of 252) simultaneously, the Freeze Fault value of 252 will be displayed in nvoUnitStatus_in_alarm because it is the higher priority alarm of the two. Once the Freeze Fault condition is corrected and the Fault is cleared, the next priority active alarm value (in this example, value of 24 for Dirty Filter alarm) is displayed. The values for all alarms are described in the tables that follow. If the attribute nvoUnitStatus_in_alarm displays a zero, there are no active alarms.

Alarms may also be monitored by alarm class if desired. When the nvoUnitStatus_in_alarm attribute reads a value in the range of 1 to 99, a Warning Alarm is active. When the attribute reads a value in the range of 100 to 199, a Problem Alarm is active. When the attribute reads a value in the range of 200 to 255, a Fault Alarm is active.

Clearing

BACnet

MicroTech II unit controllers with application software version 1.09 and later have three Binary Value objects that can be used to clear alarms; 1) Alarm, Faults: Clear All, 2) Alarm, Problems: Clear All and 3) Alarm, Warnings: Clear All. Alarms in a particular class may be cleared by writing INACTIVE to the Present Value property of the associated Binary Value object that reads ACTIVE. If the unit is still in the alarm condition after clearing, the Present Value property of the associated Binary Value object changes to read ACTIVE again to indicate the alarm still exists.

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MicroTech II unit controllers with application software version 1.10 and later have three Network Variable Inputs (nvi's) of type SNVT_Switch that can be used to clear alarms; 1) nviAlarmFault, 2) nviAlarmProblem and 3) nviAlarmWarning. Alarms in a particular class may be cleared by changing the state part of the SNVT from 1 (Alarm) to 0 (Normal). If the unit is still in the alarm condition after clearing, the In Alarm attribute of the Unit Status Network Variable Output (nvoUnitStatus) changes to read 1 (Warning Alarm), 100 (Problem Alarm) or 200 (Fault Alarm) again to indicate the alarm still exists.

Unit Controller Sequence of Operation

The sequence of operation for a MicroTech II unit controller depends on the control type. Refer to the appropriate Operation Manual for sequence of operation details. See your local Daikin representative for documentation. These manuals also describe keypad operation.

Comprehensive Data Point Tables

These comprehensive data point tables contain the significant parameters of specific data points.

BACnet Standard Objects

Network Control Property (Keypad attributes available as BACnet Standard Objects for network control of the unit)	Page	Read Or Read/ Write	Object Type	SCC	DAC	Instance	Description
System Summary							
(1) Unit Status	81	R	AV	Y	Y	3915	1=OffNet, 2=Off Sw, 3=OffAlm, 4=Calib, 5=Startup, 6=Recirc, 7=FanOnly, 8=Econo, 9=Cooling, 10=MWU, 11=Heating, 12=MinDAT, 13=UnocEcon, 14=UnocFanO, 15=UnocDAT, 16=UnocClg, 17=UnocHtg, 18=Balance, 19=OffMan, 20=ManCtrl
Cooling Capacity	31	R	AV	Y	Y	3730	Feedback of cooling capacity (%)
Heating Capacity	53	R	AV	Y	Y	3805	Feedback of heating capacity (%)
Cooling Control Status	33	R	AV	Y	Y	3775	0=All Clg, 1=Econo, 2= Mech Clg, 3=Off Amb, 4=Off Alarm, 5=Off None, 6=Off No Flow, 7=Off Sw, 8=Off Net, 9=Off Man
Heating Control Status	55	R	AV	Y	Y	3825	0=HtEna, 1=OffAmb, 2=OffAlarm, 3=OffNone, 4=N/A, 5=OffSw, 6=OffNet, 7=OffMan
(2) Application Mode	25	R/W	AV	Y	Y	3715	0=Heat/Cool, 1=Off, 2=HeatOnly, 3=CoolOnly, 4=FanOnly
VAV Box Output	85	R	BV	Y	Y	3950	Indicates the state of VAV box output (MCB-BO # 12) 0=Heat, 1=Cool, 2=N/A
Occupancy							
(3) Occupancy	65	R	AV	Y	Y	3920	0=Occ, 1=Unocc, 2=Tnt Ovrd
(4) Occupancy Mode	66	R/W	AV	Y	Y	3930	0=Occ, 1=Unocc, 2=Tnt Ovrd, 3=Auto. **Note: This is an override object and not intended to be used to command Occupancy. For typical operation, this should be set to Auto**.
Occupancy Scheduler Input	66	R/W	BV	Y	Y	1380	Determines Occupancy when Occupancy Mode = AUTO. **Note: This BV is used to command Occupied & Unoccupied operation when Occupancy Mode is set to Auto. The BAS must write to this object at a priority less than 15.**
Occupancy Source	68	R	AV	Y	Y	3925	0=None, 1=Int Sched, 2=Net Sched, 3=Occ Mode, 4=Remote Sw, 5=N/A
Emergency Override Mode Flag	51	R/W	AV	Y	Y	3720	0=Norm, 1=Off (Completely shuts unit off via a network signal -Unit Status = OffNet)
Temperature							
Control Temperature	30	R	AV	Y	Y	165	Current temp of the input that the unit has been configured to use as the control temp
(5) Discharge Air Temperature	41	R	AI	Y	Y	135	Current reading of sensor
(6) Return Air Temperature	75	R	AI	Y	Y	140	Current reading of sensor
Space Temperature	79	R*	AI	Y	Y	120	Current reading of sensor or network input
Outdoor Air Temperature	73	R*	AI	Y	Y	145	Current reading of sensor or network input
(7) Mixed Air Temp	64	R	AI	Y	Y	150	Current reading of sensor
(9) Entering Water Temp	52	R	AI	Y	Y	155	Current reading of sensor
(10) Leaving Water Temp	60	R	AI	Y	Y	160	Current reading of sensor
Water Flow Summary							
Water Flow	85	R*	BI	Y	Y	225	0=Yes, 1=No
Head Pressure							
Head Pressure Setpoint	53	R/W	AV	Y	Y	3885	Sets the refrigeration setpoint used for controlling the water regulating valve

Network Control Property (Keypad attributes available as BACnet Standard Objects for network control of the unit)	**Page**	**Read Or Read/ Write**	**Object Type**	**SCC**	**DAC**	**Instance**	**Description**
Airflow Summary							
Airflow Status	25	R	BI	Y	Y	190	0=Noflo, 1=Flow (Differential pressure switch sensing airflow) MCB-BI6
Discharge Fan Status	44	R	BV	Y	Y	3935	0=Off, 1=On (Indicates if controller is commanding the discharge fan on) MCB-BO1
Fan Operation Output	52	R	BV	Y	Y	3945	0=Off, 1=On (Relay output which indicates that fans are ON (MCB BO # 3)
Duct Pressure							
(8) Duct Static Pressure	44	R	AV	NA	Y	3895	Current reading of sensor. If unit has two sensors the lower of the two is displayed
(11) Duct Static Pressure Setpoint	44	R/W	AV	NA	Y	3840	Default = 1.00" WC
Discharge Fan Capacity	43	R	AV	NA	Y	3845	Current discharge fan capacity (%)
Building Pressure							
Building Static Pressure	27	R*	AI	Y	Y	1425	Current reading of sensor value or network input
Zone Cooling							
Effective Cooling Enable Setpoint	48	R	AV	Y	Y	3750	If Control Temp > (this setpoint + ½ Cool Enable Dead Band), Then cooling is enabled
(13) Occupied Cooling Setpoint	67	R/W	AV	Y	Y	3765	Default = 75°F
Control Temperature Source	31	R/W	AV	Y	Y	3710	0=Return,1=Space, 2=OAT, 3=MAT
(12) Unoccupied Cooling Setpoint	81	R/W	AV	Y	Y	3900	Default = 85°F
Cooling Operating Hours	35	R	Runtime Total.	Y	Y	290	Indicates the hours of unit mechanical cooling (accumulates up to 65,535 hours before rolling over.)
Cooling Reset Enable State	34	R/W	Applic.	Y	Y	635	Enables or disables discharge air temperature cooling reset control for DAC. **Note: When this object is enabled, the type of cooling discharge temp reset is determined by the Cooling Reset Enable Value object**.
Cooling Reset Enable Value	35	R/W	Applic.	NA	Y	635	Indicates the amount of the discharge air temperature reset control enabled. **Note: Cooling Reset Enable State must be enabled or this property has no effect.**
Zone Heating							
Effective Heating Enable Setpoint	49	R	AV	Y	Y	3800	If Control Temp < (this setpoint - ½ Heat Enable Dead Band), Then heating is enabled
(14) Occupied Heating Setpoint	68	R/W	AV	Y	Y	3820	Default = 70°F
(15) Unoccupied Heating Setpoint	82	R/W	AV	Y	Y	3905	Default = 55°F
Heating Reset Enable State	57	R/W	Applic.	NA	Y	480	Enables or disables the discharge air temperature heating reset control for the Discharge Air Controller. **Note: When this property is enabled, the type of heating discharge temperature reset is determined by the Heating Reset Enable Value.**
Heating Reset Enable Value	58	R/W	Applic.	NA	Y	480	Enables or disables the discharge air temperature heating reset control for the Discharge Air Controller. **Note: Heating Reset Enable State must be enabled or this property has no effect.**
Discharge Cooling							
Effective Cooling Discharge Setpoint	48	R	AV	Y	Y	3745	Current discharge air setpoint which the unit will use in the cooling mode
Discharge Air Cooling Setpoint	41	R/W	AV	Y	Y	3740	Default = 55°F
Min Discharge Air Cooling Setpoint	62	R/W	AV	Y	Y	3755	Default = 55°F

Network Control Property (Keypad attributes available as BACnet Standard Objects for network control of the unit)	**Page**	**Read Or Read/ Write**	**Object Type**	**SCC**	**DAC**	**Instance**	**Description**
Max Discharge Air Cooling Setpoint	61	R/W	AV	Y	Y	3760	Default = 65°F
Waterside Economizer							
Economizer Valve Position	48	R	AI	Y	Y	1320	Feedback value (%)
Airside Economizer							
Outdoor Air Damper Position	71	R	AI	Y	Y	1315	Feedback value (%)
Effective Min Outdoor Damper Pos Spt	50	R	AV	Y	Y	3870	Reveals the OA damper min position setpoint the controller is currently using (%)
Outdoor Air Temperature (OA Ambient)	65	R	Applicat -ion	Y	Y	90	0=Low, 1=High Indicates whether the outdoor air is suitable for free cooling
Outdoor Air Damper Min Position	70	R/W	AV	Y	Y	3875	Default = 10%
Economizer Changeover Method	46	R/W	AV	Y	Y	3890	0=Enthalpy, 1=Dry Bulb
Economizer Changeover Temp Spt	47	R/W	AV	Y	Y	3865	Default=60°F, Makes changeover decision if Econo Changeover Method=Dry Bulb

Discharge Heating							
Effective Heating Discharge Setpoint	49	R	AV	Y	Y	3795	Current discharge air setpoint which the unit will use in the heating mode
Discharge Air Heating Setpoint	42	R/W	AV	NA	Y	3790	Default = 100°F
Min Discharge Air Temperature Limit	63	R/W	AV	Y	Y	3910	Default = 55°FSets low limit on units equipped with modulating or multistage heating
Min Discharge Air Heating Setpoint	62	R/W	AV	Y	Y	3810	Default = 60°F
Max Discharge Air Heating Setpoint	61	R/W	AV	Y	Y	3815	Default = 120°F
Dehumidification (SCC only)							
Dehumidification Status	39	R	AV	Y	NA	3785	0=False, 1=TrueIndicates if dehumidification is active
Relative Humidity	73	R	AV	Y	NA	1505	Displays value of optional relative humidity sensor
Dew Point Temperature	40	R	AV	Y	NA	660	Indicates current calculated dew point
Dehumidification Method	74	R/W	AV	Y	NA	3780	0=None, 1=RelHum, 2=DewPnt (Turns Dehumidification ON and OFF)
Relative Humidity Setpoint	74	R/W	AV	Y	NA	3770	Sets relative humidity stpt used when Relative Humidity Control Type is set to RelHum (Default 50%)
Dew Point Setpoint	40	R/W	AV	Y	NA	3735	Sets the dew point setpoint used when Relative Humidity Control Type is set to DewPnt (Default 50°F)
Schedule							
Daily Schedule	36	R	Sch	Y	Y	1385	MicroTech II keypad daily schedule (writes to Occupancy BV-1380 at priority level 15). Not used if network scheduling provided through supervisory controller
Holiday	58	R/W	Cal	Y	Y	1390	MicroTech II keypad holiday date list (writes to Occupancy BV-1380 at priority level 15). Not used if network scheduling provided through supervisory controller
Zone Temp Setup							
Space Setpoint Type	78	R/W	AV	Y	NA	3725	0=Tstat, 1=Network (Set to Network for network control of setpoints on SCC units)

Network Control Property (Keypad attributes available as BACnet Standard Objects for network control of the unit)	**Page**	**Read Or Read/ Write**	**Object Type**	**SCC**	**DAC**	**Instance**	**Description**
Manual Control							
Outdoor Air Damper Open/Close	71	R/W	BV	Y	Y	3940	0=Close, 1=OpenManually (at operator's discretion) force OA damper open/close
Alarms							
(16) Alarm, Faults: Clear All	87	R/W	BV	Y	Y	4150	Indicates Fault Alarm has occurred
(17) Alarm , Problems: Clear All	89	R/W	BV	Y	Y	4145	Indicates Problem Alarm has occurred
(18) Alarm, Warnings: Clear All	91	R/W	BV	Y	Y	4140	Indicates Warning Alarm has occurred
Alarms-Fault Individual Notification	89	R	AV	Y	Y	5328	Individual notification of the highest priority active Fault alarm enumeration
Alarms-Problem Individual Notification	90	R	AV	Y	Y	5327	Individual notification of the highest priority active Problem alarm enumeration
Alarms-Warning Individual Notification	91	R	AV	Y	Y	5326	Individual notification of the highest priority active Warning alarm enumeration

* To write a network value to the present value of this input, set the OUT-OF-SERVICE property to TRUE. If network communications is lost with OUT-OF-SERVICE set to TRUE, the unit controller uses the last value written.

Note: Objects that appear in multiple locations on the keypad are only listed in the location they first appear on the keypad.

LONWORKS Variables

Network Control Property (Attributes available as LONWORKS Variables for network control of the unit)	Page	Variable Name	SNVT/SCPT Index	SCC	DAC	Description
System Summary						
(1) Unit Status	81	nvoUnitStatus	112	Y	Y	Mode 0=AUTO, 1=HEAT, 2=MRNG_WRMUP, 3=COOL, 4=N/A, 5= N/A, 6=OFF, 7= N/A, 8= N/A, 9=FAN_ONLY, 10=FREE_COOL, 11= N/A, 0xFF=NUL
Cooling Capacity	31	nvoUnitStatus	112	Y	Y	Cool_Output Feedback of cooling capacity (%)
Heating Capacity	53	nvoUnitStatus	112	Y	Y	Heat_Output Feedback of heating capacity (%)
(2) Application Mode	25	nviApplicMode	108	Y	Y	0=AUTO, 1=HEAT, 2= N/A, 3=COOL, 4= N/A, 5= N/A, 6=OFF, 7= N/A, 8= N/A, 9=FAN_ONLY, 10= N/A, 11= N/A, 12= N/A, OxFF=NUL
Occupancy						
(3) Occupancy	65	nvoEffectOccup	109	Y	Y	0=OCCUPIED, 1=UNOCCUPIED, 2=TENANT OVERRIDE, 3= N/A, 0xFF=NUL
(4) Occupancy Mode	66	nviOccManCmd	109	Y	Y	0=OCCUPIED, 1=UNOCCUPIED, 2=TENANT OVERRIDE, 3= N/A, 0xFF=NUL
Occupancy Scheduler Input	66	nviOccSchedule	128	Y	Y	Network schedule
Emergency Override Mode Flag	51	nviEmergOverride	103	Y	Y	0=NORMAL, 1= N/A, 2= N/A, 3= N/A, 4=SHUTDOWN, 5= N/A, 0xFF=NUL
Temperature						
(5) Discharge Air Temperature	41	nvoDischAirTemp	105	Y	Y	Current reading of sensor
(6) Return Air Temperature	75	nviRATemp	105	Y	Y	Current reading of sensor or network input
		nvoRATemp	105	Y	Y	Current reading of sensor or network input
Space Temperature	79	nviSpaceTemp	105	Y	Y	Current reading of sensor or network input
		nvoSpaceTemp	105	Y	Y	Current reading of sensor or network input
Outdoor Air Temperature	73	nviOutdoorTemp	105	Y	Y	Current reading of sensor or network input
		nvoOutdoorTemp	105	Y	Y	Current reading of sensor or network input
Duct Pressure						
(8) Duct Static Pressure	44	nvoDuctStatPress	113	NA	Y	Current reading of sensor. If unit has two sensors the lower of the two is displayed
(11) Duct Static Pressure Spt	45	nviDuctStaticSP	113	NA	Y	Default = 1.00" WC
Discharge Fan Capacity	43	nvoUnitStatus	112	NA	Y	Fan_Output Current discharge fan capacity (%)
Building Pressure						
Building Static Pressure	27	nviBldgStatPress	113	Y	Y	Current reading of sensor value or network input
Building Static Pressure Spt	27	nviBldgStaticSP	113	Y	Y	Default = 0.050" WC
Zone Cooling						
Effective Cooling Enable Spt	48	nvoEffectSetpt	105	Y	Y	Current cooling enable setpoint which the unit will use in the cooling mode
(13) Occupied Cooling Spt	68	nciSetpoints	106	Y	Y	Default = 75ºF
(12) Unoccupied Cooling Spt	83	nciSetpoints	106	Y	Y	Default = 85ºF
Cooling Reset Enable State	34	nciCoolResetEn_state	211	Y	Y	Enables or disables discharge air temperature cooling reset control for DAC. **Note: When this object is enabled, the type of cooling discharge temp reset is determined by the Cooling Reset Enable Value object**.
Cooling Reset Enable Value	35	nciCoolResetEn_value	211	NA	Y	Indicates the amount of the discharge air temperature reset control enabled. **Note: Cooling Reset Enable State must be enabled or this property has no effect.**

Network Control Property (Attributes available as LONWORKS Variables for network control of the unit)	**Page**	**Variable Name**	**SNVT/SCPT Index**	**SCC**	**DAC**	**Description**
Zone Heating						
Effective Heating Enable Spt	49	nvoEffectSetpt	105	Y	Y	Current heating enable setpoint which the unit will use in the heating mode
(14) Occupied Heating Sp	69	nciSetpoints	106/60	Y	Y	Default = 70ºF
(15) Unoccupied Heating Spt	84	nciSetpoints	106/60	Y	Y	Default = 55ºF
Heating Reset Enable State	57	NciHeatResetEn_state	212	NA	Y	Enables or disables the discharge air temperature heating reset control for the Discharge Air Controller. **Note: When this property is enabled, the type of heating discharge temperature reset is determined by the Heating Reset Enable Value.**
Heating Reset Enable Value	58	NciHeatResetEn_value	212	NA	Y	Indicates the amount of the discharge air temperature reset control enabled. **Note: Heating Reset Enable State must be enabled or this property has no effect.**

Discharge Cooling						
Effective Cooling Discharge Spt	48	nvoEfDATempSp	105	Y	Y	Current discharge air setpoint which the unit will use in the cooling mode
Discharge Air Cooling Spt	41	nviDAClSP	105	Y	Y	Default = 55ºF
Min Discharge Air Cooling Spt	62	nciMinDAC1SP	105/206	Y	Y	Default = 55ºF
Max Discharge Air Cooling Spt	61	nciMaxDAC1SP	105/205	Y	Y	Default = 65ºF
Clg Reset	34	nciCoolResetEn	95/211	Y	Y	State 0 = None, 1 = Value has meaning Value 0% = None, 1% = Space, 2% = Return, 3% = OAT, 4% = Ext mA, 5% = Ext V, 6% = Airflow
Airside Economizer						
Outdoor Air Damper Position	71	nvoUnitStatus	112	Y	Y	Econo_Output Feedback value (%)
Effective Min Outdoor Damper Pos Spt	50	nviOAMinPos	81	Y	Y	Current OA damper min position setpoint (%)
Outdoor Air Ambient	64	nviEconEnable	95	Y	Y	0=Off, 1=OnIndicates whether the outdoor air is suitable for free cooling
		nvoEconEnable	95	Y	Y	0=Off, 1=OnIndicates whether the outdoor air is suitable for free cooling
Outdoor Air Damper Min Position	70	nviOAMinPos	81/23	Y	Y	Default = 10%
Discharge Heating						
Effective Heating Discharge Spt	49	nvoEfDATempSp	105	Y	Y	Current discharge air setpoint which the unit will use in the heating mode
Discharge Air Heating Spt	42	nviDAHtSP	105	Y	Y	Default = 100ºF
Min Discharge Air Heating Spt	62	nciMinDAHtSP	105/208	Y	Y	Default = 60ºF
Max Discharge Air Heating Spt	61	nciMaxDAHtSP	105/207	Y	Y	Default = 120ºF
Htg Reset	56	nciHeatResetEn	95/212	Y	Y	State 0 = None, 1 = Value has meaning Value 0% = None, 1% = Space, 2% = Return, 3% = OAT, 4% = Ext mA, 5% = Ext V
Dehumidification (SCC ONLY)						
Dehumidification Status	39	nvoDehumidifier	95	Y	NA	Value (0% = Off, 100% = On.) State (0 = Disabled, 1 = Enabled)
Relative Humidity	73	nviSpaceRH		Y	NA	
		nvoSpaceRH	81			Value of optional relative humidity sensor or network input
Dew Point Temperature	40	nvoSpaceDewPt	105	Y	NA	Indicates current calculated dew point
Relative Humidity Spt	74	nviSpaceDehumSP	81	Y	NA	Setpoint used when Relative Humidity Control Type is set to RelHum on the unit Keypad

Network Control Property (Attributes available as LONWORKS Variables for network control of the unit)	**Page**	**Variable Name**	**SNVT/SCPT Index**	**SCC**	**DAC**	**Description**
Unit Configuration						
Remote Discharge Fan Capacity Spt	75	nviSupFanCap	81	NA	Y	Default = 25%
Timer Settings						
Local Tenant Override Time	60	nciBypassTime	123/34	Y	Y	Sets the max amount of time that the controller can be in bypass mode
Alarms						
In Alarm	59	nvoUnitStatus	112	Y	Y	In_Alarm0=No Alarm, 1=Warning Alarm, 100=Problem Alarm, 200=Fault Alarms
Alarm, Fault: Clear All	88	nviAlarmFault	95	Y	Y	Clear all Fault Alarms. Change state part of SNVT from 1 (Alarm) to 0 (Normal)
Alarm, Problems: Clear All	88	nviAlarmProblem	95	Y	Y	Clear all Problem Alarms. Change state part of SNVT from 1 (Alarm) to 0 (Normal)
Alarm, Warnings: Clear All	91	nviAlarmWarning	95	Y	Y	Clear all Warning Alarms. Change state part of SNVT from 1 (Alarm) to 0 (Normal)
Non-Keypad Variables						
Send Heartbeat	78	nciSndHrtBt	107/49	Y	Y	Default is 0 seconds
Receive Heartbeat	73	nciRcvHrtBt	107/48	Y	Y	Default is 0 seconds
Minimum Send Time	64	nciMinOutTm	107/52	Y	Y	Defines min period of time between automatic network variable output time (reducing traffic on network)
Temperature Setpoint Input	79	nviSetpoint	105	Y	Y	Adjusts effective heat enable and effective cool enable setpoint via the network. Effective Heat SP = nviSetpoint - 0.5 (Occupied_Cool - Occupied_Heat). Effective Cool SP = nviSetpoint + 0.5 (Occupied_Cool - Occupied_Heat)

Note: Objects that appear in multiple locations on the keypad are only listed in this table in the location they first appear on the keypad.

Detailed Data Point Information

The data points defined in this section reference data that is generated in the MicroTech II Vertical Self-Contained Unit Controller. You cannot change the values.

AHU ID

Keypad Menu Path Setup/Service\Unit Configuration\AHU ID=

This read-only property identifies the version of application software loaded into the unit controller.

Values

Value of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	90	AHU ID	63002
Full Reference				
MTII SCUC #########.App.Daikin.SC.AHU ID				

Air Flow Status

Keypad Menu Path Air/Water Flow\Airflow Summary\Flow Status=

This read-only property indicates discharge airflow status. A binary-differential pressure switch senses airflow status.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Input	3	190	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Airflow Switch.Present Value				

Enumeration
0 = Noflo
1 = Flow

Application Mode

Keypad Menu Path System Summary\System\Appl Mode=

This read/write attribute sets the unit in an application mode (auto, off, heat only, cool only, fan only, or dehumidification). Application Mode does not "force" the unit into any state. However, it disables certain unit operation. For example, an Application Mode of "Cool Only" disables heating, "Heat Only" disables cooling, and "Fan Only" disables heating and cooling.). This attribute has no affect unless Control Mode is set to Auto. Control Mode is only set at the keypad/display.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3715	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Application Mode MAV				

Enumeration
0 = Heat/Cool
1 = Off
2 = Heat Only
3 = Cool Only
4 = Fan Only

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviApplicMode	DAC, SCC	SNVT_hvac_mode	108

Enumeration Definitions

Value	Identifier	Notes
0	HVAC_AUTO	Controller automatically changes between application modes
1	HVAC_HEAT	Heating only
2	N/A	
3	HVAC_COOL	Cooling only
4	N/A	
5	N/A	
6	HVAC_OFF	Controller not controlling outputs
7	N/A	
8	N/A	
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on
10	N/A	
11	N/A	
12	N/A	
0xFF	HVAC_NUL	Value not available

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Auto	0	HVAC_AUTO
2	Heat Only	1	HVAC_HEAT
2	Heat Only	2	HVAC_MRNG_WRMUP
3	Cool Only	3	HVAC_COOL
3	Cool Only	4	HVAC_NIGHT_PURGE
3	Cool Only	5	HVAC_PRE_COOL
1	Off	6	HVAC_OFF
0	Auto	7	HVAC_TEST
2	Heat Only	8	HVAC_EMERG_HEAT
4	Fan Only	9	HVAC_FAN_ONLY
3	Cool	10	HVAC_FREE_COOL
0	Auto	11	HVAC_ICE
2	Heat Only	12	HVAC_MAX HEAT
0	Heat/Cool	0xFF	HVAC_NUL

Building Static Pressure

Keypad Menu Path No Keypad Equivalent

This read/write property connects a network building static pressure sensor or network output from another controller. When a building static pressure sensor is locally wired to the controller, this variable has priority if a valid value is present.

Values

Pressure in Inches of Water Column: -0.250 - +0.250 WC of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	1425	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Static P Select.Building Static Pres.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoBldgStatPress	DAC, SCC	SNVT_press_p	113
nviBldgStatPress	DAC, SCC	SNVT_press_p	113

Measurement	Gauge Pressure
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-62.25..62.25 Pascals (1 Pa). The value 0x7FFF represents invalid data.

Building Static Pressure Dead Band

Keypad Menu Path Air/Water Flow\Bldg Pressure\BSP Db=

This read/write property sets a dead band around the Building Static Pressure Setpoint (See below.). No building static pressure control action is taken when the current building static pressure input is within this dead band.

Values

Pressure in Inches of Water Column: 0.001-0.100 WC of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
PID	252	1520	Deadband	2205
Full Reference				
MTII SCUC #########.App.Daikin.SC.RF Cap Ctrl.Building Static PID.Deadband				

Building Static Pressure Setpoint

Keypad Menu Path Air/Water Flow\Bldg Press\Bldg SP Spt=

This read/write property sets the building static pressure setpoint used for controlling the return air or exhaust fan inlet vanes or VFD. The inlet vanes or VFD is modulated to maintain the building static pressure sensor input at this Setpoint.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Pressure in Inches of Water Column: -0.250 - +0.250 WC of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	1480	Bldg Static P Spt	63033
Full Reference				
MTII SCUC #########.App.Daikin.SC.RF Cap Ctrl.Bldg Static P Spt				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviBldgStaticSP	DAC, SCC	SNVT_press_p	113

Measurement	Gauge Pressure
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-62.25..62.25 Pascals (1 Pa). The value 0x7FFF represents invalid data.

Chilled Water Capacity

Keypad Menu Path System Summar\System\Clg Capacity= Or Temperatures\Zone Cooling\Clg Capacity=Or Temperatures\Discharge Cooling=

This read-only property indicates the current percentage of unit maximum chilled water flow.

Values

Percent: 0-100% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3730	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Clg Capacity AV.Present Value				

Compressor 1 Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Comp 1=

This read-only property indicates the hours compressor #1 has been operating. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	720	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Comp 1 Runtime.Present Value				

Compressor 2 Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Comp 2=

This read-only property indicates the hours compressor #2 has been operating. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	725	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Comp 2 Runtime.Present Value				

Compressor 3 Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Comp 3=

This read-only property indicates the hours compressor #3 has been operating. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	730	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Comp 3 Runtime.Present Value				

Compressor 4 Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Comp 4=

This read-only property indicates the hours compressor #4 has been operating. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	735	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Comp 4 Runtime.Present Value				

Compressor 5 Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Comp 5=

This read-only property indicates the hours compressor #5 has been operating. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	740	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Comp 5 Runtime.Present Value				

Compressor 6 Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Comp 6=

This read-only property indicates the hours compressor #6 has been operating. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	745	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Comp 6 Runtime.Present Value				

Control Temperature

Keypad Menu Path System Summary\Temperatures\Control Temp= Or Temperatures\Zone Cooling\Control Temp=
Or Temperatures\Zone Heating\Control Temp=

This read-only property displays the value of the current temperature input selected by the Control Temperature Source data point.

Values

Temperature in °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	165	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Control Temperature.Present Value				

Control Temperature Source

Keypad Menu Path Temperatures\Zone Cooling\CtrlTemp Src= Or Temperatures\Zone Heating\CtrlTemp Src=

This read/write property selects the temperature sensor used for the unit heating/cooling changeover decision. For example, if it is set to Return, the Control Temperature (See page 30) is the same as the Return Air Temperature (See page 77).

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3710	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Ctrl Temp Src MAV.Present Value				

Enumeration
0 = Return 1 = Space 2 = OAT

Cooling Capacity

Keypad Menu Path System Summary\System\Clg Capacity= Or Temperatures\Zone Cooling\Clg Capacity= Or Temperatures\Discharge Cooling\Clg Capacity=

This read-only property indicates the current percentage of unit maximum cooling capacity.

Values

Percent: 0-100% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3730	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Clg Capacity AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoUnitStatus_cool_output	DAC, SCC	SNVT_hvac_status	112

Measurement	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

```
typedef struct {
        hvac_t          mode;
        signed long     heat_output_primary;
        signed long     heat_output_secondary;
        signed long     cool_output;
        signed long     econ_output;
        signed long     fan_output;
        unsigned        in_alarm;
} SNVT_hvac_status
```

Field Definitions

Field	Data Point Reference	Valid Range	Notes
mode	See below	Enumerated	compatible with SNVT_hvac_mode
heat_output_primary	Heating Capacity	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	Not Applicable	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	Cooling Capacity	-163.83 .. +163.83% (percentage of full scale)	cooling output
econ_output	Out Door Air Damper Position	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	Discharge Fan Capacity	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	In Alarm	0 =No Alarm 1 =Warning 100 =Problems 200 =Faults	1 means unit is in alarm

Enumeration Definitions

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

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Off Unocc	6	HVAC_OFF
1	Off Net	6	HVAC_OFF
2	Of Sw	6	HVAC_OFF
3	Off Alrm	6	HVAC_OFF
4	Calib	7	HVAC_TEST
5	Startup	6	HVAC_OFF
6	Recirc	9	HVAC_FAN_ONLY
7	Fan Only	9	HVAC_FAN_ONLY
8	Econo	10	HVAC_FREE_COOL
9	Cooling	3	HVAC_COOL
10	MWU	2	HVAC_MRNG_WRMUP
11	Heating	1	HVAC_HEAT
12	Min DAT	9	HVAC_FAN_ONLY
13	UnocEcon	10	HVAC_FREE_COOL
14	UnocFanO	9	HVAC_FAN_ONLY
15	UnocDAT	9	HVAC_FAN_ONLY
16	UnocClg	3	HVAC_COOL
17	UnocHtg	1	HVAC_HEAT
18	Balance	7	HVAC_TEST
19	Off Man	6	HVAC_OFF

Cooling Control Status

Keypad Menu Path System Summary\System\Clg Status=

This read-only property indicates whether cooling (economizer or mechanical) is currently allowed. If cooling is disabled, the reason is indicated.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3775	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Clg Status MAV.Present Value				

Enumeration
0 = All Clg
1 = Econo
2 = Mech Clg
3 = Off Amb
4 = Off Alarm
5 = Off None
6 = Off No Flow
7 = Off Sw
8 = Off Net
9 = Off Man

Cooling Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Mech Cool=

This read-only property indicates the hours of unit mechanical cooling. The value accumulates to 65,535 hours before rolling over.

Values

Hours: 0 - 65,535 hours of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	290	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling Op Time.Present Value				

Cooling Reset Enable State

Keypad Menu Path No Keypad Equivalent

This read/write configuration property enables or disables the discharge air temperature cooling reset control for the Discharge Air Controller.

Note: When this property is enabled, the type of cooling discharge temperature reset is determined by the Cooling Reset Enable Value object (See page 35).

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Cooling Stpt Status	940
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Cooling Stpt Status				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciCoolResetEn_stat	DAC	SCPTcoolingResetEn	211	SNVT_switch	95

Measurement	Switch
Type Category	Structure
Type Size	2 bytes

Structure

```
typedef struct {
        unsigned    value;      Enumerated
        signed      State;
} SNVT_hvac_status
```

Enumeration Definitions

Value	Identifier	Notes
0	None	
1	Space	
2	Return	
3	OAT	
4	Ext Ma	
5	Ext V	
6	Airflow	

Enumeration Correspondence

	BACnet	LonWorks
0	None	None
1	Space	Space
2	Return	Return
3	OAT	OAT
4	Ext Ma	Ext Ma
5	Ext V	Ext V
6	Airflow	Airflow

Cooling Reset Enable Value

Keypad Menu Path Temperatures\Discharge Cooling\Clg Reset=t

This read/write configuration property indicates the amount of the discharge air temperature cooling reset control enabled.

Note: Cooling Reset Enable State (See page 34) must be enabled or this property has no effect.

Values

Percent Floating Point

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Effective Value	50043
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Effective Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciCoolResetEn_stat	DAC	SCPTcoolingResetEn	211	SNVT_switch	95

Measurement	Switch
Type Category	Structure
Type Size	2 bytes

Structure

typedef struct {

unsigned value; Enumerated

signed State;

} SNVT_hvac_status

Enumeration Definitions

Value	Identifier	Notes
0	None	
1	Space	
2	Return	
3	OAT	
4	Ext Ma	
5	Ext V	
6	Airflow	

Enumeration Correspondence

	BACnet	LonWorks
0	None	None
1	Space	Space
2	Return	Return
3	OAT	OAT
4	Ext Ma	Ext Ma
5	Ext V	Ext V
6	Airflow	Airflow

Daily Schedule

Keypad Menu Path Temperatures\Discharge Cooling\Clg Reset=

is the MicroTech II object that specifies the normal weekly schedule. It contains four adjustable properties that set the weekly schedule.

- Time period that the schedule is effective
- Schedule for each day of the week
- Exceptions to the schedule
- Property that controls the unit

BACnet

Standard BACnet object type of Schedule.

Effective Time Period Values

Effective time period in days of BACnet Date Range data type. See ANSI/ASHRAE 135-2001 for a definition of the data type.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Schedule	17	1385	Effective Period	32
Full Reference				
MTII SCUC #########.Schedule.Occupancy Schedule.Effective Period				

Weekly Schedule Values

Weekly schedule in a seven element BACnet Array of BACnet Daily Schedule data type. See ANSI/ASHRAE 135-2001 for a definition of the data type.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Schedule	17	1385	Weekly Schedule	123
Full Reference				
MTII SCUC #########.Schedule.Occupancy Schedule.Weekly Schedule				

Exception Schedule Values

Exception schedule of days as a sequence of BACnet Special Events data type. See ANSI/ASHRAE 135-2001 for a definition of the data type.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Schedule	17	1385	Exception Schedule	38
Full Reference				
MTII SCUC #########.Schedule.Occupancy Schedule.Exception Schedule				

List of Property References Values

MicroTech II Vertical Self-Contained Unit Controller object properties as a sequence of BACnet Object Property Reference data type. See ANSI/ASHRAE 135-2001 for a definition of the data type.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Schedule	17	1385	List of Prop Refs	54
Full Reference				
MTII SCUC #########.Schedule.Occupancy Schedule.List of Prop Refs				

Date

Keypad Menu Path Setup/Service\Time/Date

This read/write property sets the current date of the form day, month, year, and day of the week.

Values

Dates as BACnet date data types. See ANSI/ASHRAE 135-2001 for a definition of the data type.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Device	8	100	Local Date	56
Full Reference				
MTII SCUC #########.Local Date				

Dehumidification Control

Keypad Menu Path Setup/Service\Dehum Setup\Dehum Ctrl=

This read/write property determines when dehumidification can operate. If it is set to Occupied, dehumidification can only operate during occupied times. If it is set to Always, dehumidification can operate during occupied and unoccupied times.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Dehum Ctrl	63307
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dehum Ctrl				

Enumeration
0 = Occupied 1 = Always

Dehumidification: Maximum Cooling Stages

Keypad Menu Path Setup/Service\Dehum Setup\Maximum Stages=

This read/write property sets the maximum number of cooling stages that can be active during a dehumidification operation.

Values

Number of Stages: 1-8 of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Dehum Max Stages	63308
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dehum Max Stages				

Dehumidification: Minimum Cooling Stages

Keypad Menu Path Setup/Service\Dehum Setup\Minimum Stages=

This read/write property sets the number of cooling stages that are immediately activated during a dehumidification operation.

Values

Number of Stages: 1-8 of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Dehum Min Stages	63310
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dehum Min Stages				

Dehumidification Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Dehumidify=

This read-only property indicates the hours of Dehumidification. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	310	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Dehum Op Time.Present Value				

Dehumidification Status

Keypad Menu Path Humidity\Dehumidification\Dehum Status=

This read-only property indicates whether or not dehumidification operation is active.

Note: Keypad/display returns Off (False) or ON (True)

Values

Enumerated (Floating Point)

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3785	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dehum Status AV. Present Value				

Enumeration
0 = False 1 = True

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoDehumidifier_state	SCC	SNVT_switch	95

Measurement	Switch
Type Category	Structure
Type Size	2 bytes

Structure

typedef struct {

unsigned value;

signed State;

} SNVT_switch

Field Definitions

Field	Data Point Reference	Units	Valid Range	Notes
value	Dehumidification Status Output Value	8 bit percentage	0 .. 100%	0% means off, 100% means on
state	Dehumidification Status Output State	state	0 .. 1, 0xFF	0 means disabled, 1 means enabled, 0xFF means undefined

Dew Point Dead Band

Keypad Menu Path Humidity\Dehumidification\DewPnt Db=

This read/write property sets a deadband around the dew point setpoint.

Values

Temperature in °F: 0-10°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Dew Point Deadband	63314
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dew Point Deadband				

Dew Point Setpoint

Keypad Menu Path Humidity\Dehumidification\DewPoint Spt=

This read/write property sets the dew point setpoint.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 0-99°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3735	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling Dew Point Spt AV.Present Value				

LONWORKS

The percentage value provided in nviSpaceDehumSP is converted to a Dew Point setpoint temperature between 0°F and 100°F. For example 50% becomes 50°F. See Relative Humidity Setpoint on page 75.

Dew Point Temperature

Keypad Menu Path Humidity\Dehumidification\Dew Point=

This read-only property indicates the current dew point calculated from the current reading of the optional relative humidity sensor.

Values

Temperature between -50° and 250° in °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	660	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dew Pt Temperature.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoSpaceDewP+	SCC	SNVT_temp_p	105

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

Discharge Air Cooling Dead Band

Keypad Menu Path Temperatures\Discharge Cooling\Clg Db=

This read/write property sets a dead band around the Effective Cooling Discharge Setpoint (See on page 49).

Values

Temperature in °F: 0.0 - 10.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	685	DAT Clg Deadband	63302
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.DAT Clg Deadband				

Discharge Air Cooling Setpoint

Keypad Menu Path Temperatures\Discharge Cooling\DAT Clg Spt=

This read/write property sets Effective Cooling Discharge Setpoint (See on page 49) This setpoint is set to this value when it is not being set by a reset schedule. This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 40.0 - 100.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3740	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.DAT Clg Spt AV.Present Value				

LONWORKS VARIABLE

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviDACISP	SCC	SNVT_temp_p	105

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

Discharge Air Heating Dead Band

Keypad Menu Path Temperatures\Discharge Heating/Htg Db=

This read/write property sets a dead band around the Effective Heating Discharge Setpoint (See page 50).

Values

Temperature in °F: 0.0 - 10.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	510	DAT Htg Deadband	63305
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.DAT Htg Deadband				

Discharge Air Heating Setpoint

Keypad Menu Path Temperatures\Discharge Heating\DAT Htg Spt=

This read/write property sets the Effective Heating Discharge Setpoint (See page 50). The Effective Heating Discharge Setpoint is set to this value when it is not being reset by a reset schedule.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 40.0 - 140.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3790	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.DAT Htg Spt AV.Present Value				

LONWORKS VARIABLE

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviDAHtSP	DAC	SNVT_temp_p	105

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

Discharge Air Temperature

Keypad Menu Path System Summary\Temperatures\Disch Air= or Temperatures\Discharge Cooling\Disch Air= or Temperatures\Discharge Heating\Disch Air=

This read-only property indicates the current reading of the unit discharge air temperature sensor.

Values

Temperature in °F between 0.0 - 275.0°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	135	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.DA Temperature.Present Value				

LONWORKS VARIABLE

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoDischAirTemp	DAC, SCC	SNVT_temp_p	105

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

Discharge Fan Capacity

Keypad Menu Path Air/Water Flow\Duct Pressure\Disch Fan Cap=

This read-only property indicates the current capacity of the unit discharge fan.

Values

Percent: 0-100% of discharge fan capacity or VFD maximum speed of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3845	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.DF Cap Ctrl.DF Cap Ctrl PV AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoUnit Status_fan_output	DAC, SCC	SNVT_hvac_status	112

Measurement	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

```
typedef struct {
        hvac_t          mode;
        signed long     heat_output_primary;
        signed long     heat_output_secondary;
        signed long     cool_output;
        signed long     econ_output;
        signed long     fan_output;
        unsigned        in_alarm;
} SNVT_hvac_status
```

Field Definitions

Field	Data Point Reference	Valid Range	Notes
mode	See below	Enumerated	compatible with SNVT_hvac_mode
heat_output_primary	Heating Capacity	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	Not Applicable	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	Cooling Capacity	-163.83 .. +163.83% (percentage of full scale)	cooling output
econ_output	Out Door Air Damper Position	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	Discharge Fan Capacity	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	In Alarm	0 =No Alarm 1 =Warning 100 =Problems 200 =Faults	1 means unit is in alarm

Enumeration Definitions

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
3	HVAC_COOL	Cooling only
4	HVAC_NIGHT_PURGE	Application-specific night purge
5	HVAC_PRE_COOL	Application-specific pre-cool
6	HVAC_OFF	Controller not controlling outputs
7	HVAC_TEST	Equipment being tested
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on
10	HVAC_FREE_COOL	Cooling with compressor not running
11	HVAC_ICE	Ice-making mode
0xFF	HVAC_NUL	Value not available

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Off Unocc	6	HVAC_OFF
1	Off Net	6	HVAC_OFF
2	Of Sw	6	HVAC_OFF
3	Off Alrm	6	HVAC_OFF
4	Calib	7	HVAC_TEST
5	Startup	6	HVAC_OFF
6	Recirc	9	HVAC_FAN_ONLY
7	Fan Only	9	HVAC_FAN_ONLY
8	Econo	10	HVAC_FREE_COOL
9	Cooling	3	HVAC_COOL
10	MWU	2	HVAC_MRNG_WRMUP
11	Heating	1	HVAC_HEAT
12	Min DAT	9	HVAC_FAN_ONLY
13	UnocEcon	10	HVAC_FREE_COOL
14	UnocFanO	9	HVAC_FAN_ONLY
15	UnocDAT	9	HVAC_FAN_ONLY
16	UnocClg	3	HVAC_COOL
17	UnocHtg	1	HVAC_HEAT
18	Balance	7	HVAC_TEST
19	Off Man	6	HVAC_OFF
20	Man Ctrl	7	HVAC_TEST

Discharge Fan Status

Keypad Menu Path Air/Water Flow\Airflow Summary\Disch Fan=

This read-only property indicates whether the controller is commanding the unit discharge fan on.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	4	3935	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Start Stop Control.DF On Off.Present Value				

Enumeration
0 = Off 1 = On

Duct Static Pressure

Keypad Menu Path Air/Water Flow\Duct Pressure\Duct Press=

This read-only property indicates the current reading of the duct static pressure sensor. When a unit is equipped with two duct static pressure sensors, this attribute displays the lower of the two sensor readings. Static pressure control is then based on the lower of the two readings.

Values

Pressure in IWC in .001 inch of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3895	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Static P Select.Duct Press AV.Present Value				

LONWORKS VARIABLE

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoDuctStatPress	DAC	SNVT_press_p	113

Measurement	Gauge Pressure
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-62.25.. 62.25 Pascals (1 Pa). The value 0x7FFF represents invalid data.

Duct Static Pressure Dead Band

Keypad Menu Path Air/Water Flow\Duct Pressure\DSP Db=

This read/write property sets a dead band around the Duct Static Pressure Setpoint (See page 45). No duct static pressure control action is taken when the current duct static pressure input is within this dead band.

Values

Inches of Water Column: 0.00-0.50 IWC of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
PID	252	1445	Deadband	2205
Full Reference				
MTII SCUC #########.App.Daikin.SC.DF Cap Ctrl.Duct Static PID.Deadband				

Duct Static Pressure Setpoint

Keypad Menu Path Air/Water Flow\Duct Press\DuctSP Spt=

This read/write property sets the duct static pressure setpoint used to control the discharge air fan inlet vanes or VFD.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Inches of Water Column: 0.20 - 4.00 IWC of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3840	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.DF Cap Ctrl.Duct SP Spt AV.Present Value				

LONWORKS VARIABLE

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviDuctStaticSP	DAC	SNVT_press_p	113
nvoEffDuctStatSP	DAC	SNVT_press_p	113

Measurement	Gauge Pressure
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-62.25.. 62.25 Pascals (1 Pa). The value 0x7FFF represents invalid data.

Economizer (Air) Changeover Differential

Keypad Menu Path Temperatures\OA Damper\EconChgovrDiff=

This read/write property sets a differential above the Economizer Changeover Temperature Setpoint (See page 48). When the Economizer (Air) Changeover Method is set to "Dry Bulb", economizer operation is disabled when the Outdoor Air Temperature indicates a value above the Economizer Changeover Temperature Setpoint by more than this differential. If the Economizer (Air) Changeover Method is set to "Enthalpy", this parameter has no effect on the unit operation.

Values

Temperature in °F: 0 - 10 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	1310	Temp Differential	962
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Temp Differential				

Economizer (Air) Changeover Method

Keypad Menu Path Temperatures\Airside Economizer\EconChgovr=

This read/write property determines the method that makes the economizer changeover decision. When it is set to Enthalpy, the decision is based on the enthalpy switch. When the switch is closed, OA Ambient indicates Low and economizer operation is enabled. When the switch is open, OA Ambient indicates High and economizer operation is disabled. When it is set to Dry Bulb, the economizer changeover decision is based on the outdoor air temperature compared to the Economizer Valve Position (See page 49). When the outdoor air temperature is below the Economizer Changeover Temperature Setpoint, OA Ambient indicates Low and economizer operation is enabled. When the outdoor air temperature is above the Economizer (air) Changeover Temperature Setpoint by more than the Economizer (Air) Changeover Differential (See page 46), OA Ambient indicates High and economizer operation is disabled.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3890	Present Value	85

Full Reference
MTII SCUC #########.App.Daikin.SC.Damper Control.Econ Chgovr MAV.Present Value

Enumeration
0 = Enthalpy 1 = Dry Bulb

Economizer (Air) Changeover Temperature Setpoint

Keypad Menu Path Temperatures\Airside Economizer\EconChgovrT=

This read/write property sets the outdoor air temperature that enables or disables economizer changeover operation when Economizer (Air) Changeover Method is set to Dry Bulb. If the Economizer (Air) Changeover Method is set to Enthalpy, this parameter has no effect on the unit operation.

Values

Temperature in °F: 0 - 99 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3865	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Econ Chgovr Temp AV.Present Value				

Economizer Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Economizer=

This read-only property indicates the hours that the unit has been in the Economizer operating state. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65535 hours of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	300	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Economizer Op Time.Present Value				

Economizer (Water) Entering Water Temperature Differential

Keypad Menu Path Temperatures\OA Damper\EWT Diff=

This read/write property sets a differential below the Mixed Air Temperature. Waterside Economizer operation is enabled when the entering water temperature sensor drops below the mixed air temperature sensor by more than this differential.

Values

Temperature in °F: 0 - 10 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	1310	Temp Differential	962
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Temp Differential				

Economizer Valve Position

Keypad Menu Path Temperatures\Econo Pos\Econo Pos=

This read-only property indicates the current waterside economizer valve position.

Values

Percent: 0-100% of economizer capacity of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	1320	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Econ Valve Pos.Present Value				

Effective Cooling Discharge Setpoint

Keypad Menu Path Temperatures\Discharge Cooling\Eff Clg Spt=

This read-only property reveals the cooling discharge air temperature setpoint that the controller is currently using. When the unit is in a cooling state, economizer and/or mechanical cooling are controlled to maintain the unit discharge air temperature input at this setpoint. The controller either sets this attribute to the Discharge Air Cooling Setpoint (See page 41) or to a value based on the results of a discharge air temperature reset schedule.

Values

Temperature in °F: 40.0 - 100.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3745	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Eff DAT Clg Spt AV.Present Value				

Effective Cooling Enable Setpoint

Keypad Menu Path Temperatures\Zone Cooling\Eff Clg Spt=

This read-only attribute reveals the cooling changeover setpoint that the controller is currently using. When the Control Temperature (See page 30) rises above this value by more than one-half the Occupied Cooling Dead Band (See page 69), cooling operation is enabled. When the Control Temperature drops below this value by more than one-half the Occupied Cooling Dead Band, cooling operation is disabled. The controller sets this attribute to the Occupied Cooling Setpoint (See page 69). For space comfort control, the controller sets this attribute based on the optional space sensor setpoint adjustment setting when the Space Setpoint Type (See page 78) is set to Tstat.

Values

Temperature in °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3750	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Eff Zone Clg Spt AV.Present Value				

Effective Discharge Air Temperature Setpoint

Keypad Menu Path No Keypad Equivalent

This read-only attribute reveals the effective discharge air temperature setpoint that the unit is using for control. This attribute is set equal to the Effective Heating Discharge Setpoint (See page 50) when the unit is in the heating operating state and equal to the Effective Cooling Discharge Setpoint (See page 49) when the unit is in any other operating state.

Values

Temperature in °F: 40.0 - 100.0 °F of Floating Point.

BACnet

See Effective Cooling Discharge Setpoint and Effective Heating Discharge Setpoint.

LONWORKS VARIABLE

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoEffDATempSp	DAC, SCC	SNVT_temp_p	105

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

Effective Heating Discharge Setpoint

Keypad Menu Path Temperatures\Discharge Heating\Eff Htg Spt=

This read-only property reveals the heating discharge air temperature set point that the controller is currently using. When the unit is in a heating operating state, heating capacity is controlled to maintain the unit discharge air temperature input at this set point (except when the unit is equipped with single stage heat). The controller sets this attribute either to the Discharge Air Heating Setpoint (See page 42) or to a value based on the results of a discharge air temperature reset schedule.

Values

Temperature in °F: 40.0 - 140.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3795	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Eff DAT Htg Spt AV.Present Value				

Effective Heating Enable Setpoint

Keypad Menu Path Temperatures\Zone Heating\Eff Htg Spt=

This read-only attribute reveals the heating changeover setpoint that the controller is currently using. When the current Control Temperature (See page 30) falls below this parameter by more than one-half the Occupied Heating Dead Band (See page 70), heating operation is enabled. When the current Control Temperature rises above this parameter by more than one-half the Occupied Heating Dead Band, heating operation is disabled. The controller sets this attribute to the Occupied Heating Setpoint (See page 70). For space comfort control, the controller sets this attribute based on the optional space sensor setpoint adjustment setting when the Space Setpoint Type (See page 78) is set to Tstat.

Values

Temperature in °F: 0.0 - 99.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3800	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Eff Zone Htg Spt AV.Present Value				

Effective Minimum Outdoor Damper Position Setpoint

Keypad Menu Path Temperatures\OA Damper\Eff Min OA Pos=

This is a read-only attribute for BACnet networks and a Read/Write attribute for LONWORKS networks. It reveals the outdoor air minimum position setpoint that the controller is currently using. Economizer dampers are controlled to maintain this position for minimum ventilation.

Values

Position in Percent between 0.0 and 100.0% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3870	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Ctrl.Eff Min OA Flow AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviOAMinPos	DAC, SCC	SNVT_lev_percent	81

Measurement	Percent Level or Humidity
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-163.84% .. 163.83% (0.005% or 50 ppm). The value 0x7FFF represents invalid data.

Effective Setpoint Output

Keypad Menu Path No Keypad Equivalent

This read-only property attribute is only used in LonWorks networks. It monitors the effective temperature setpoint. It is always set equal to either the Effective Cooling Enable Setpoint (See page 49) or the Effective Heating Enable Setpoint (See page 50) depending on the current unit operating state.

The Effective Cooling Enable Setpoint and the Effective Heating Enable Setpoint depend on the Occupied Cooling Setpoint (See page 69), Occupied Heating Setpoint (See page 70), and Temperature Setpoint Input (See page 79).

If the Temperature Setpoint Input (nviSetpoint) is set to a valid value

Effective Cooling Enable Setpoint = Temperature Setpoint Input
+½(Occupied Cooling Enable Setpoint-Occupied Heating Enable Setpoint)

Effective Heating Enable Setpoint = Temperature Setpoint Input
+½(Occupied Cooling Enable Setpoint-Occupied Heating Enable Setpoint)

Effective Setpoint Output (nvoEffectSetpt) equals Effective Heating Enable Setpoint when unit is in a heating operating state and equals Effective Cooling Enable Setpoint in all other operating states.

If the Temperature Setpoint Input (nviSetpoint) is set to an invalid value

Effective Cooling Enable Setpoint = Occupied Cooling Enable Setpoint

Effective Heating Enable Setpoint = Occupied Heating Enable Setpoint

Effective Setpoint Output (nvoEffectSetpt) equals Effective Heating Enable Setpoint when unit is in a heating operating state and equals Effective Cooling Enable Setpoint in all other operating states.

Note: On space comfort control units the Space Setpoint Type (See page 78) must not be set to Tstat, otherwise the optional space sensor adjustment overrides Temperature Setpoint Input (nviSetpt).

Values

Temperature in °F of Floating Point.

BACnet

See Effective Cooling Enable Setpoint and Effective Heating Enable Setpoint.

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoEffectSetpt	DAC, SCC	SNVT_temp_p	105
Measurement	Temperature		
Type Category	Fixed Point Scalar - signed long		
Type Size	2 bytes		
Valid Range (Resolution)	-273.17 .. +327.66 degrees C (0.01 degrees C). The value 0x7FFF represents invalid data.		

Emergency Override Mode Flag

Keypad Menu Path System Summary\Occupancy\Emerg Override=

This read/write property completely shuts the unit off. If this property is set to Off, the unit cannot start based on a time clock or any other means. The only way the unit can be started is to change the value to Norm. This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Enumerated (Floating Point)

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3720	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Emerg Override MAV.Present Value				

Enumeration
0 = Norm 1 = Off

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
NviEmergOverride	DAC, SCC	SNVT_hvac_emerg	103

Enumeration Definitions

Value	Identifier	Notes
0	EMERG_NORMAL	No emergency mode
1	EMERG_PRESSURIZE	Emergency pressurize mode
2	EMERG_DEPRESSURIZE	Emergency depressurize mode
3	EMERG_PURGE	Emergency purge mode
4	EMERG_SHUTDOWN	Emergency shutdown mode
5	EMERG_FIRE	
0xFF	EMERG_NUL	Value not available

Enumeration Correspondence

	BACnet Emergency Override Mode Flag		Lon SNVT_hvac_mode
0	Normal	0	EMERG_NORMAL
0	Normal	1	EMERG_PRESSURIZE
0	Normal	2	EMERG_DEPRESSURIZE
0	Normal	3	EMERG_PURGE
1	Off	4	EMERG_SHUTDOWN
		5	EMERG_FIRE
0	Normal	0xFF	EMERG_NUL

Entering Water Temperature

Keypad Menu Path System Summary\Temperatures\EWT= OR Temperatures|Waterside Economizer\EWT=

This read-only property indicates the current temperature of entering water.

Values

Temperature in °F: of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	155	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.EW Temperature.Present Value				

Fan Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Fan=

This read-only property indicates hours of unit fans operation. The value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65,535 hours of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	285	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Fan Op Time.Present Value				

Fan Operation Output

Keypad Menu Path Air/Water Flow\Airflow Summary\Fan Operation=

This read-only property indicates the on/off status of the Fan Operation Output (MCB-BO3).

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	2	3945	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Start Stop Control.Fan Optional BV.Present Value				

Enumeration
0 = Off 1 = On

Head Pressure Compressor 1

Keypad Menu Path Air/Water Flow\Head Pressure\HdPress Comp1=

This read-only property indicates the current refrigerant pressure for compressor No. 1.

Values

Pressure in Pounds per Square Inch (0 -450 psi) of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	1310	Refrig Head Press1	63573
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Refrig Head Press1				

Head Pressure Compressor 2

Keypad Menu Path Air/Water Flow\Head Pressure\HdPress Comp2=

This read-only property indicates the current refrigerant pressure for compressor No. 2.

Values

Pressure in Pounds per Square Inch (0 -450 psi) of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	1310	Refrig Head Press2	63574
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Refrig Head Press2				

Head Pressure Deadband

Keypad Menu Path Set/Service\Head PressureWRV Db=

This read/write property sets a dead band around the Head Pressure Setpoint.

Values

Pressure in Pounds per square in (0-10 psi) of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Velocity PID	309	695	Deadband	2205
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Head Pressure PID.Deadband				

Head Pressure Setpoint

Keypad Menu Path Air/Water Flow\Head Pressure\Setpoint=

This read/write property sets the refrigerant setpoint used for controlling the water regulating valve. The water-regulating valve is modulated to maintain the refrigerant pressure.

Values

Pressure in Pounds per square in (140-210 psi) of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3885	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Head Pressure Spt AV.Present Value				

Heating Capacity

Keypad Menu Path System Summary\System\Htg Capacity=orTemperatures\Zone Heating\Htg Capacity=orTemperature\Discharge Heating\Htg Capacity=

This read-only property indicates the current percentage of unit maximum heating capacity.

Values

Percent: 0-100% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3805	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Htg Capacity AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoUnitStatus_heat_output_primary	DAC, SCC	SNVT_hvac_status	112

Measurement	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

typedef struct {

```
    hvac_t          mode;
    signed long     heat_output_primary;
    signed long     heat_output_secondary;
    signed long     cool_output;
    signed long     econ_output;
    signed long     fan_output;
    unsigned        in_alarm;
```

} SNVT_hvac_status

Field Definitions

Field	Data Point Reference	Valid Range	Notes
mode	See below	Enumerated	compatible with SNVT_hvac_mode
heat_output_primary	Heating Capacity	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	Not Applicable	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	Cooling Capacity	-163.83 .. +163.83% (percentage of full scale)	cooling output
econ_output	Out Door Air Damper Position	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	Discharge Fan Capacity	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	In Alarm	0 =No Alarm 1 =Warning 100 =Problems 200 =Faults	1 means unit is in alarm

Enumeration Definitions

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
3	HVAC_COOL	Cooling only
4	HVAC_NIGHT_PURGE	Application-specific night purge
5	HVAC_PRE_COOL	Application-specific pre-cool
6	HVAC_OFF	Controller not controlling outputs
7	HVAC_TEST	Equipment being tested
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on
10	HVAC_FREE_COOL	Cooling with compressor not running
11	HVAC_ICE	Ice-making mode
0xFF	HVAC_NUL	Value not available

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Off Unocc	6	HVAC_OFF
1	Off Net	6	HVAC_OFF
2	Of Sw	6	HVAC_OFF
3	Off Alrm	6	HVAC_OFF
4	Calib	7	HVAC_TEST
5	Startup	6	HVAC_OFF
6	Recirc	9	HVAC_FAN_ONLY
7	Fan Only	9	HVAC_FAN_ONLY
8	Econo	10	HVAC_FREE_COOL
9	Cooling	3	HVAC_COOL
10	MWU	2	HVAC_MRNG_WRMUP
11	Heating	1	HVAC_HEAT
12	Min DAT	9	HVAC_FAN_ONLY
13	UnocEcon	10	HVAC_FREE_COOL
14	UnocFanO	9	HVAC_FAN_ONLY
15	UnocDAT	9	HVAC_FAN_ONLY
16	UnocClg	3	HVAC_COOL
17	UnocHtg	1	HVAC_HEAT
18	Balance	7	HVAC_TEST
19	Off Man	6	HVAC_OFF
20	Man Ctrl	7	HVAC_TEST

Heating Control Status

Keypad Menu Path System Summary\System\Htg Status=

This read-only property indicates whether heating is currently allowed. If heating is disabled, the reason is indicated.

Values

Enumerated (Floating Point)

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3825	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Htg Status MAV.Present Value				

Enumeration
0 = Ht. Ena 1 = Off Amb 2 = Off Alarm 3 = Off None 4 = N/A 5 = Off Sw 6 = Off Net 7 = Off Man

Heating Operating Hours

Keypad Menu Path Setup/Service\Operating Hours\Heating=

This read-only property indicates the hours of unit heating operation. This value accumulates to 65,535 hours before rolling over. This value can be reset or adjusted.

Values

Hours: 0-65,535 hours of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	295	Present Value	85

Full Reference
MTII SCUC #########.App.Daikin.SC.Heating Op Time.Present Value

Heating Reset Enable State

Keypad Menu Path No Keypad Equivalent

This read/write configuration property enables or disables the discharge air temperature heating reset control for the Discharge Air Controller.

Note: When this property is enabled, the type of heating discharge temperature reset is determined by the Heating Reset Enable Value.

Values

Boolean

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	480	Heating Stpt Status	940
Full Reference				
MTII SCUC #########.Applications.Daikin.SC.Heating.Heating Stpt Status				

Enumeration
0 = Disabled 1 = Enabled

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciHeatResetEn_state	DAC	SCPTheatingResetEn	212	SNVT_switch	95

Measurement	Switch
Type Category	Structure
Type Size	2 bytes

Structure

typedef struct {

unsigned value; Enumerated

signed State;

} SNVT_switch

Enumeration Definitions

Value	Identifier	Notes
0	None	
1	Space	
2	Return	
3	OAT	
4	Ext Ma	
5	Ext V	

Enumeration Correspondence

	BACnet	LONWORKS
0	None	None
1	Space	Space
2	Return	Return
3	OAT	OAT
4	Ext Ma	Ext Ma
5	Ext V	Ext V

Heating Reset Enable Value

Keypad Menu Path Temperatures/Discharge Heating/Htg Reset=

This read/write configuration property enables or disables the discharge air temperature heating reset control for the Discharge Air Controller.

Note: Heating Reset Enable State must be enabled or this property has no effect**.**

Values

Percent 0.0 - 100.0% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	480	Effective Value	50043
Full Reference				
MTII SCUC #########.Applications.Daikin.SC.Heating.Effective Value				

Enumeration
0 =None 1 =Space 2 =Return 3 =OAT 4 =Ext mA 5 =Ext V

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciHeatResetEn_value	DAC	SCPTheatingResetEn	212	SNVT_switch	95

Measurement	Switch
Type Category	Structure
Type Size	2 bytes

Structure

typedef struct {

unsigned value; Enumerated

signed State;

} SNVT_switch

Enumeration Definitions

Value	Identifier	Notes
0	None	
1	Space	
2	Return	
3	OAT	
4	Ext Ma	
5	Ext V	

Enumeration Correspondence

	BACnet	LONWORKS
0	None	None
1	Space	Space
2	Return	Return
3	OAT	OAT
4	Ext Ma	Ext Ma
5	Ext V	Ext V

Holidays

Keypad Menu Path Schedules\Holiday Schedule\Hol?=

This read/write property specifies the dates for holidays. You can list the holidays here and then specify this property in the Schedule object for exceptions to the weekly schedule.

Values

List of BACnet Calendar Entry data type

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Calendar	6	1390	Date List	23
Full Reference				
MTII SCUC #########.App.Daikin.SC.Schedule.Calendar.Date List				

HVAC Unit Type Identifier

Keypad Menu Path No Keypad Equivalent

This read/write configuration property indicates the primary application and equipment type for the space comfort controller device. For other SCC object types the application and equipment type can be determined directly from the object type and corresponding device class within the standard program id. The HVAC Unit-Type configuration property can be polled by a tool or an operator interface device, to help the user identify the type of equipment. The HVAC Unit-Type is set at the time of manufacture.

Values

Enumerated

BACnet

No BACnet equivalent.

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciHvacType	SCC	SNVT_hvac_type	105	SCPThvacType	169

Measurement	Temperature
Type Category	Enumeration Scalar
Type Size	1 byte
Valid Range	SNVT_HVT.H

Enumeration Definitions (SNVT_HVT.H)

Value	Identifier	Notes
0	HVT_GENERIC	Generic
1	HVT_FAN_COIL	Fan Coil
2	HVT_VAV	Variable Air Volume Terminal
3	HVT_HEAT_PUMP	Heat Pump
4	HVT_ROOFTOP	Rooftop Unit
5	HVT_UNIT_VENT	Unit Ventilator
6	HVT_CHILL_CEIL	Chilled Ceiling
7	HVT_RADIATOR	Radiator
8	HVT_AHU	Air Handling Unit
9	HVT_SELF_CONT	Self-Contained Unit
0xFF	HVT_NUL	Invalid value

In Alarm

Keypad Menu Path No Keypad Equivalent

This read-only property indicates whether the unit is currently in alarm.

Values

Enumerated

BACnet

See Alarms on page 86.

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoUnitStatus_in_alarm	DAC, SCC	SNVT_hvac_status	112

Measurement	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

typedef struct {

```
    hvac_t          mode;
    signed long     heat_output_primary;
    signed long     heat_output_secondary;
    signed long     cool_output;
    signed long     econ_output;
    signed long     fan_output;
    unsigned        in_alarm;
```

} SNVT_hvac_status

Field Definitions

Field	Data Point Reference	Valid Range	Notes
mode	See below	Enumerated	compatible with SNVT_hvac_mode
heat_output_primary	Heating Capacity	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	Not Applicable	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	Cooling Capacity	-163.83 .. +163.83% (percentage of full scale)	cooling output
econ_output	Out Door Air Damper Position	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	Discharge Fan Capacity	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	In Alarm	0 =No Alarm 1 =Warning 100 =Problems 200 =Faults	1 means unit is in alarm

Enumeration Definitions

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
3	HVAC_COOL	Cooling only
4	HVAC_NIGHT_PURGE	Application-specific night purge
5	HVAC_PRE_COOL	Application-specific pre-cool
6	HVAC_OFF	Controller not controlling outputs
7	HVAC_TEST	Equipment being tested
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on
10	HVAC_FREE_COOL	Cooling with compressor not running
11	HVAC_ICE	Ice-making mode
0xFF	HVAC_NUL	Value not available

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Off Unocc	6	HVAC_OFF
1	Off Net	6	HVAC_OFF
2	Of Sw	6	HVAC_OFF
3	Off Alrm	6	HVAC_OFF
4	Calib	7	HVAC_TEST
5	Startup	6	HVAC_OFF
6	Recirc	9	HVAC_FAN_ONLY
7	Fan Only	9	HVAC_FAN_ONLY
8	Econo	10	HVAC_FREE_COOL
9	Cooling	3	HVAC_COOL
10	MWU	2	HVAC_MRNG_WRMUP
11	Heating	1	HVAC_HEAT
12	Min DAT	9	HVAC_FAN_ONLY
13	UnocEcon	10	HVAC_FREE_COOL
14	UnocFanO	9	HVAC_FAN_ONLY
15	UnocDAT	9	HVAC_FAN_ONLY
16	UnocClg	3	HVAC_COOL
17	UnocHtg	1	HVAC_HEAT
18	Balance	7	HVAC_TEST
19	Off Man	6	HVAC_OFF
20	Man Ctrl	7	HVAC_TEST

Leaving Water Temperature

Keypad Menu Path System Summary\Temperatures\LWT=

This read-only property indicates the current temperature of the leaving water.

Values

Temperature in °F: of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	160	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.LW Temperature.Present Value				

Local Tenant Override Time

Keypad Menu Path Setup/Service\Timer Settings\Bypass=

This read/write configuration property sets 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 (Occupancy Mode). See page 67. Additional Bypass requests can restart the timer.

Values

Time in minutes: 0-300 min of Floating Point. Default is 0 minutes.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Timer	257	1365	Bypass Time	50302
Full Reference				
MTII SCUC #########.App.Daikin.SC.Occupancy.Bypass Time				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciBypassTime	DAC, SCC	SCPTbypassTime	34	SNVT_time_min	123

Measurement	Minutes
Type Category	Fixed Point Scalar - unsigned long
Type Size	2 bytes
Valid Range	0 .. 65535 minutes (1 minute)

Maximum Discharge Air Cooling Setpoint

Keypad Menu Path Temperature\Discharge Cooling\Max Clg Spt=

This read/write configuration attribute defines the maximum discharge air cooling setpoint for the controller. It is used to limit the discharge air cooling setpoint determined by the discharge air temperature reset function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 0.0 - 100.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3760	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Max DAT Clg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciMaxDAClSP	DAC, SCC	SCPTmaxDAClSP	Not Available	SNVT_temp_p	105

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

Maximum Discharge Air Heating Setpoint

Keypad Menu Path Temperature\Discharge Heating\Max HtgSpt=

This read/write configuration attribute defines the maximum discharge air heating setpoint for the controller. It is used to limit the discharge air heating setpoint determined by the discharge air temperature reset function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 40.0 - 140.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3815	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Max DAT Htg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciMaxDAHtSP	DAC, SCC	SCPTmaxDAHtSP	Not Available	SNVT_temp_p	105

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

Maximum Purge Time (Airside Economizer Only)

Keypad Menu Path Temperatures\OA Damper\Max Purge=

This read/write property sets the maximum time prior to occupancy that the units purge. This feature functions only when an optional space (or zone) temperature sensor is installed and when a unit internal schedule is being used.

Values

Time in minutes: 0-240 min of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	1310	Max Purge	63645
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Max Purge				

Minimum Discharge Air Cooling Setpoint

Keypad Menu Path Temperatures\Discharge Cooling\Min Clg Spt=

This read/write configuration attribute defines the minimum discharge air cooling setpoint for the controller. It is used to limit the discharge air cooling setpoint determined by the discharge air temperature reset function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 0.0 - 100.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3755	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Min DAT Clg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciMinDAClSP	DAC, SCC	SCPTminDAClSP	Not Available	SNVT_temp_p	105

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

Minimum Discharge Air Heating Setpoint

Keypad Menu Path Temperatures\Discharge Heating\Min Htg Spt=

This read/write configuration attribute defines the minimum discharge air heating setpoint. It limits the discharge air heating setpoint determined by the discharge air temperature reset function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 0.0 - 100.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3810	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Min DAT Htg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciMinDAHtSP	DAC, SCC	SCPTminDAHtSP	Not Available	SNVT_temp_p	105

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

Minimum Discharge Air Temperature Control Flag

Keypad Menu Path Temperatures\Discharge Heating\Min DAT Ctrl=

This read/write property activates or deactivates the low discharge temperature limit available on units equipped with modulating or multistage heat. The low discharge temperature limit is not available on units with single stage heat.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	365	Min DAT Ctr	63652
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Min DAT Ctrl				

Enumeration
0 = No
1 = Yes

Minimum Discharge Air Temperature Limit

Keypad Menu Path Temperatures\Discharge Heating\MinDAT Limit=

This read/write property sets the low discharge temperature limit available on space comfort control units equipped with modulating or multistage heat.

Note: On discharge air control units, the Effective Cooling Discharge Setpoint (See page 49) serves as the low discharge temperature limit.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F 0.0-70.0°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3910	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Min DAT Limit AV.Present Value				

Minimum Send Time

Keypad Menu Path No Keypad Equivalent

This read/write configuration property defines the minimum period of time between automatic network variable output transmissions.

Values

Fixed Point Scalar - unsigned long.

BACnet

No BACnet equivalent.

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciMinOutTm	DAC, SCC	SNVT_time_sec	107	SCPTminSendTime	52
Measurement	Elapsed Time				
Type Category	Fixed Point Scalar - unsigned long				
Type Size	2 bytes				
Valid Range	0.0 - 6553.4 sec (0.1 sec). The value 0xFFFF represents invalid data.				

Mixed Air Temperature

Keypad Menu Path System Summary\Temperatures\MAT=

This read-only attribute indicates the current temperature reading from the unit mounted mixed air temperature sensor.

Values

Temperature in °F: of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	150	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.MA Temperature.Present Value				

OA Ambient

Keypad Menu Path Temperatures\OA Damper\OA Ambient=

This read-only property indicates whether the outdoor air is suitable for free cooling based on outdoor air temperature or enthalpy. If it is, Low (0) is displayed. If not, High (1) is displayed.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	90	OA Ambient	63770
Full Reference				
MTII SCUC #########.App.Daikin.SC.OA Ambient				

Enumeration
0 = Low 1 = High

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoEconEnabled_state	DAC, SCC	SNVT_switch	95
Measurement	Switch		
Type Category	Structure		
Type Size	2 bytes		

Structure

typedef struct {

unsigned value;
signed State;
} SNVT_hvac_status

Field Definitions

Field	Data Point Reference	Units	Valid Range	Notes
value	Economizer Enabled Value	8 bit percentage	0 .. 100%	intensity as percentage of full scale, resolution 0.5%
state	OA Ambient	state	0 .. 1, 0xFF	0 means off, 1 means on, 0xFF means undefined

Occupancy

Keypad Menu Path System Summary\Occupancy\Occupancy=

This read-only property indicates whether the unit is currently in an occupied, unoccupied, or bypass mode of operation.

Values

Enumerated (Floating Point)

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3920	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Occupancy.Occupancy PV MAV.Present Value				

Enumeration
0 = Occ 1 = Unocc 2 = Tnt Ovrd

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoEffectOccup	DAC, SCC	SNVT_occupancy	109

Measurement	Occupancy
Type Category	Enumeration Scalar
Type Size	1 byte
Valid Range	occup_t Enumeration

Enumeration Definitions

Value	Identifier	Notes
0	OC_OCCUPIED	Area is occupied
1	OC_UNOCCUPIED	Area is unoccupied
2	OC_BYPASS (Tnt Ivrd)	Area is temporarily occupied for the bypass period
3	OC_STANDBY	Area is temporarily unoccupied
0xFF	OC_NUL	Value not available

Enumeration Correspondence

	BACnet		Lon SNVT_occupancy
0	Occ	0	OC_OCCUPIED
1	Unocc	1	OC_UNOCCUPIED
2	Tnt Ovrd	2	OC_BYPASS
0	Occ	3	OC_STANDBY
3	Auto	0xFF	OC_NUL

Occupancy Mode

Keypad Menu Path System Summary\Occupancy\Occ Mode=

This read/write property commands the 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 with this network variable input. The local input, when active, forces a Bypass request (equivalent to OC_BYPASS), (determined by the configuration property nciBypassTime [Local Tenant Override Time (See page 61)]). When nviOccManCmd indicates OC_BYPASS, the Local Bypass Time is also used. Whenever an update of nviOccManCmd (Occupancy Override Input) 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.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3930	Present Value	50043
Full Reference				
MTII SCUC #########.App.Daikin.SC.Occupancy.Occ Man Cmd MAV.Present Value				

Enumeration
0 = Occ 1 = Unocc 2 = Tnt Ovrd 3 = Auto

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviOccManCmd	DAC, SCC	SNVT_occupancy	109

Measurement	Occupancy
Type Category	Enumeration Scalar
Type Size	1 byte
Valid Range	occup_t Enumeration

Enumeration Definitions

Value	Identifier	Notes
0	OC_OCCUPIED	Area is occupied
1	OC_UNOCCUPIED	Area is unoccupied
2	OC_BYPASS (Tnt Ivrd)	Area is temporarily occupied for the bypass period
3	OC_STANDBY	Area is temporarily unoccupied
0xFF	OC_NUL	Value not available

Enumeration Correspondence

	BACnet		Lon SNVT_occupancy
0	Occ	0	OC_OCCUPIED
1	Unocc	1	OC_UNOCCUPIED
2	Tnt Ovrd	2	OC_BYPASS
0	Occ	3	OC_STANDBY
3	Auto	0xFF	OC_NUL

Occupancy Scheduler Input

Keypad Menu Path No Keypad Equivalent

This read/write property commands the Occupancy function of the controller when Occupancy Mode (See on Page 67) is set to Auto. 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 ignores these values if the functions are not supported by the controller. The unit controller does not support these functions.

This input is used in conjunction with nviOccManCmd (Occupancy Mode) to determine the effective occupancy mode. Refer to nvoEffectOccup (See Occupancy Source on page 69) for more information.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	5	1380	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Occupancy.Occupancy.Present Value				

Enumeration
0 = Unoccupied 1 = Occupied

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviOccSchedule_current_state	DAC, SCC	SNVT_tod_event	128

Measurement	Event scheduler
Type Category	Structure
Type Size	4 bytes

Structure

typedef struct {

occup_t current_ state;
occup_t next_state;
unsigned long time_to_next_state;

} SNVT_tod_event

Field Definitions

Field	Data Point Reference	Units	Valid Range	Notes
current_state	Occupancy Scheduler Input	occup_t		current scheduled occupancy state
next_state	Occupancy Scheduler Next	occup_t		next scheduled occupancy state
time_to_next_state	Occupancy Scheduler Time	minutes	0 to 65,535	

Enumeration Definitions

Value	Identifier	Notes
0	OC_OCCUPIED	Area is occupied
1	OC_UNOCCUPIED	Area is unoccupied
2	OC_BYPASS (Tnt Ivrd)	Area is temporarily occupied for the bypass period
3	OC_STANDBY	Area is temporarily unoccupied
0xFF	OC_NUL	Value not available

Enumeration Correspondence

	BACnet		Lon SNVT_occupancy
1	Occ	0	OC_OCCUPIED
0	Unocc	1	OC_UNOCCUPIED
	Tnt Ovrd	2	OC_BYPASS
1	Occ	3	OC_STANDBY
3	Auto	0xFF	OC_NUL

Occupancy Source

Keypad Menu Path System Summary\Occupancy\Occ Src=

This read-only property indicates the input source or function that is responsible for setting the OA Ambient (See page 65) attribute to Occupied.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3925	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Occupancy.Occupancy Status MAV.Present Value				

Enumeration
0 = None
1 = Int Sched
2 = Net Sched
3 = Occ Mode
4 = Remote Sw
5 = N/A

Occupied Cooling Dead Band

Keypad Menu Path Temperatures\Zone Cooling\Clg Deadband=

This read/write property sets a dead band around the Effective Cooling Enable Setpoint (See page 49).

Values

Temperature in °F: 0.1 - 9.9 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	Zone Clg Deadband	63995
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Zone Clg Deadband				

Occupied Cooling Setpoint

Keypad Menu Path Temperatures\Zone Cooling\Occ Clg Spt=

This read/write configuration property sets the Effective Cooling Enable Setpoint (See on page 49). The Effective Cooling Enable Setpoint is set to this value when it is not being set by another function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 0.0 - 99.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3765	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Occ Clg Spt AV.Present Value				

LonWorks

LonWorks Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciSetpoints_Occuppied Cool	DAC, SCC	SCPTsetPnts	60	SNVT_temp_setpt	106

Measurement	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	Data Point Reference	Valid Range	Notes
occupied_cool	Occupied Cooing Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_cool	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_cool	Unoccupied Cooling Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
occupied_heat	Occupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_heat	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_heat	Unoccupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable

Occupied Heating Dead Band

Keypad Menu Path Temperatures\Zone Heating\Htg Deadband=

This read/write property sets the temperature dead band around the Effective Heating Discharge Setpoint (See page 50).

Values

Temperature in °F: 0.1 - 9.9 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	480	Zone Htg Deadband	63996
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Zone Htg Deadband				

Occupied Heating Setpoint

Keypad Menu Path Temperatures\Zone Heating\Occ Htg Spt=

This read/write configuration sets the Effective Heating Enable Setpoint (See page 50). The Effective Heating Enable Setpoint is set to this value when it is not being set by any other function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 0.0 - 99.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3820	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Heating.Occ Htg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciSetpoints_Occuppied Heat	DAC, SCC	SCPTsetPnts	60	SNVT_temp_setpt	106
Measurement	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	Data Point Reference	Valid Range	Notes
occupied_cool	Occupied Cooing Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_cool	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_cool	Unoccupied Cooling Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
occupied_heat	Occupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_heat	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_heat	Unoccupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable

Outdoor Air Damper Minimum Position

Keypad Menu Path Temperatures\OA Damper\MinOA Pos=

This read/write configuration property sets the Effective Minimum Outdoor Damper Position Setpoint (See page 51) for the unit. The Effective Minimum Outdoor Air Damper Position Setpoint is set to this value when it is not being set by any other function.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Position in percent.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3875	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.Min OA Airflow AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nviOAMinPos	DAC, SCC	SCPTminRnge	23	SNVT_lev_percent	81

Measurement	Percent Level or Humidity
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-163.84% .. 163.83% (0.005% or 50 ppm). The value 0x7FFF represents invalid data.

Outdoor Air Damper Open/Close

Keypad Menu Path Setup/Services\Manual Control\OA Damper=

This read-write attribute manually (i.e., at the operator's discretion) forces the outdoor air dampers open and closed.

Values

Enumeration.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	5	3940	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Start Stop Control.OADamper BV.Present Value				

Enumeration
0 = Close 1 = Open

Outdoor Air Damper Position (Airside Economizer)

Keypad Menu Path Temperatures\OA Damper\OA Damper Pos=

This read-only property indicates the current outdoor air damper position.

Values

Percent of fully open: 0-100% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	1315	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Damper Control.OA Damper Pos.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoUnitStatus_econ_output	DAC, SCC	SNVT_hvac_status	112

Measurement	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

```
typedef struct {
        hvac_t          mode;
        signed long     heat_output_primary;
        signed long     heat_output_secondary;
        signed long     cool_output;
        signed long     econ_output;
        signed long     fan_output;
        unsigned        in_alarm;
} SNVT_hvac_status
```

Field Definitions

Field	Data Point Reference	Valid Range	Notes
mode	See below	Enumerated	compatible with SNVT_hvac_mode
heat_output_primary	Heating Capacity	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	Not Applicable	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	Cooling Capacity	-163.83 .. +163.83% (percentage of full scale)	cooling output
econ_output	Out Door Air Damper Position	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	Discharge Fan Capacity	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	In Alarm	0 =No Alarm 1 =Warning 100 =Problems 200 =Faults	1 means unit is in alarm

Enumeration Definitions

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
3	HVAC_COOL	Cooling only
4	HVAC_NIGHT_PURGE	Application-specific night purge
5	HVAC_PRE_COOL	Application-specific pre-cool
6	HVAC_OFF	Controller not controlling outputs
7	HVAC_TEST	Equipment being tested
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on
10	HVAC_FREE_COOL	Cooling with compressor not running
11	HVAC_ICE	Ice-making mode
0xFF	HVAC_NUL	Value not available

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Off Unocc	6	HVAC_OFF
1	Off Net	6	HVAC_OFF
2	Of Sw	6	HVAC_OFF
3	Off Alrm	6	HVAC_OFF
4	Calib	7	HVAC_TEST
5	Startup	6	HVAC_OFF
6	Recirc	9	HVAC_FAN_ONLY
7	Fan Only	9	HVAC_FAN_ONLY
8	Econo	10	HVAC_FREE_COOL
9	Cooling	3	HVAC_COOL
10	MWU	2	HVAC_MRNG_WRMUP
11	Heating	1	HVAC_HEAT
12	Min DAT	9	HVAC_FAN_ONLY
13	UnocEcon	10	HVAC_FREE_COOL
14	UnocFanO	9	HVAC_FAN_ONLY
15	UnocDAT	9	HVAC_FAN_ONLY
16	UnocClg	3	HVAC_COOL
17	UnocHtg	1	HVAC_HEAT
18	Balance	7	HVAC_TEST
19	Off Man	6	HVAC_OFF
20	Man Ctrl	7	HVAC_TEST

Outdoor Air Temperature

Keypad Menu Path System Summary\Temperatures\OA Temp=OrTemperatures\OA Damper\OA Temp=

This read-only property indicates the current value of a unit-mounted outdoor air temperature sensor. If you are using one temperature sensor to determine the outdoor air temperature for the entire network, you can write the temperature to this property if you set the Out of Service property to True.

Values

Temperature in °F between -50 to 140°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	145	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.OA Temperature.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviOutdoorTemp	DAC, SCC	SNVT_temp_p	105
nvoOutdoorTemp	DAC, SCC	SNVT_temp_p	105

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

Receive Heartbeat

Keypad Menu Path No Keypad Equivalent

This read/write configuration property defines the maximum time that elapses after the last update to a specified network variable input before the unit starts to use its default values.

Values

Seconds in Fixed Point Scalar - unsigned long

BACnet

No BACnet equivalent.

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciRcvHrtBt	DAC, SCC	SNVT_time_sec	107	SCPTmaxRcvTime	48

Measurement	Elapsed Time
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	0.0 .. 6553.4 sec (0.1 sec). The value 0xFFFF represents invalid data.

Relative Humidity

Keypad Menu Path Humidity\Dehumidification\Rel Humidity=

This status attribute displays the current reading of the optional relative humidity sensor.

Values

Humidity in Percent of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	1505	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.RF Cap Ctrl.Rel Humidity.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviSpaceRH	SCC	SNVT_lev_percent	81
nvoSpaceRH	SCC	SNVT_lev_percent	81

Measurement	Percent Level or Humidity
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-163.84% .. 163.83% (0.005% or 50 ppm). The value 0x7FFF represents invalid data.

Relative Humidity Control Type

Keypad Menu Path Humidity\Dehumidification\Dehum Method=

This read/write property turns dehumidification on and off and selects whether dehumidification is based on relative humidity or dew point.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3780	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.Dehum Method MAV.Present Value				

Enumeration
0 = None
1 = RelHum
2 = DewPnt

Relative Humidity Dead Band

Keypad Menu Path Humidity\Dehumidification\RH Db=

This read/write property sets a dead band around the Relative Humidity Setpoint.

Values

Relative Humidity in Percent: 0-10% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	635	RH Deadband	63872
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.RH Deadband				

Relative Humidity Setpoint

Keypad Menu Path Humidity\Dehumidification\RH Setpoint=

This read/write property sets the relative humidity setpoint used when Dehumidify Method is set to Relative Humidity.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Relative Humidity in Percent: 0-99% of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3770	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Cooling.RH Setpoint AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviSpaceDehumSP	SCC	SNVT_lev_percent	81

Measurement	Percent Level or Humidity
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-163.84%. 163.83% (0.005% or 50 ppm). The value 0x7FFF represents invalid data.

Remote Discharge Fan Capacity Control Flag

Keypad Menu Path Setup/Service\Unit Configuration\DF CapCtrl=

This read/write property selects the discharge fan airflow control used on a VAV unit. If this parameter is set to Duct Static Pressure, the discharge fan airflow maintains the duct static pressure at the duct static pressure set point. If this parameter is set to Position, the discharge fan airflow is controlled to an inlet vane position or VFD speed set via the Remote Discharge Fan Capacity Setpoint (See page 76).

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range..

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3830	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.DF Cap Ctrl.DF Cap Ctrl MAV.Present Value				

Enumeration
0 = Duct Press
1 = Position

Remote Discharge Fan Capacity Setpoint

Keypad Menu Path Setup/Service\Unit Configuration\Remote DF Cap=

This read/write property sets the discharge air vane position or VFD speed when the Discharge Fan Capacity Control Flag is set to Position.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Percent of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3835	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.DF Cap Ctrl.Remote DF Pos AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviSupFanCap	DAC	SNVT_lev_percent	81

Measurement	Percent Level or Humidity
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	-163.84% .. 163.83% (0.005% or 50 ppm). The value 0x7FFF represents invalid data.

Return Air Temperature

Keypad Menu Path System Summary\Temperatures\Return Air=

This read-only property indicates the current reading from the unit return air temperature sensor.

Values

Temperature in °F between 10 - 175°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	140	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.RA Temperature.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviRATemp	DAC, SCC	SNVT_temp_p	105
nvoRATemp	DAC, SCC	SNVT_temp_p	105

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

Send Heartbeat

Keypad Menu Path No Keypad Equivalent

is a read/write configuration property that defines maximum period of time that expires before the specified network variable outputs is automatically updated.

Values

Fixed Point Scalar - unsigned long

BACnet

No BACnet equivalent.

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciSndHrtBt	DAC, SCC	SCPTmaxSendTime	49	SNVT_time_sec	107

Measurement	Elapsed Time
Type Category	Fixed Point Scalar - signed long
Type Size	2 bytes
Valid Range (Resolution)	0.0 .. 6553.4 sec (0.1 sec). The value 0xFFFF represents invalid data.

Space Setpoint Type

Keypad Menu Path Setup/Service\Zone Temp Setup\Spt Source=

This read/write property determines the source for setting the Effective Cooling Enable Setpoint (See page 49) and Effective Heating Enable Setpoint (See page 50). When this property is set to Network, the Effective Cooling Enable Setpoint and Effective Heating Enable Setpoint are set to the Occupied Cooling Setpoint (See page 69) and Occupied Heating Setpoint (See page 70) respectively from BACnet networks. For LonWorks networks, it is Effective Setpoint Output (See page 51). When this property is set to Tstat, the Effective Cooling Enable Setpoint and Effective Heating Enable Setpoint are set from the remotely mounted space temperature sensor.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Note: The keypad/display returns Tstat or Keypad

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3725	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Spt Source MAV.Present Value				

Enumeration
0 = Tstat 1 = Network

Space Temperature

Keypad Menu Path System Summary\Temperatures\Space Temp=

This read-only property displays the current space or zone temperature from the optional space air temperature sensor.

Note: If the optional space temperature sensor is not installed, the Space Sensor attribute in the Unit Configuration menu of the keypad/display should be set to No to disable the alarm function associated with an open circuit at the space temperature sensor input.

Values

Temperature in °F between 10 - 95°F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Input	0	120	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Space Temperature.Present Value				

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviSpaceTemp	DAC, SCC	SNVT_temp_p	105
nvoSpaceTemp	DAC, SCC	SNVT_temp_p	105

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

Temperature Setpoint Input

Keypad Menu Path No Keypad Equivalent

This read/write property is only used in LONWORKS networks. It determines the Effective Setpoint Output (See page 51). If the value is valid, the Effective Setpoint Output is determined by this value. If the value is not valid, the Effective Setpoint Output does not depend on this value.

Note: On space comfort control units, the Space Setpoint Type must not be set to Tsat. Otherwise, the space setpoint adjustment on the optional space sensor overrides the Temperature Setpoint Input (nviSetpoint). The unoccupied setpoints are not changed.

Values

Temperature in °F: between 40.0 - 100.0 °F of Floating Point.

BACnet

No BACnet equivalent.

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviSetpoint	DAC, SCC	SNVT_temp_p	105

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

Tenant Override Hours

Keypad Menu Path Setup/Service\Operating Hours\Bypass=

This read-only property indicates the hours of schedule-bypass operation. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65,535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	305	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Bypass Op Time.Present Value				

Tenant Override Time

Keypad Menu Path Setup/Service\Operating Hours\Bypass=

This read-only property indicates the hours that the unit has operated in the tenant override mode of operation. This value accumulates to 65,535 hours before rolling over.

Values

Hours: 0-65,535 hours of double Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Runtime Totalization	275	305	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Bypass Op Time.Present Value				

Time

Keypad Menu Path Setup/Service\Time/Date\Time=

This read/write property sets the current time of the form hours, minutes, seconds, and hundredths of a second.

Values

Dates as BACnet time data types. See ANSI/ASHRAE 135-2001 for a definition of the data type.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Device	8	100	Local Time	57
Full Reference				
MTII SCUC #########.Local Time				

Unit Status

Keypad Menu Path System Summary\System\UnitStatus=

This read-only property indicates the current unit operating state.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3915	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Unit State PV MAV.Present Value				

Enumeration
0 = Off Unoc
1 = Off Net
2 = Off Sw
3 = Off Alm
4 = Calib
5 = Startup
6 = Recirc
7 = Fan Only
8 = Econo
9 = Cooling
10 = MWU
11 = Heating
12 = Min DAT
13 = UnocEcon
14 = UnocFanO
15 = UnocDAT
16 = UnocClg
17 = UnocHtg
18 = N/A
19 = Off Man
20 = Man Ctrl

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nvoUnitStatus_modeMapped	DAC, SCC	SNVT_hvac_status	112

Measurement	HVAC Status
Type Category	Structure
Type Size	12 bytes

Structure

typedef struct {

```
    hvac_t          mode;
    signed long     heat_output_primary;
    signed long     heat_output_secondary;
    signed long     cool_output;
    signed long     econ_output;
    signed long     fan_output;
    unsigned        in_alarm;
} SNVT_hvac_status
```

Field Definitions

Field	Data Point Reference	Valid Range	Notes
mode	See below	Enumerated	compatible with SNVT_hvac_mode
heat_output_primary	Heating Capacity	-163.83 .. +163.83% (percentage of full scale)	primary heat output
heat_output_secondary	Not Applicable	-163.83 .. +163.83% (percentage of full scale)	secondary heat output
cool_output	Cooling Capacity	-163.83 .. +163.83% (percentage of full scale)	cooling output
econ_output	Out Door Air Damper Position	-163.83 .. +163.83% (percentage of full scale)	economizer output
fan_output	Discharge Fan Capacity	-163.83 .. +163.83% (percentage of full scale)	fan output
in_alarm	In Alarm	0 =No Alarm 1 =Warning 100 =Problems 200 =Faults	1 means unit is in alarm

Enumeration Definitions

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
3	HVAC_COOL	Cooling only
4	HVAC_NIGHT_PURGE	Application-specific night purge
5	HVAC_PRE_COOL	Application-specific pre-cool
6	HVAC_OFF	Controller not controlling outputs
7	HVAC_TEST	Equipment being tested
8	HVAC_EMERG_HEAT	Emergency heat mode (heat pump)
9	HVAC_FAN_ONLY	Air not conditioned, fan turned on
10	HVAC_FREE_COOL	Cooling with compressor not running
11	HVAC_ICE	Ice-making mode
0xFF	HVAC_NUL	Value not available

Enumeration Correspondence

	BACnet Application Mode		Lon SNVT_hvac_mode
0	Off Unocc	6	HVAC_OFF
1	Off Net	6	HVAC_OFF
2	Of Sw	6	HVAC_OFF
3	Off Alrm	6	HVAC_OFF
4	Calib	7	HVAC_TEST
5	Startup	6	HVAC_OFF
6	Recirc	9	HVAC_FAN_ONLY
7	Fan Only	9	HVAC_FAN_ONLY
8	Econo	10	HVAC_FREE_COOL
9	Cooling	3	HVAC_COOL
10	MWU	2	HVAC_MRNG_WRMUP
11	Heating	1	HVAC_HEAT
12	Min DAT	9	HVAC_FAN_ONLY
13	UnocEcon	10	HVAC_FREE_COOL
14	UnocFanO	9	HVAC_FAN_ONLY
15	UnocDAT	9	HVAC_FAN_ONLY
16	UnocClg	3	HVAC_COOL
17	UnocHtg	1	HVAC_HEAT
18	Balance	7	HVAC_TEST
19	Off Man	6	HVAC_OFF
20	Man Ctrl	7	HVAC_TEST

Unoccupied Cooling Differential

Keypad Menu Path Temperatures\Zone Cooling\UnoccClgDiff=

This read/write property sets a differential above the Unoccupied Cooling Setpoint (See below). Once activated, unoccupied cooling operation is terminated when the Space Temperature (See on page 78) falls below the Unoccupied Cooling Setpoint by more than this differential.

Values

Temperature in °F: between 1.0 - 10.0 °F of Floating Point

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	365	Night Setup Diff	63709
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Night Setup Diff				

Unoccupied Cooling Setpoint

Keypad Menu Path Temperatures\Zone Cooling\UnoccClg Spt=

This read/write configuration property sets the temperature above which the unit starts and provides cooling (night setup) during unoccupied periods. An optional space temperature sensor is required for unoccupied cooling operation.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 55.0 - 99.0 °F of Floating Point

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3900	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Unocc Clg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciSetpoints_unoccupied_cool	SCC	SNVT_temp_setpt	106	SCPTsetPnts	60

Measurement	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	Data Point Reference	Valid Range	Notes
occupied_cool	Occupied Cooing Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_cool	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_cool	Unoccupied Cooling Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
occupied_heat	Occupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_heat	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_heat	Unoccupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable

Unoccupied Heating Differential

Keypad Menu Path Temperatures\Zone Heating\UnoccHtgDiff=

This read/write property sets a differential below the Unoccupied Heating Setpoint (See below). Once activated, unoccupied heating operation is terminated when the Space Temperature (See page 78) rises above the Unoccupied Heating Setpoint by more than this differential.

Values

Temperature in °F: between 1.0 - 10.0 °F of Floating Point.

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Application	236	365	Night Setback Diff	63708
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Night Setback Diff				

Unoccupied Heating Setpoint

Keypad Menu Path Temperatures\Zone Heating\UnoccHtg Spt

This read/write configuration property sets the temperature below which the unit starts up and provides unoccupied heating (night setback). An optional space temperature sensor is required for unoccupied heating.

This attribute uses maximum and minimum limits set with the unit keypad. If the Present Value is set beyond these limits from the network, the Reliability attribute of the object indicates Out of Range Low or Out of Range High (whichever is appropriate). When this happens, the application detects the out of range condition and restores the Present Value to the previous valid value (i.e., within the limits) it had before being set out of range.

Values

Temperature in °F: 55.0 - 99.0 °F of Floating Point

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	3905	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SC.Unit State.Unocc Htg Spt AV.Present Value				

LONWORKS

LONWORKS Name	Profile	SCPT Reference	SCPT Index	SNVT Type	SNVT Index
nciSetpoints_unoccupied_heat	SCC	SNVT_temp_setpt	106	SCPTsetPnts	60

Measurement	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	Data Point Reference	Valid Range	Notes
occupied_cool	Occupied Cooing Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_cool	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_cool	Unoccupied Cooling Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
occupied_heat	Occupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
standby_heat	Not Applicable	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable
unoccupied_heat	Unoccupied Heating Setpoint	-273.17 .. 327.66 degC	resolution 0.01 degC; 0x7FFF means data unavailable

VAV Box Output

Keypad Menu Path System Summary\System\VAV Output=

This read-only property indicates the state of the VAV Box Output (MCB-B012). This output is provided for field use for interlocking field VAV box operation with the unit heating or cooling. The value is 0 when the unit is in any heating state and 1 in any other state.

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	5	3950	Present Value	85

Full Reference
MTII SCUC #########.App.Daikin.SC.Start Stop Control.VAV Output BV.Present Value

Enumeration
0 = Heat 1 = Cool

Water Flow

Keypad Menu Path Air/Water Flow\Waterflow Summary\Water Flow=

This read/write property indicates whether or not water flow is detected. Water flow status is sensed by a binary input delivered to the controller by a water flow sensor (WF1).

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Input	3	225	Present Value	85

Full Reference
MTII SCUC #########.App.Daikin.SC.Waterflow Switch.Present Value

Enumeration
0 = Yes 1 = No

Alarms

Two methods of obtaining alarm information are available in the MicroTech II controller. One is to monitor individual alarms, and the other is to monitor alarms according to alarm class.

Alarms in a MicroTech II controller are divided into three classes: Faults, Problems, and Warnings. Fault alarms have the highest priority. Problem alarms have the next priority. Warning alarms have the lowest priority. The alarms within each class are also prioritized. Refer to the appropriate Operation Manual for a description of each alarm. See Reference Documents on page 4 for document part numbers.

There are multiple mechanisms, with dependencies based on protocol, available in the MicroTech II unit controller for working with alarms. Using one of these mechanisms, alarms can be recognized and acknowledged by alarm class or individually, and cleared from the network by alarm class.

Classes

Fault Alarms (Highest Priority)

Table 4: Fault Alarms in Order of Priority

Alarm Message	Indication	Clear
Freeze	Freezestat condition while SAF on	Manual
Smoke	Smoke detected by SAF and/or RAF smoke detector	Manual
MAT Sensor	MAT sensor failure while selected as the Control Temperature Source	Manual
Outdoor Temp Sensor	OAT sensor failure while selected as the Control Temperature Source	Manual
Space Temp Sensor	Space temp sensor failure while selected as the Control Temperature Source	Manual
Return Temp Sensor	RAT sensor failure	Manual
Discharge Temp Sensor	DAT sensor failure	Manual
Duct Hi Limit	Excessive discharge compartment pressure sensed by DHL sensor	Manual
High Return Temp	RAT exceeded the Hi Return Tmp setting	Manual
High Discharge Temp	DAT exceeded the Hi Disch Tmp setting	Manual
Low Discharge Temp	DAT fell below the Lo Disch Tmp setting	Manual
Fan Fail	Airflow not sensed by PC7 and Duct Static Pressure is less than half the DSP setpoint	Manual
Outdoor Damper Stuck	OA Dampers < 50% open after Startup (100% OA units only)	Manual

Problem Alarms (Middle Priority)

Table 5: Problem Alarms in Order of Priority

Alarm Message	Indication	Clear
Freeze	Freezestat tripped while SAF was off	Automatic
MAT Sensor	MAT sensor failure when Control Temperature Source parameter not set to MAT	Automatic
EWT Sensor	EWT sensor open or shorted Automatic	Automatic
Outdoor Temp Sensor	OAT sensor failure when Control Temperature Source parameter not set to OAT	Automatic
Space Temp Sensor	Space temp sensor failure on unit with RAT sensor	Automatic
Return Temp Sensor	RAT sensor failure Control Temperature Source parameter not set to Return	Automatic
Low Airflow	Excessive temperature rise sensed across heat section on single stage heat unit	Manual
Heat Fail	Electric Heat safety lockout condition occurred	Automatic
Fan Retry	Airflow not sensed by PC7 after SAF was started	Automatic
Circ 1 High Pressure	HP1 open indicating ckt # 1 high refrigerant pressure	Manual
Circ 2 High Pressure	HP2 open indicating ckt # 2 high refrigerant pressure	Manual
Circ 3 High Pressure	HP3 open indicating ckt # 3 high refrigerant pressure	Manual
Circ 4 High Pressure	HP4 open indicating ckt # 4 high refrigerant pressure	Manual
Circ 5 High Pressure	HP5 open indicating ckt # 5 high refrigerant pressure	Manual
Circ 6 High Pressure	HP6 open indicating ckt # 6 high refrigerant pressure	Manual
Circ 1 Low Pressure	LP1 remained opened after ckt #1 solenoid valve open	Automatic
Circ 2 Low Pressure	LP2 remained opened after ckt #2 solenoid valve open	Automatic
Circ 3 Low Pressure	LP3 remained opened after ckt #3 solenoid valve open	Automatic
Circ 4 Low Pressure	LP4 remained opened after ckt #4 solenoid valve open	Automatic
Circ 5 Low Pressure	LP5 remained opened after ckt #5 solenoid valve open	Automatic
Circ 6 Low Pressure	LP6 remained opened after ckt #6 solenoid valve open	Automatic
Water Reg Valve	The greater of the two refrigerant pressure sensors is below the setpoint by more that the dead band and EWT is less than 58°F.	Automatic
No Water Flow	WF1 open indicating no water flow	Automatic
Compressor 1 Fail	Comp #1 off on motor protector (MP1)	Automatic
Compressor 2 Fail	Comp #2 off on motor protector (MP2)	Automatic
Compressor 3 Fail	Comp #3 off on motor protector (MP3)	Automatic
Compressor 4 Fail	Comp #4 off on motor protector (MP4)	Automatic
Compressor 5 Fail	Comp #5 off on motor protector (MP5)	Automatic
Compressor 6 Fail	Comp #6 off on motor protector (MP6)	Automatic
Circ 1 Clg Ena Fail	Clg enable input to CCB1 off when cooling was on	Manual
Circ 2 Clg Ena Fail	Clg enable input to CCB2 off when cooling was on	Manual
Heat Bd Htg Ena	Htg enable input to EHB1 off when heating was on	Manual
Circ 1 Comm Fail	Comm failure occurred between MCB and CCB1	Automatic
Circ 2 Comm Fail	Comm failure occurred between MCB and CCB2	Automatic
Heat Bd Comm Fail	Comm failure occurred between MCB and EHB1	Automatic

Warning Alarms (Lowest Priority)

Table 6: Warning Alarms in Order of Priority

Alarm Message	Indication	Clear
Airflow Switch	PC7 sensed airflow when unit was off	Manual
Econo Stuck	Econo Position is > 10% after unit has been off for more than three minutes or Economizer Position is < 95% after unit has been in Mechanical Cooling with conditions acceptable for Economizer Operation for more than three minutes.	Manual
Dirty Filter	Pressure drop across first filter section exceeded the setting of PC5	Manual
Circ 1 Clg Ena HW	Clg enable input to CCB1 on when cooling off	Manual
Circ 2 Clg Ena HW	Clg enable input to CCB2 on when cooling off	Manual

Alarm Monitoring

The Vertical Self-Contained Unit controller provides individual alarm identification through a unique value for each alarm beginning with Self-Contained application version 1.20. The value assigned to each alarm is the same for both BACnet and LonMark applications.

BACnet

Alarms within MicroTech II unit controllers can be monitored via BACnet by one of the two following methods; 1) individually by three BACnet Analog Values, or 2) by alarm class using three BACnet Binary Values.

1. To monitor alarms individually, read the desired instance based on the three BACnet Analog Value objects for Fault alarms, Problem Alarms, and Warning Alarms. The value of each of these objects described in the tables that follow will be the largest number in its enumeration that corresponds to an active alarm. Each of these objects will be set to zero if no alarms are active in that group. These objects are explained in further detail in 1) Alarm, Faults: Individual Notification, 2 Alarm, Problems: Individual Notification, or 3) Alarm, Warnings: Individual Notification. Valid values for alarms are 12 through 252 (Alarm), 0 (Normal).
2. To monitor alarms by alarm class, read the Present_Value property of any one of three Binary Value objects; 1) Alarm, Faults: Clear All, 2) Alarm, Problems: Clear All or 3) Alarm, Warnings: Clear All. If the Present_Value property of these objects reads ACTIVE, an alarm in that class has occurred.

LONMARK

Alarms within MicroTech II unit controllers can be monitored individually by using the In Alarm attribute of the Unit Status Network Variable Output; nvoUnitStatus_in_alarm. This attribute displays a value that corresponds to the highest priority alarm that is active. It is possible to have multiple active alarms, but only the highest priority is displayed in this attribute. For example, if there is a Dirty Filter Warning (value of 24) and a Freeze Fault (value of 252) simultaneously, the Freeze Fault value of 252 will be displayed in nvoUnitStatus_in_alarm because it is the higher priority alarm of the two. Once the Freeze Fault condition is corrected and the Fault is cleared, the next priority active alarm value (in this example, value of 24 for Dirty Filter alarm) is displayed. The values for all alarms are described in the tables that follow. If the attribute nvoUnitStatus_in_alarm displays a zero, there are no active alarms.

Alarms may also be monitored by alarm class if desired. When the nvoUnitStatus_in_alarm attribute reads a value in the range of 1 to 99, a Warning Alarm is active. When the attribute reads a value in the range of 100 to 199, a Problem Alarm is active. When the attribute reads a value in the range of 200 to 255, a Fault Alarm is active.

Alarm Clearing

BACnet

Alarms within MicroTech II unit controllers can be cleared via BACnet by alarm class using three BACnet Binary Values. To clear alarms by alarm class, change the Present_Value property of any one of three Binary Value objects; 1) Alarm, Faults: Clear All, 2) Alarm, Problems: Clear All or 3) Alarm, Warnings: Clear All from ACTIVE to INACTIVE. If the unit is still in the alarm condition, the Present_Value property of the associated Binary Value object will again read ACTIVE and the associated Analog Value will show a non-zero value to indicate the alarm still exists.

LonMark

Alarms within MicroTech II unit controllers can be cleared via Lon by alarm class using three Network Variable Inputs (nvi's) of type SNVT_Switch; 1) nviAlarmFault, 2) nviAlarmProblem and 3) nviAlarmWarning. To clear alarms in a particular class, change the state portion of the SNVT from 1 (Alarm) to 0 (Normal). If the unit is still in the alarm condition, the In Alarm attribute of the Unit Status Network Variable Output (nvoUnitStatus_in_alarm) again reads 1 through 99 (Warning Alarm), 100 through 199 (Problem Alarm), or 200 through 255 (Fault Alarm) to indicate the alarm still exists.

Objects

Alarm, Faults: Clear All

Keypad Menu Path No Direct Keypad Equivalent

This BACnet Binary Value indicates whether there is an active Fault alarm. To clear an active Fault alarm, change the attribute value from Alarm (1) to Normal (0).

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	5	4150	Present Value	85
Full Reference				
MTII SCUC #########.App.McQ SC.Alarm Fault BV.Present Value				

Enumeration
0 = Normal 1 = Alarm

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviAlarmFault	DAC, SCC	SNVT_Switch	95

Structure

```
Typedef struct {
        Unsigned    value;    Not Used
        Signed      state;    0=Normal
                              1=Alarm
} SNVT_switch
```

Alarm, Faults: Individual Notification

Keypad Menu Path No Direct Keypad Equivalent

This BACnet Analog Value object allows individual notification of Fault alarms. The value in the table below will be the largest number in its enumeration that corresponds to an active Fault alarm. This object will be set to zero if no Fault alarms are active.

In order to clear all Fault alarms at once, see Alarm, Faults: Clear All.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	5328	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SCAlarm Faults.Faults MAV				

Enumeration
0 – No Active Faults
204 – Outdoor Air Damper Stuck
208 – Fan Fail
212 – Low Discharge Air Temp
216 – High Discharge Air Temp
220 – High Return Air Temp
224 – Duct High Limit
228 – Discharge Sensor Fail
232 – Return Sensor Fail
236 – Space Sensor Fail
240 – Outdoor Air Sensor Fail
244 – Mixed Air Sensor Fail
248 – Smoke Fault
252 – Freeze Fault

Alarm, Problems: Clear All

Keypad Menu Path No Direct Keypad Equivalent

This BACnet Binary Value indicates whether there is an active Problem alarm. To clear an active Problem alarm, change the attribute value from Alarm (1) to Normal (0).

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	5	4145	Present Value	85
Full Reference				
MTII SCUC #########.App.McQ SC.Alarm Problem BV.Present Value				

Enumeration
0 = Normal
1 = Alarm

LonWorks

LONWORKS Name	Profile	SNVT Type	SNVT Index
NviAlarmProblem	DAC, SCC	SNVT_Switch	95

Structure

Typedef struct {

Unsigned	value;	Not Used
Signed	state;	0=Normal
		1=Alarm

} SNVT_switch

Alarm, Problems: Individual Notification

Keypad Menu Path No Direct Keypad Equivalent

This BACnet Analog Value object allows individual notification of Problem alarms. The value in the table below will be the largest number in its enumeration that corresponds to an active Problem alarm. This object will be set to zero if no Problem alarms are active.

In order to clear all Problem alarms at once, see Alarm, Problems: Clear All.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	5327	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SCAlarm Problems.Problems MAV				

Enumeration
0 – No Active Problems
105 – Heating Board Comm Fail
109 – Compressor Board # 2 Comm Fail
110 – Compressor Board # 1 Comm Fail
113 – Heating Board Enable Fail
117 – Compressor Board # 2 Enable Fail
118 – Compressor Board # 1 Enable Fail
122 - Incomplete Pumpdown - Circuit # 2
123 - Incomplete Pumpdown - Circuit # 1
129 – Compressor # 6 Fail
130 – Compressor # 5 Fail
131 – Compressor # 4 Fail
132 – Compressor # 3 Fail
133 – Compressor # 2 Fail
134 – Compressor # 1 Fail
137 – No Water Flow
140 – Water Regulating Valve Fail
144 – Low Pressure/Frost – Circuit # 6
145 – Low Pressure/Frost – Circuit # 5
146 – Low Pressure/Frost – Circuit # 4
147 – Low Pressure/Frost – Circuit # 3
148 – Low Pressure/Frost – Circuit # 2
149 – Low Pressure/Frost – Circuit # 1
153 - Frost Protect - Circuit # 2
154 - Frost Protect - Circuit # 1
158 - Low Pressure - Circuit # 2
159 - Low Pressure - Circuit # 1
162 – High Pressure – Circuit # 6
163 – High Pressure – Circuit # 5
164 – High Pressure – Circuit # 4
165 – High Pressure – Circuit # 3
166 – High Pressure – Circuit # 2
167 – High Pressure – Circuit # 1
170 – Fan Retry
173 - Heat Fail
176 - Low Airflow
182– Return Air Sensor Problem
185 – Space Sensor Problem
188 – OAT Sensor Problem
191 – Entering Water Sensor Problem
194 – Mixed Air Sensor Problem
197 – Freeze Problem

Alarm, Warnings: Clear All

Keypad Menu Path No Direct Keypad Equivalent

This BACnet Binary Value indicates whether there is an active Warning alarm. To clear an active Warning alarm, change the attribute value from Alarm (1) to Normal (0).

Values

Enumerated

BACnet

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Binary Value	5	4140	Present Value	85
Full Reference				
MTII SCUC #########.App.McQ SC.Alarm Warning BV.Present Value				

Enumeration
0 = Normal 1 = Alarm

LONWORKS

LONWORKS Name	Profile	SNVT Type	SNVT Index
nviAlarmWarning	DAC, SCC	SNVT_Switch	95

Structure

Typedef struct {

Unsigned	value;	Not Used
Signed	state;	0=Normal
		1=Alarm

} SNVT_switch

Alarm, Warnings: Individual Notification

Keypad Menu Path No Direct Keypad Equivalent

This BACnet Analog Value object allows individual notification of Warning alarms. The value in the table below will be the largest number in it's enumeration that corresponds to an active Warning alarm. This object will be set to zero if no Warning alarms are active.

In order to clear all Warning alarms at once, see Alarm, Warnings: Clear All.

Object Identifier			Property	
Object Type	**Type ID**	**Instance**	**Name**	**ID**
Analog Value	2	5326	Present Value	85
Full Reference				
MTII SCUC #########.App.Daikin.SCAlarm Warnings.Warnings MAV				

Enumeration
0 – No Active Warnings 12 – Compressor Board 2 Hardware Warning 16 – Compressor Board 1 Hardware Warning 24 - Dirty Filter 28 – Airflow Switch Warning

Appendix A: Protocol Implementation Conformance Statement

This section contains the Protocol Implementation Conformance Statement (PICS) for the MicroTech II Vertical Self-Contained Unit Controller as required by ANSI/ASHRAE (American National Standards Institute/American Society of Heating, Refrigeration, and Air Conditioning Engineers) Standard 135-2001, BACnet; A Data Communication Protocol for Building Automation and Control Networks.

BACnet Protocol Implementation Conformance Statement

Date:	September 2008
Vendor Name:	Daikin
Product Name:	Vertical Self-Contained Unit Controller
Product Model Number:	MTII SCUC
Applications Software Version:	2506030128 and 2506030303
Firmware Revision:	5.3
BACnet Protocol Revision:	Version 1 Revision 2

Product Description

The MicroTech II Vertical Self-Contained Unit Controller with optional BACnet Communication Module is a microprocessor-based controller designed to operate Daikin Vertical Self-Contained Units and be integrated into BACnet building automation systems.

The controller provides normal temperature, static pressure and ventilation control and alarm monitoring with alarm-specific component shutdown in critical system conditions. Access to temperatures, pressures, operating states, alarm messages, control parameters and schedules is available through an equipment-mounted keypad/display and the BACnet control network.

BACnet Standardized Device Profile

Based on BIBBs supported, the MicroTech II Vertical Self-Contained Unit Controller with optional BACnet Communication Module is nearly a BACnet Advanced Application Controller (B-AAC). Refer to the section below entitled BACnet Interoperability Building Blocks (BIBBs) Supported for a complete listing of BIBBS.

BACnet Interoperability Building Blocks (BIBBs) Supported

BIBB Name	Designation
Data Sharing - ReadProperty - A	DS-RP-A
Data Sharing - ReadProperty - B	DS-RP-B
Data Sharing - ReadPropertyMultiple - A	DS-RPM-A
Data Sharing - ReadPropertyMultiple - B	DS-RPM-B
Data Sharing - Write Property - A	DS-WP-A
Data Sharing - WriteProperty - B	DS-WP-B
Data Sharing - WritePropertyMultiple - A	DS-WPM-A
Data Sharing - WritePropertyMultiple - B	DS-WPM-B
Data Sharing - COV - Unsolicited - A	DS-COVU-A
Data Sharing - COV - Unsolicited - B	DS-COVU-B
Device Management - Dynamic Device Binding - A	DM-DDB-A
Device Management - Dynamic Device Binding - B	DM-DDB-B
Device Management - Dynamic Object Binding - A	DM-DOB-A
Device Management - Dynamic Object Binding - B	DM-DOB-B
Device Management - Private Transfer - A	DM-PT-A
Device Management - Private Transfer - B	DM-PT-B
Device Management - UTCTimeSynchronization - B	DM-UTC-B
Device Management - ReinitializeDevice - B	DM-RD-B
Device Management - List Manipulation - B	DM-LM-B
Device Management - Object Creation and Deletion - B	DM-OCD-B

Standard Object Types Supported

Object-Type	Creatable	Deleteable	Optional Properties Supported	Writable Properties Not Required To Be Writable
Analog Input	☐	☐	Description Reliability COV_Increment	Object_Name Present_Value Description Out_Of_Service Units COV_Increment
Analog Output	☐	☐	Description Reliability COV_Increment	Object_Name Present_Value Description Units Relinquish_Default COV_Increment
Analog Value	☐	☐	Description Reliability Relinquish_Default COV_Incremen	Object_Name Present_Value Description Reliability Units Relinquish_Default COV_Increment
Binary Input	☐	☐	Description Reliability	Object_Name Present_Value Description Out_Of_Service
Binary Output	☐	☐	Description Reliability	Object_Name Present_Value Description Relinquish_Default
Binary Value	☐	☐	Description Reliability Relinquish_Default	Object_Name Present_Value Description Reliability Relinquish_Default
Calendar	☐	☐	Description	Object_Name Description Date_List
Device	☐	☐	Description Local_Time Local_Date UTC_Offset APDU_Segment_Timeout	Object_Name Application_Software_Version Description Max_APDU_Length_Accepted Local_Time Local_Date UTC_Offset Daylight_Saving_Status APDU_Segment_Timeout APDU_Timeout Number_Of_APDU_Retries
Schedule	☐	☐	Description Weekly_Schedule Exception_Schedule	Object_Name Description Effective_Period Weekly_Schedule Exception_Schedule List_Of_Object_Property_Refs

Data Link Layer Options

☒	BACnet IP, (Annex J)
☒	MS/TP master (Clause 9), baud rate(s): 9600, 19200, 38400 bps

Segmentation Capability

☒	Segmented requests supported	Window Size:	127
☒	Segmented responses supported	Window Size:	127

Device Address Binding

Static Device Binding	☐	Yes
	☒	No

Character Sets Supported

☒	ANSI X3.4	☐	IBM™/Microsoft™ DBCS	☐	ISO 8859-1
☐	ISO 10646 (UCS-2)	☐	ISO 10646 (UCS-4)	☐	JIS C 6226

Appendix B: Early Versions of the BACnet Device Object

Early versions of the MicroTech II Vertical Self-Contained Unit Controller used different values for some device object properties. The major differences other than variable properties are highlighted in tables.

Table 7: Earlier Version A of the MicroTech II Vertical Self-Contained Unit Device Object Properties

Property	Property Identifier	Value	Data Type
Object Identifier	75	(8):1000	BACnet Object Identifier
Object Name	77	mdcu_ #########	Character String
Object Type	79	BACDevice	BACnet Object Type
Vendor Name	121	Daikin	Character String
Vendor Identifier	120	3	Unsigned16
Model Name	70	mdcu_	Character String
Firmware Version	44	variable	Character String
Application Software Revision	12	variable	Character String
Description	28		Character String
Local Time	57	variable	Time
Local Date	56	variable	Date

Table 8: Earlier Version B of the MicroTech II Vertical Self-Contained Unit Device Object Properties

Property	Property Identifier	Value	Data Type
Object Identifier	75	(8):10	BACnet Object Identifier
Object Name	77	MicroTech II #########	Character String
Object Type	79	BACDevice	BACnet Object Type
Vendor Name	121	Daikin	Character String
Vendor Identifier	120	3	Unsigned16
Model Name	70	MT II SCUC	Character String
Firmware Version	44	variable	Character String
Application Software Revision	12	variable	Character String
Description	28		Character String
Local Time	57	variable	Time
Local Date	56	variable	Date

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