Direct Digital Controls (DDC)

APPLICATION GUIDE

DDC Application Guide for Paragon HVAC Series

Introduction

This guide will provide a brief overview of how to control and monitor key aspects of a Paragon HVAC Unit when using a third party Building Management System (BMS). It will cover controlling the unit using occupancy, controlling the blower speed, heating, cooling, dehumidification setpoints, controlling the outdoor air damper, and monitoring heating and cooling capacity usage. Also, information on which factory settings and control points are important for each unit feature and what control point values correspond to different modes of operation will be covered.

Using Schedule to Allow BMS Control

Point 5 allows a BMS to control the unit easily via controlling occupancy. For this method to work correctly, Scheduling must be enabled (**Point 216**). The schedule only needs to be enabled once. It does not need to be regularly switched on/off. The internal schedule must also be set to unoccupied at all hours (**Points 46-87** must be set to 1440). An input of occupancy will always override one of an unoccupied input, so setting the internal schedule to unoccupied allows the BMS full control over when the unit is in an occupied mode via **Point 5**. If any of the internal schedule points are set to something other than 1440, using **Point 5** to turn occupancy on and off in those times will not work and the schedule must be adjusted on-site. To manually set the schedule time slots to unoccupied while on-site, follow the **Scheduling** instructions.

Scheduling

To set a schedule on the HMI (**Figure 1**), you must first enable scheduling: **Factory Settings > Occupied Scheduling > On**

Set your sensor temperature set points for occupied and unoccupied schedules: **User Settings > Temp Set Points > (Varies)**

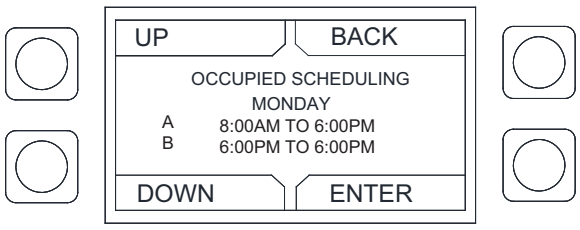
Once scheduling is enabled, and the temperature set points are configured, you may enter your scheduled days and times: **User Settings > Scheduling**

Schedule A Default
- Monday - Friday 8:00AM to 6:00PM
- Saturday and Sunday Unocc

Schedule B Default
- Monday - Friday Unocc
- Saturday and Sunday Unocc

Schedule C Default
- Monday - Friday Unocc
- Saturday and Sunday Unocc

Figure 1 - Scheduling Screen



To adjust the settings, highlight the parameter and press **ENTER**.
- The first parameter to be highlighted will be the day. Press **UP** or **DOWN** to select the day an occupied time schedule is required.
- Press **ENTER** to continue to set a start time. Press **UP** or **DOWN** to set start time.
- Press **ENTER** to set an end time. Press **UP** or **DOWN** to set end time.

The system will run between these days, time, and desired temperature settings. When in the UNOCCUPIED setting, the system will run at the unoccupied temperature setting.

PLEASE REFER TO THE PRODUCT OPERATION, INSTALLATION, AND MAINTENANCE MANUAL FOR COMPLETE DETAILS ON UNIT OPERATION.

Controlling Blower Speed

Points 223 and **224** allow you to determine how the blower is controlled in each occupancy mode. The values that correspond to each mode are as follows:

Auto = 0, Off = 1, On = 2

In blower off mode, the blower will run only when the unit interlock pin is powered. If set to Auto, the blower will only run when there is a call for heating or cooling. If set to On, as long as the fan button is enabled, the blower will run regardless of whether the building needs heating or cooling.

Points 88-91 allow you to set the speed of the blower, with separate points for VFD and ECM motors and occupied and unoccupied hours.

The speed of the motor set by **Points 88-91** above must be within the max and minimum speed setpoints found in **Points 228-235**. Once again, there are a separate set of points for VFDs and ECM motors and occupied and unoccupied hours.

Heating/Cooling/Dehumidification Setpoints

Units can activate based on intake and/or space temperature. This is controlled with the “Activate Based On” setting found in **Points 221-222**. The values that correspond to each mode are as follows:

0 = Intake, 1 = Space, 2 = Both, 3 = Either, 4 = Stat

For intake-based activation **Points 6-7** and **16-17** determine the intake setpoints for heating and cooling for occupied and unoccupied hours. These points are not used if Activate Based On is set to Space. Heating Type must also be set to a heating configuration for the heating points to be relevant.

Likewise, **Points 8-9** and **18-19** determine the space setpoints for heating and cooling for unoccupied and occupied hours. These points are not used if Activate Based On is set to Intake. Again, Heating Type must also be set to a heating configuration for the heating points to be relevant.

When active, units can target either a discharge temperature or space temperature. This is controlled by the Tempering Mode setting (**Points 217-220**). The values that correspond to each mode are as follows:

0 = Discharge, 1 = Space, 2 = BAS, 3 = DDC

If Tempering Mode is set to Space, **Points 10-11** and **14-15** control the minimum and maximum discharge temperature in heating for occupied and unoccupied times. The unit then has the ability to vary the temperature within this range to meet the space setpoint. **Points 20-21** and **24-25** do the same for discharge cooling.

If tempering mode is set to discharge, **Points 12-13** and **22-23** control the heating and cooling discharge setpoints for occupied and unoccupied hours.

Units with reheat have the ability to precisely control humidity in addition to temperature. Reheat will activate based on the same “Activate Based On” setting used to control heating and cooling. Just as with temperature, when active, units can target either a discharge humidity or space humidity, which is controlled by the Tempering mode discussed above (**Points 217-220**).

Humidity can be controlled via Relative Humidity or Dewpoint setpoints as selected by the Reheat Mode. **Points 34-39** control the intake, space, and discharge RH setpoints for occupied and unoccupied hours and **Points 40-45** control the same for dewpoint. Which set of these points to use is determined by whether RH or DP is selected as your Reheat Mode. To change one’s Reheat Mode one must go to **Factory Settings > Cooling Config > Reheat Config > Reheat Mode** and select the appropriate mode.

The Intake SPs serve as activation setpoints if Activate Based On is set to Intake. The Discharge SPs serve as target setpoints if Tempering Mode is set to Discharge. The Space SP can function as activation setpoints if Activate Based On is set to Space or Either and/or target setpoints if Tempering Mode is set to Space.

Outdoor Air Damper Control

Point 225 determines the mixing box mode, with the following possible modes:

0 = Off, 1 = Manual, 2 = Position, 3 = OAPercent, 4 = AnalogCtrl, 5 = PS, 6 = 100% OA

If the mixing box mode is set to outdoor air percentage, **Points 92-93** are used to set the outdoor air percentage for occupied and unoccupied times and **Points 236-239** are used to set the minimum and maximum allowable outdoor air percentages that **Points 92-93** must remain within the set value.

If the mixing box mode is set to manual, **Points 102-103** are used to set the mixing box damper voltage for occupied and unoccupied times and **Points 240-243** are used to set the minimum and maximum allowable voltages that **Points 102-103** must remain within the set value.

Monitoring of Heating and Cooling Capacity Usage

Point 139 determines unit status:

Idle = 0, Blower = 1, Heating = 2, Cooling = 3

Points 178-179 show how open the gas heat valve(s) are on gas heat units. Note that the gas valve is also fully open when the unit isn't heating, so a reading of 10V can mean the unit is either in High Fire or not in heating mode. **Point 181** shows the heating usage for electric heat units.

Network

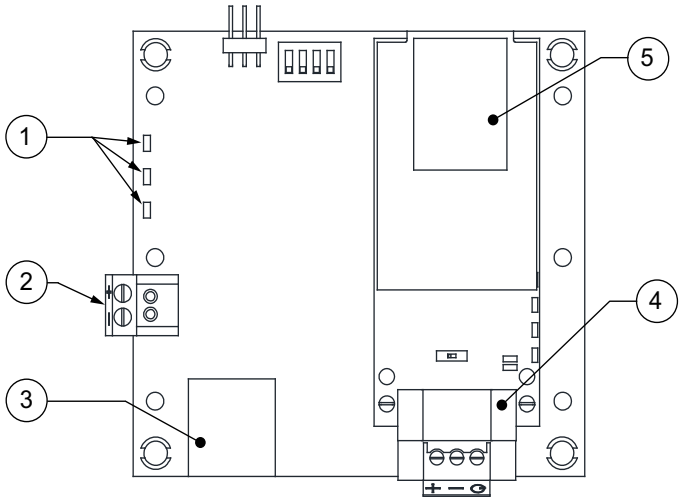
NOTE: The board will reboot when altering certain factory settings.

BACnet

BACnet IP or BACnet MS/TP (**Figure 2**) compatibility can be implemented with this package through a Protocessor, which is a BTL listed embedded Gateway configured to give a Building Management System access to monitor and/or control a list of BACnet objects. The Protocessor is mounted and factory pre-wired inside the Electrical Control Panel (ECP). Field connections to the Building Management System (BMS) are shown on wiring schematics.

The Protocessor is preconfigured at the factory to use the field protocol of the Building Management System in the specific jobsite. BACnet objects can only be accessed through the specified port and protocol.

Figure 2 - BACnet



1. Status LEDs
   - Green - Data Out
   - Yellow - Data In
   - Red - Power On
2. Power Supply 24V AC/DC
3. Cat 5 Cable to MUA Board.
4. Field RS485 Connection for BACnet MS/TP
5. Field Ethernet Connection for BACnet IP

Device Instance, MAC Address, Baud Rate

Some applications may require that the Protocessor have a specific Device Instance, the default device instance is 50,000. To change the Device Instance, you must access the Web Configurator by connecting a computer to the Ethernet port of the Protocessor. The computer used must be assigned a static IP address of 192.168.1.xxx and a subnet mask of 255.255.255.0.

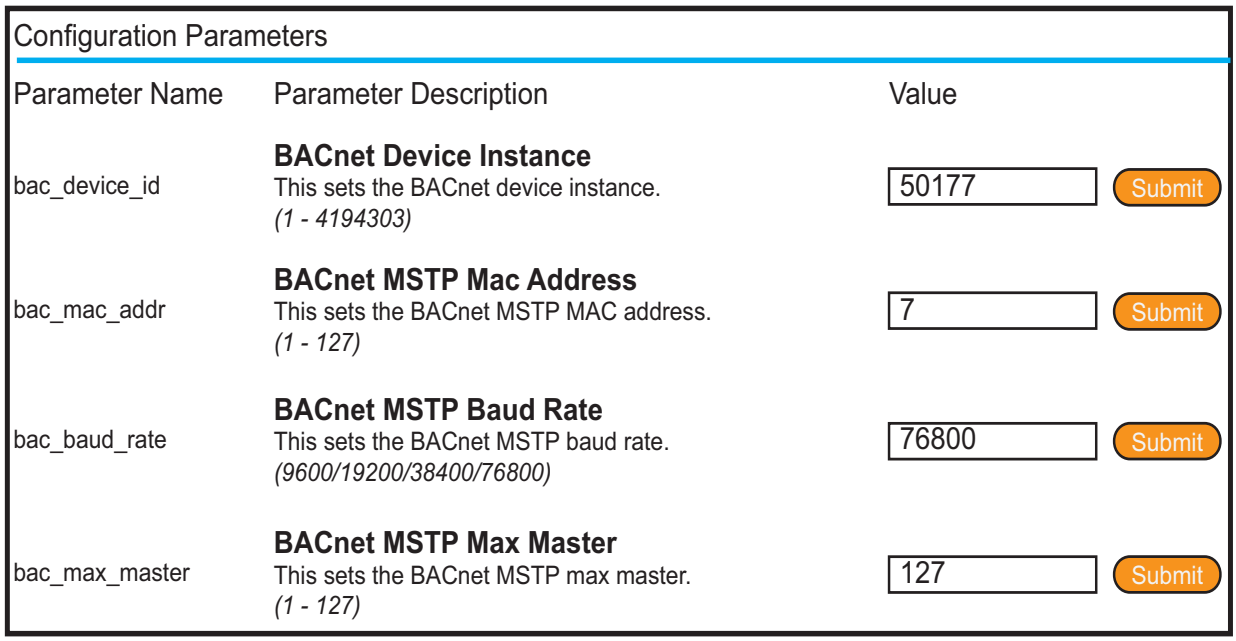
To access the Web Configurator, type the IP address of the Protocessor in the URL of any web browser. The default IP address of the Protocessor is 192.168.1.24. Once the landing page has loaded, if required, log in using “admin” for the username and password. If the default “admin” password does not work, the gateway should have a printed password on the module’s Ethernet port.

Go to the main configuration page, select “Configure” from the left-hand menu. Select “Profile Configuration,” the following window shown in **Figure 3** should appear.

The MAC address and Baud Rate, used by BACnet MTSP, are editable. The MAC address default is 127, and the Baud Rate default is 38400.

If any changes are made, **click on the submit button for each individual change.** Each individual change will require the system to restart.

Figure 3 - Configuration Parameters Page

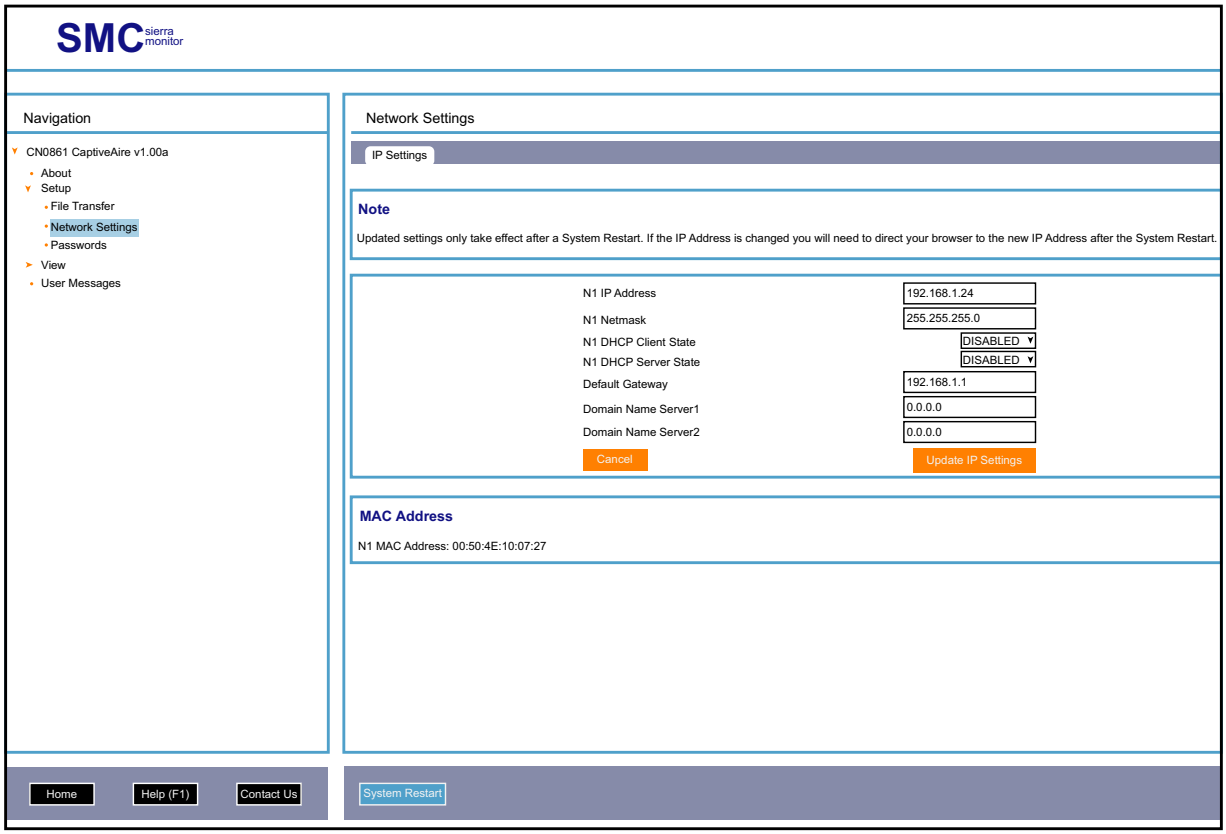


Changing the IP Address

Some BACnet IP applications may require changing the IP address of the Protocessor. To change the IP address, go to the internal server by typing the default IP address of the Protocessor, 192.168.1.24, in the URL field of any web browser. The computer used must have a static IP address of 192.168.1.xxx. The window shown in **Figure 4** appears. Click on the "Diagnostics and Debugging" button in the lower right corner.

Click on "Setup" from the left-hand side menu and select "Network Settings." The window shown in **Figure 4** will appear. You can now modify the IP address to whatever is required in the application. Once the IP address has been modified, click on "Update IP Settings."

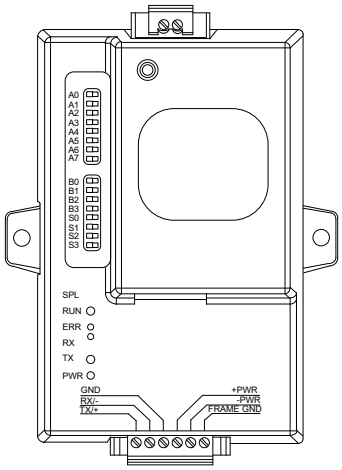
Figure 4 - Network Settings Page



LonWorks

LonWorks compatibility (**Figure 5**) can be implemented on control packages through the ProtoNode, a LonMark certified external Gateway configured to give a Building Management System access to monitor and/or control a list of Network Variables. The ProtoNode is mounted and factory pre-wired inside the Electrical Control Panel. Refer to schematics connections to the Building Management System are shown.

Figure 5 - LonWorks



Commissioning on a LonWorks Network

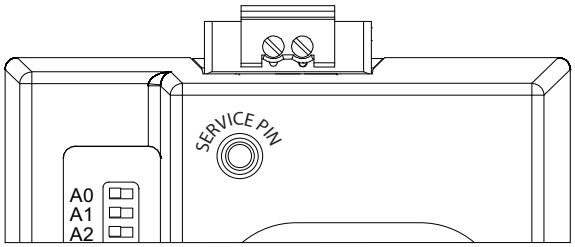
During the commissioning process by the LonWorks administrator (using a LonWorks Network Management Tool), the user will be prompted to hit the Service Pin in the ProtoNode. This pin is located in the front face, and it can be pressed by inserting a small screwdriver and tilting it towards the LonWorks Port. Refer to **Figure 6** for location of the "Service Pin."

If an XIF file is required, it can be obtained by following these steps:

1. Set your computer's static IP address to 192.168.1.xxx with a subnet mask of 255.255.255.0.
2. Run a Cat 5 connection from the ProtoNode's Ethernet port to your computer.
3. On any web browser's URL field, type 192.168.1.24/fserver.xif.

The web browser should automatically download the fserver.xif file or let you save it on your computer. Save it as fserver.xif.

Figure 6 - LonWorks Service Pin



NOTE: **Insert Small Screwdriver. Tilt Toward LonWorks Port To Activate Service Pin.**

DDC Control Points (BACnet)

Refer to **DDC Notes** for more information.

Name	ID	Object Type	Lon SNVT Name	Function	Modbus	Description
DDCHeatCommand (1)	1	Binary Value (BV)	nviDDCHeat/nvoDDCHeat	Control/Monitor	10000, Holding	Heating command. Requires heat tempering mode = DDC
DDCCoolCommand (1)	2	BV	nviDDCCool1/nvoDDCCool	Control/Monitor	10001, Holding	Cooling command. Requires heat tempering mode = DDC
DDCBlowerCommand (1)	3	BV	nviDDCBlow/nvoDDCBlow	Control/Monitor	10004, Holding	Blower command. Requires both heat and cool tempering mode = DDC
DDCModulation (1)	4	Analog Value (AV)	nviDDCModHeat/nvoDDCModHeat	Control/Monitor	10005, Holding	Heat modulation signal, 0-10V. 0V = low fire and 10V = high fire. Requires heat tempering mode = DDC
DDCOccupiedOverride (4)	5	BV	nviDDCOccOvrrd/nvoDDCOccOvrrd	Control/Monitor	10006, Holding	Occupied override command, requires SchedulingEnabled = ON (1)
IntakeHeatOccSP (3)	6	AV	nviInHeatOccSP/nvoInHeatOccSP	Control/Monitor	16000, Holding	Intake Heating Occupied Setpoint
IntakeHeatUnoccSP (3)	7	AV	nviInHeatUnocSP/nvoInHeatUnocSP	Control/Monitor	16001, Holding	Intake Heating Unoccupied Setpoint
SpaceHeatOccSP (3)	8	AV	nviSpHeatOccSP/nvoSpHeatOccSP	Control/Monitor	16002, Holding	Space Heating Occupied Setpoint
SpaceHeatUnoccSP (3)	9	AV	nviSpHeatUnocSP/nvoSpHeatUnocSP	Control/Monitor	16003, Holding	Space Heating Unoccupied Setpoint
MinDischargeHeatOccSP (3)	10	AV	nviMinDHeatOccSP/nvoMinDHeatOccSP	Control/Monitor	16004, Holding	Min Discharge Heating when occupied, relevant only if heat tempering mode = space
MinDischargeHeatUnoccSP (3)	11	AV	nviMinDHeatUnoSP/nvoMinDHeatUnoSP	Control/Monitor	16005, Holding	Min Discharge Heating when unoccupied, relevant only if heat tempering mode = space
DischargeHeatOccSP (3)	12	AV	nviDisHeatOccSP/nvoDisHeatOccSP	Control/Monitor	16006, Holding	Discharge heating setpoint when occupied, requires heat tempering mode = discharge
DischargeHeatUnoccSP (3)	13	AV	nviDisHeatUnocSP/nvoDisHeatUnocSP	Control/Monitor	16007, Holding	Discharge heating setpoint when unoccupied, requires heat tempering mode = discharge
MaxDischargeHeatOccSP (3)	14	AV	nviMaxDHeatOccSP/nvoMaxDHeatOccSP	Control/Monitor	16008, Holding	Max Discharge Heating when occupied, relevant only if heat tempering mode = space
MaxDischargeHeatUnoccSP (3)	15	AV	nviMaxDHeatUnoSP/nvoMaxDHeatUnoSP	Control/Monitor	16009, Holding	Max Discharge Heating when unoccupied, relevant only if heat tempering mode = space
IntakeCoolOccSP (3)	16	AV	nviInCoolOccSP/nvoInCoolOccSP	Control/Monitor	16010, Holding	Intake Cooling Occupied Setpoint
IntakeCoolUnoccSP (3)	17	AV	nviInCoolUnocSP/nvoInCoolUnocSP	Control/Monitor	16011, Holding	Intake Cooling Unoccupied Setpoint
SpaceCoolOccSP (3)	18	AV	nviSpCoolOccSP/nvoSpCoolOccSP	Control/Monitor	16012, Holding	Space Cooling Occupied Setpoint
SpaceCoolUnoccSP (3)	19	AV	nviSpCoolUnocSP/nvoSpCoolUnocSP	Control/Monitor	16013, Holding	Space Cooling Unoccupied Setpoint
MinDischargeCoolOccSP (3)	20	AV	nviMinDCoolOccSP/nvoMinDCoolOccSP	Control/Monitor	16014, Holding	Min Discharge Cooling setpoint when occupied, relevant only if cool tempering mode = space
MinDischargeCoolUnoccSP (3)	21	AV	nviMinDCoolUnoSP/nvoMinDCoolUnoSP	Control/Monitor	16015, Holding	Min Discharge Cooling setpoint when unoccupied, relevant only if cool tempering mode = space
DischargeCoolOccSP (3)	22	AV	nviDisCoolOccSP/nvoDisCoolOccSP	Control/Monitor	16016, Holding	Discharge Cooling setpoint when occupied, relevant only if cool tempering mode = discharge
DischargeCoolUnoccSP (3)	23	AV	nviDisCoolUnocSP/nvoDisCoolUnocSP	Control/Monitor	16017, Holding	Discharge Cooling setpoint when unoccupied, relevant only if cool tempering mode = discharge
MaxDischargeCoolOccSP (3)	24	AV	nviMaxDCoolOccSP/nvoMaxDCoolOccSP	Control/Monitor	16018, Holding	Max Discharge Cooling setpoint when occupied, relevant only if cool tempering mode = space
MaxDischargeCoolUnoccSP (3)	25	AV	nviMaxDCoolUnoSP/nvoMaxDCoolUnoSP	Control/Monitor	16019, Holding	Max Discharge Cooling setpoint when unoccupied, relevant only if cool tempering mode = space
RoomOverrideOccSP (3)	26	AV	nviRoomOvOccSP/nvoRoomOvOccSP	Control/Monitor	16020, Holding	Room Override Occupied Setpoint
RoomOverrideUnoccSP (3)	27	AV	nviRoomOvUnocSP/nvoRoomOvUnocSP	Control/Monitor	16021, Holding	Room Override Unoccupied Setpoint
FirestatIntakeSP (3)	28	AV	nviFireIntakeSP/nvoFireIntakeSP	Control/Monitor	16022, Holding	Firestat Intake Setpoint
FirestatDischargeSP (3)	29	AV	nviFireDischSP/nvoFireDischSP	Control/Monitor	16023, Holding	Firestat Discharge Setpoint
FreezestatSP (3)	30	AV	nviFreezeSP/nvoFreezeSP	Control/Monitor	16024, Holding	Freezestat Setpoint
OverheatDischargeSP (3)	31	AV	nviOheatDisSP/nvoOheatDisSP	Control/Monitor	16025, Holding	Overheat Discharge Setpoint
CabinetHeatSP (3)	32	AV	nviCabHeatSP/nvoCabHeatSP	Control/Monitor	16026, Holding	Cabinet Heat Setpoint
FurnaceDrainHeatSP (3)	33	AV	nviFDrainHeatSP/nvoFDrainHeatSP	Control/Monitor	16027, Holding	Furnace Drain Heat Setpoint
IntakeRhOccSP (3)	34	AV	nviInRhOccSP/nvoInRhOccSP	Control/Monitor	16028, Holding	Intake Relative Humidity Occupied Setpoint
IntakeRhUnoccSP (3)	35	AV	nviInRhUnoccSP/nvoInRhUnoccSP	Control/Monitor	16029, Holding	Intake Relative Humidity Unoccupied Setpoint
SpaceRhOccSP (3)	36	AV	nviSpRhOccSP/nvoSpRhOccSP	Control/Monitor	16030, Holding	Space Relative Humidity Occupied Setpoint
SpaceRhUnoccSP (3)	37	AV	nviSpRhUnoccSP/nvoSpRhUnoccSP	Control/Monitor	16031, Holding	Space Relative Humidity Unoccupied Setpoint
DischargeRhOccSP (3)	38	AV	nviDisRhOccSP/nvoDisRhOccSP	Control/Monitor	16032, Holding	Discharge Relative Humidity Occupied Setpoint
DischargeRhUnoccSP (3)	39	AV	nviDisRhUnoccSP/nvoDisRhUnoccSP	Control/Monitor	16033, Holding	Discharge Relative Humidity Unoccupied Setpoint
IntakeDpOccSP (3)	40	AV	nviInDpOccSP/nvoInDpOccSP	Control/Monitor	16034, Holding	Intake Dewpoint Occupied Setpoint
IntakeDpUnoccSP (3)	41	AV	nviInDpUnoccSP/nvoInDpUnoccSP	Control/Monitor	16035, Holding	Intake Dewpoint Unoccupied Setpoint
SpaceDpOccSP (3)	42	AV	nviSpDpOccSP/nvoSpDpOccSP	Control/Monitor	16036, Holding	Space Dewpoint Occupied Setpoint
SpaceDpUnoccSP (3)	43	AV	nviSpDpUnoccSP/nvoSpDpUnoccSP	Control/Monitor	16037, Holding	Space Dewpoint Unoccupied Setpoint
DischargeDpOccSP (3)	44	AV	nviDisDpOccSP/nvoDisDpOccSP	Control/Monitor	16038, Holding	Discharge Dewpoint Occupied Setpoint
DischargeDpUnoccSP (3)	45	AV	nviDisDpUnoccSP/nvoDisDpUnoccSP	Control/Monitor	16039, Holding	Discharge Dewpoint Unoccupied Setpoint
ScheduleSundayAStart (4)	46	AV	nviSundayAStart/nvoSundayAStart	Control/Monitor	16040, Holding	Daily schedule start/end time in minutes
ScheduleSundayAEnd (4)	47	AV	nviSundayAEnd/nvoSundayAEnd	Control/Monitor	16041, Holding	Daily schedule start/end time in minutes
ScheduleSundayBStart (4)	48	AV	nviSundayBStart/nvoSundayBStart	Control/Monitor	16042, Holding	Daily schedule start/end time in minutes
ScheduleSundayBEnd (4)	49	AV	nviSundayBEnd/nvoSundayBEnd	Control/Monitor	16043, Holding	Daily schedule start/end time in minutes
ScheduleSundayCStart (4)	50	AV	nviSundayCStart/nvoSundayCStart	Control/Monitor	16044, Holding	Daily schedule start/end time in minutes
ScheduleSundayCEnd (4)	51	AV	nviSundayCEnd/nvoSundayCEnd	Control/Monitor	16045, Holding	Daily schedule start/end time in minutes
ScheduleMondayAStart (4)	52	AV	nviMondayAStart/nvoMondayAStart	Control/Monitor	16046, Holding	Daily schedule start/end time in minutes
ScheduleMondayAEnd (4)	53	AV	nviMondayAEnd/nvoMondayAEnd	Control/Monitor	16047, Holding	Daily schedule start/end time in minutes
ScheduleMondayBStart (4)	54	AV	nviMondayBStart/nvoMondayBStart	Control/Monitor	16048, Holding	Daily schedule start/end time in minutes
ScheduleMondayBEnd (4)	55	AV	nviMondayBEnd/nvoMondayBEnd	Control/Monitor	16049, Holding	Daily schedule start/end time in minutes
ScheduleMondayCStart (4)	56	AV	nviMondayCStart/nvoMondayCStart	Control/Monitor	16050, Holding	Daily schedule start/end time in minutes
ScheduleMondayCEnd (4)	57	AV	nviMondayCEnd/nvoMondayCEnd	Control/Monitor	16051, Holding	Daily schedule start/end time in minutes
ScheduleTuesdayAStart (4)	58	AV	nviTuesdayAStart/nvoTuesdayAStart	Control/Monitor	16052, Holding	Daily schedule start/end time in minutes
ScheduleTuesdayAEnd (4)	59	AV	nviTuesdayAEnd/nvoTuesdayAEnd	Control/Monitor	16053, Holding	Daily schedule start/end time in minutes
ScheduleTuesdayBStart (4)	60	AV	nviTuesdayBStart/nvoTuesdayBStart	Control/Monitor	16054, Holding	Daily schedule start/end time in minutes
ScheduleTuesdayBEnd (4)	61	AV	nviTuesdayBEnd/nvoTuesdayBEnd	Control/Monitor	16055, Holding	Daily schedule start/end time in minutes
ScheduleTuesdayCStart (4)	62	AV	nviTuesdayCStart/nvoTuesdayCStart	Control/Monitor	16056, Holding	Daily schedule start/end time in minutes
ScheduleTuesdayCEnd (4)	63	AV	nviTuesdayCEnd/nvoTuesdayCEnd	Control/Monitor	16057, Holding	Daily schedule start/end time in minutes

Name	ID	Object Type	Lon SNVT Name	Function	Modbus	Description
ScheduleWednesdayAStart (4)	64	AV	nviWedAStart/nvoWedAStart	Control/Monitor	16058, Holding	Daily schedule start/end time in minutes
ScheduleWednesdayAEnd (4)	65	AV	nviWedAEnd/nvoWedAEnd	Control/Monitor	16059, Holding	Daily schedule start/end time in minutes
ScheduleWednesdayBStart (4)	66	AV	nviWedBStart/nvoWedBStart	Control/Monitor	16060, Holding	Daily schedule start/end time in minutes
ScheduleWednesdayBEnd (4)	67	AV	nviWedBEnd/nvoWedBEnd	Control/Monitor	16061, Holding	Daily schedule start/end time in minutes
ScheduleWednesdayCStart (4)	68	AV	nviWedCStart/nvoWedCStart	Control/Monitor	16062, Holding	Daily schedule start/end time in minutes
ScheduleWednesdayCEnd (4)	69	AV	nviWedCEnd/nvoWedCEnd	Control/Monitor	16063, Holding	Daily schedule start/end time in minutes
ScheduleThursdayAStart (4)	70	AV	nviThursAStart/nvoThursAStart	Control/Monitor	16064, Holding	Daily schedule start/end time in minutes
ScheduleThursdayAEnd (4)	71	AV	nviThursAEnd/nvoThursAEnd	Control/Monitor	16065, Holding	Daily schedule start/end time in minutes
ScheduleThursdayBStart (4)	72	AV	nviThursBStart/nvoThursBStart	Control/Monitor	16066, Holding	Daily schedule start/end time in minutes
ScheduleThursdayBEnd (4)	73	AV	nviThursBEnd/nvoThursBEnd	Control/Monitor	16067, Holding	Daily schedule start/end time in minutes
ScheduleThursdayCStart (4)	74	AV	nviThursCStart/nvoThursCStart	Control/Monitor	16068, Holding	Daily schedule start/end time in minutes
ScheduleThursdayCEnd (4)	75	AV	nviThursCEnd/nvoThursCEnd	Control/Monitor	16069, Holding	Daily schedule start/end time in minutes
ScheduleFridayAStart (4)	76	AV	nviFridayAStart/nvoFridayAStart	Control/Monitor	16070, Holding	Daily schedule start/end time in minutes
ScheduleFridayAEnd (4)	77	AV	nviFridayAEnd/nvoFridayAEnd	Control/Monitor	16071, Holding	Daily schedule start/end time in minutes
ScheduleFridayBStart (4)	78	AV	nviFridayBStart/nvoFridayBStart	Control/Monitor	16072, Holding	Daily schedule start/end time in minutes
ScheduleFridayBEnd (4)	79	AV	nviFridayBEnd/nvoFridayBEnd	Control/Monitor	16073, Holding	Daily schedule start/end time in minutes
ScheduleFridayCStart (4)	80	AV	nviFridayCStart/nvoFridayCStart	Control/Monitor	16074, Holding	Daily schedule start/end time in minutes
ScheduleFridayCEnd (4)	81	AV	nviFridayCEnd/nvoFridayCEnd	Control/Monitor	16075, Holding	Daily schedule start/end time in minutes
ScheduleSaturdayAStart (4)	82	AV	nviSatAStart/nvoSatAStart	Control/Monitor	16076, Holding	Daily schedule start/end time in minutes
ScheduleSaturdayAEnd (4)	83	AV	nviSatAEnd/nvoSatAEnd	Control/Monitor	16077, Holding	Daily schedule start/end time in minutes
ScheduleSaturdayBStart (4)	84	AV	nviSatBStart/nvoSatBStart	Control/Monitor	16078, Holding	Daily schedule start/end time in minutes
ScheduleSaturdayBEnd (4)	85	AV	nviSatBEnd/nvoSatBEnd	Control/Monitor	16079, Holding	Daily schedule start/end time in minutes
ScheduleSaturdayCStart (4)	86	AV	nviSatCStart/nvoSatCStart	Control/Monitor	16080, Holding	Daily schedule start/end time in minutes
ScheduleSaturdayCEnd (4)	87	AV	nviSatCEnd/nvoSatCEnd	Control/Monitor	16081, Holding	Daily schedule start/end time in minutes
BlowerManualFreqOcc (2)	88	AV	nviBlowManFreqOc/nvoBlowManFreqOc	Control/Monitor	16082, Holding	VFD frequency when occupied, requires blower control = VFD manual
BlowerManualFreqUnocc (2)	89	AV	nviBlowManFreqUn/nvoBlowManFreqUn	Control/Monitor	16083, Holding	VFD frequency when unoccupied, requires blower control = VFD manual
BlowerManualPwmRateOcc (2)	90	AV	nviBlowManPwmOc/nvoBlowManPwmOc	Control/Monitor	16084, Holding	ECM speed when occupied, requires blower control = ECM manual
BlowerManualPwmRateUnocc (2)	91	AV	nviBlowManPwmUn/nvoBlowManPwmUn	Control/Monitor	16085, Holding	ECM speed when unoccupied, requires blower control = ECM manual
MixingBoxManualOAOcc (2)	92	AV	nviMixBoxManOAOc/nvoMixBoxManOAOc	Control/Monitor	16087, Holding	Mixing Box Outdoor Air Percent during occupied times, requires mixing box mode = outdoor air percent
MixingBoxManualOAUnocc (2)	93	AV	nviMixBoxManOAUn/nvoMixBoxManOAUn	Control/Monitor	16088, Holding	Mixing Box Outdoor Air Percent during unoccupied times, requires mixing box mode = outdoor air percent
EconomizerTempSPOcc (2)	94	AV	nviEcoTempSPOcc/nvoEcoTempSPOcc	Control/Monitor	16095, Holding	Economizer Temperature Setpoint Occupied
EconomizerTempSPUnocc (2)	95	AV	nviEcoTemSPUnocc/nvoEcoTemSPUnocc	Control/Monitor	16096, Holding	Economizer Temperature Setpoint Unoccupied
EconomizerTempBandOcc (2)	96	AV	nviEcoTemBandOcc/nvoEcoTemBandOcc	Control/Monitor	16097, Holding	Economizer Temperature Band Setpoint Occupied
EconomizerTempBandUnocc (2)	97	AV	nviEcoTempBUnocc/nvoEcoTempBUnocc	Control/Monitor	16098, Holding	Economizer Temperature Band Setpoint Unoccupied
EconomizerTotalBandOcc (2)	98	AV	nviEcoTotBandOcc/nvoEcoTotBandOcc	Control/Monitor	16099, Holding	Economizer Temperature Total Band Setpoint Occupied
EconomizerTotalBandUnocc (2)	99	AV	nviEcoTotBUnocc/nvoEcoTotBUnocc	Control/Monitor	16100, Holding	Economizer Temperature Total Band Setpoint Unoccupied
EconomizerRhSPOcc (2)	100	AV	nviEcoRhSPOcc/nvoEcoRhSPOcc	Control/Monitor	16101, Holding	Economizer Relative Humidity Setpoint Occupied
EconomizerRhSPUnocc (2)	101	AV	nviEcoRhSPUnocc/nvoEcoRhSPUnocc	Control/Monitor	16102, Holding	Economizer Relative Humidity Setpoint Unoccupied
MixingBoxManualVoltsOcc (2)	102	AV	nviMixBoxManVOc/nvoMixBoxManVOc	Control/Monitor	16106, Holding	Mixing Box damper voltage during occupied times, requires mixing box mode = manual
MixingBoxManualVoltsUnocc (2)	103	AV	nviMixBoxManVUn/nvoMixBoxManVUn	Control/Monitor	16107, Holding	Mixing Box damper voltage during unoccupied times, requires mixing box mode = manual
BlowerPsSpLowOcc (2)	104	AV	nviBlowPsSpLOcc/nvoBlowPsSpLOcc	Control/Monitor	16108, Holding	Blower Low Static Pressure Setting Occupied
BlowerPsSpLowUnocc (2)	105	AV	nviBlowPsSpLUn/nvoBlowPsSpLUn	Control/Monitor	16109, Holding	Blower Low Static Pressure Setting Unoccupied
BlowerPsSpHighOcc (2)	106	AV	nviBlowPsSpHOcc/nvoBlowPsSpHOcc	Control/Monitor	16110, Holding	Blower High Static Pressure Setting Occupied
BlowerPsSpHighUnocc (2)	107	AV	nviBlowPsSpHUn/nvoBlowPsSpHUn	Control/Monitor	16111, Holding	Blower High Static Pressure Setting Unoccupied
DryModeDischTempSPOcc (3)	108	AV	nviDMDisTSPOcc/nvoDMDisTSPOcc	Control/Monitor	16112, Holding	Dry Mode Discharge Occupied Setpoint
DryModeDischTempSPUnocc (3)	109	AV	nviDMDisTSPUn/nvoDMDisTSPUn	Control/Monitor	16113, Holding	Dry Mode Discharge Unoccupied Setpoint
OaResetLowTempSp (3)	110	AV	nviOaRLTempSp/nvoOaRLTempSp	Control/Monitor	16114, Holding	Outdoor Air Reset Low Temperature Setpoint
OaResetHighTempSp (3)	111	AV	nviOaRHTempSp/nvoOaRHTempSp	Control/Monitor	16115, Holding	Outdoor Air Reset High Temperature Setpoint
OaResetHeatDischTempSp (3)	112	AV	nviOaRHeatDTSp/nvoOaRHeatDTSp	Control/Monitor	16116, Holding	Outdoor Air Reset Heat Discharge Temperature Setpoint
OaResetCoolDischTempSp (3)	113	AV	nviOaRCoolDTSp/nvoOaRCoolDTSp	Control/Monitor	16136, Holding	Outdoor Air Reset Cool Discharge Temperature Setpoint
OaResetHeatSpaceTempSp (3)	114	AV	nviOaRHeatSTSp/nvoOaRHeatSTSp	Control/Monitor	16119, Holding	Outdoor Air Reset Heat Space Temperature Setpoint
OaResetCoolSpaceTempSp (3)	115	AV	nviOaRCoolSTSp/nvoOaRCoolSTSp	Control/Monitor	16118, Holding	Outdoor Air Reset Cool Space Temperature Setpoint
CO2SensorPpmMin (5)	116	AV	nviCo2PpmMin/nvoCo2PpmMin	Control/Monitor	16120, Holding	CO2 PPM level at 0V
CO2SensorPpmMax (5)	117	AV	nviCo2PpmMax/nvoCo2PpmMax	Control/Monitor	16121, Holding	CO2 PPM level at 10V
CO2ThresholdLimitOcc (5)	118	AV	nviCO2LimitOcc/nvoCO2LimitOcc	Control/Monitor	16122, Holding	CO2 sensor threshold limit for the fan/damper to operate when occupied
CO2ThresholdLimitUnocc (5)	119	AV	nviCO2LimitUn/nvoCO2LimitUn	Control/Monitor	16141, Holding	CO2 sensor threshold limit for the fan/damper to operate when unoccupied
DynamicSpDiff (3)	120	AV	nviDynSpDiff/nvoDynSpDiff	Control/Monitor	16123, Holding	Dynamic Setpoint Differential
DynamicSpOffset (3)	121	AV	nviDynSpOffset/nvoDynSpOffset	Control/Monitor	16124, Holding	Dynamic Setpoint Differential Offset
DynamicSpHeatOa (3)	122	AV	nviDynSpHeatOa/nvoDynSpHeatOa	Control/Monitor	16125, Holding	Dynamic Setpoint Heat Outdoor Air
DynamicSpCoolOa (3)	123	AV	nviDynSpCoolOa/nvoDynSpCoolOa	Control/Monitor	16126, Holding	Dynamic Setpoint Cool Outdoor Air
ErvWheelSpeed (2)	124	AV	nviErvWheelSpeed/nvoErvWheelSpeed	Control/Monitor	16127, Holding	Energy Wheel Speed Setting
ErvExhaustFanSpeedOcc (2)	125	AV	nviErvEFSpeedOcc/nvoErvEFSpeedOcc	Control/Monitor	16128, Holding	Energy Wheel Exhaust Fan Speed Occupied
ErvExhaustFanSpeedUnocc (2)	126	AV	nviErvEFSpeedUn/nvoErvEFSpeedUn	Control/Monitor	16129, Holding	Energy Wheel Exhaust Fan Speed Unoccupied
ErvExhaustLowPsSpOcc (2)	127	AV	nviErvExLPsSpOcc/nvoErvExLPsSpOcc	Control/Monitor	16130, Holding	Energy Wheel Exhaust Low Pressure Setpoint Occupied
ErvExhaustLowPsSpUnocc (2)	128	AV	nviErvExLPsSpUn/nvoErvExLPsSpUn	Control/Monitor	16131, Holding	Energy Wheel Exhaust Low Pressure Setpoint Unoccupied
ErvExhaustHighPsSpOcc (2)	129	AV	nviErvExHPsSpOcc/nvoErvExHPsSpOcc	Control/Monitor	16132, Holding	Energy Wheel Exhaust High Pressure Setpoint Occupied
ErvExhaustHighPsSpUnocc (2)	130	AV	nviErvExHPsSpUn/nvoErvExHPsSpUn	Control/Monitor	16133, Holding	Energy Wheel Exhaust High Pressure Setpoint Unoccupied

Name	ID	Object Type	Lon SNVT Name	Function	Modbus	Description
CO2OverrideHighLimitOcc (2)	131	AV	nviCO2OrHighOcc/nvoCO2OrHighOcc	Control/Monitor	16134, Holding	CO2 high limit setting at which fan/damper will operate occupied
CO2OverrideLowLimitOcc (2)	132	AV	nviCO2OrLowOcc/nvoCO2OrLowOcc	Control/Monitor	16135, Holding	CO2 low limit setting at which fan/damper will operate occupied
CO2OverrideHighLimitUnocc (2)	133	AV	nviCO2OrHighUn/nvoCO2OrHighUn	Control/Monitor	16143, Holding	CO2 high limit setting at which fan/damper will operate unoccupied
CO2OverrideLowLimitUnocc (2)	134	AV	nviCO2OrLowUn/nvoCO2OrLowUn	Control/Monitor	16142, Holding	CO2 low limit setting at which fan/damper will operate unoccupied
DryModeOASP (3)	135	AV	nviDryModeOASP/nvoDryModeOASP	Control/Monitor	16137, Holding	Dry Mode Outdoor Air Setpoint
DryModeCoolSP (3)	136	AV	nviDryModeCoolSP/nvoDryModeCoolSP	Control/Monitor	16138, Holding	Dry Mode Cool Setpoint
PoweredExhaustManVoltsOcc (2)	137	AV	nviEFManPWMOcc/nvoEFManPWMOcc	Control/Monitor	16139, Holding	Powered Exhaust PWM Setpoint Occupied
PoweredExhaustManVoltsUnocc (2)	138	AV	nviEFManPWMUnocc/nvoEFManPWMUnocc	Control/Monitor	16140, Holding	Powered Exhaust PWM Setpoint Unoccupied
UnitStatus (5)	139	Analog Input (AI)	nvoCurrentState	Monitor Only	2083, Input	HVAC State (Idle = 0, Blower = 1, Heating = 2, Cooling = 3)
CurrentOccupiedStatus (5)	140	AI	nvoOccStatus	Monitor Only	2140, Input	Occupancy status, occupied = 1, unoccupied = 0
AverageSpaceTemp (5)	141	AI	nvoAvgSpaceTemp	Monitor Only	2144, Input	Average Space Temperature
BlowerFrequency (5)	142	AI	nvoBlowVFDFreq	Monitor Only	2146, Input	Blower VFD Frequency
BlowerCurrent (5)	143	AI	nvoBlowVFDAmps	Monitor Only	2150, Input	Blower VFD Current
BlowerPower (5)	144	AI	nvoBlowVFDPower	Monitor Only	2152, Input	Blower VFD Power
AverageRh (5)	145	AI	nvoAvgRh	Monitor Only	2190, Input	Average space relative humidity
OutdoorTemp (5)	146	AI	nvoOutdoorTemp	Monitor Only	9057, Holding	Outdoor Temperature
ReturnTemp (5)	147	AI	nvoReturnTemp	Monitor Only	9058, Holding	Return Temperature
DischargeTemp (5)	148	AI	nvoDischargeTemp	Monitor Only	9059, Holding	Discharge Temperature
IntakeTemp (5)	149	AI	nvoIntakeTemp	Monitor Only	9060, Holding	Intake Temperature
SpaceTemp (5)	150	AI	nvoSpaceTemp	Monitor Only	9061, Holding	Space Temperature (thermistor)
Hmi1Temp (5)	151	AI	nvoHmi1Temp	Monitor Only	9063, Holding	Unit HMI temperature
Hmi2Temp (5)	152	AI	nvoHmi2Temp	Monitor Only	9064, Holding	Remote HMI 1 Temperature
Hmi3Temp (5)	153	AI	nvoHmi3Temp	Monitor Only	9065, Holding	Remote HMI 2 Temperature
Hmi4Temp (5)	154	AI	nvoHmi4Temp	Monitor Only	9066, Holding	Remote HMI 3 Temperature
Hmi5Temp (5)	155	AI	nvoHmi5Temp	Monitor Only	9067, Holding	Remote HMI 4 Temperature
SuctionLineTemp (5)	156	AI	nvoSucLineTemp	Monitor Only	9069, Holding	Suction Line Temperature
LiquidLineTemp (5)	157	AI	nvoLiqLineTemp	Monitor Only	9070, Holding	Liquid Line Temperature
EvapIndoorCoilTemp (5)	158	AI	nvoEvapCoilTemp	Monitor Only	9071, Holding	Evaporator Coil Temperature
CondOutdoorCoilTemp (5)	159	AI	nvoOutCoilTemp	Monitor Only	9072, Holding	Condenser Coil Temperature
CompressorDischargeTemp (5)	160	AI	nvoCompDisTemp	Monitor Only	9073, Holding	Compressor Discharge Temperature
IntakeRh (5)	161	AI	nvoIntakeRh	Monitor Only	9078, Holding	Intake Sensor Relative Humidity
SpaceRh (5)	162	AI	nvoSpaceRh	Monitor Only	9079, Holding	Space Sensor Relative Humidity
OutdoorRh (5)	163	AI	nvoOutdoorRh	Monitor Only	1048, Holding	Outdoor Sensor Relative Humidity
DischargeRh (5)	164	AI	nvoDischargeRh	Monitor Only	9090, Holding	Discharge Sensor Relative Humidity
ReturnRh (5)	165	AI	nvoReturnRh	Monitor Only	9091, Holding	Return Sensor Relative Humidity
SuctionLinePs (5)	166	AI	nvoSucLinePs	Monitor Only	9092, Holding	Suction Line Pressure
DischargeLinePs (5)	167	AI	nvoDisLinePs	Monitor Only	9093, Holding	Discharge Line Pressure
LiquidLinePs (5)	168	AI	nvoLiqLinePs	Monitor Only	9094, Holding	Liquid Line Pressure
Hmi1Rh (5)	169	AI	nvoHmi1Rh	Monitor Only	9097, Holding	Unit HMI Relative Humidity
Hmi2Rh (5)	170	AI	nvoHmi2Rh	Monitor Only	9098, Holding	Remote HMI 1 Relative Humidity
Hmi3Rh (5)	171	AI	nvoHmi3Rh	Monitor Only	9099, Holding	Remote HMI 2 Relative Humidity
Hmi4Rh (5)	172	AI	nvoHmi4Rh	Monitor Only	9100, Holding	Remote HMI 3 Relative Humidity
Hmi5Rh (5)	173	AI	nvoHmi5Rh	Monitor Only	9101, Holding	Remote HMI 4 Relative Humidity
SupplyPwmRate (5)	174	AI	nvoSupplyPwm	Monitor Only	1039, Holding	PWM Signal to Supply Fan
ExhaustPwmRate (5)	175	AI	nvoExhaustPwm	Monitor Only	1040, Holding	PWM Signal to Exhaust Fan
CondFan1PwmRate (5)	176	AI	nvoCond1PwmRate	Monitor Only	1041, Holding	PWM Signal to set #1 of Condensing Fans
CondFan2PwmRate (5)	177	AI	nvoCond2PwmRate	Monitor Only	1042, Holding	PWM Signal to set #2 of Condensing Fans
ModulatingGasValve1Output (5)	178	AI	nvoMGV1Output	Monitor Only	1046, Holding	Controller output to the modulating gas valve #1. 0V = Low Fire, 10V = High Fire
ModulatingGasValve2Output (5)	179	AI	nvoMGV2Output	Monitor Only	1047, Holding	Controller output to the modulating gas valve #2. 0V = Low Fire, 10V = High Fire
AdjustableDamperOutput (5)	180	AI	nvoDampOutput	Monitor Only	9085, Holding	Output Voltage to Damper
ElectricHeaterOutput (5)	181	AI	nvoElecHeatOut	Monitor Only	1051, Holding	Output Voltage to Electric Heater
OilBoostActiveFlag (5)	182	Binary Input (BI)	nvoOilBoostON	Monitor Only	4000, Input	0 = Oil Boost Not Active, 1 = Oil Boost Active
ReheatActiveFlag (5)	183	BI	nvoReheatON	Monitor Only	4001, Input	0 = Reheat Not Active, 1 = Reheat Active
DefrostActiveFlag (5)	184	BI	nvoDefrostON	Monitor Only	4002, Input	0 = Defrost Not Active, 1 = Defrost Active
PumpdownOffActiveFlag (5)	185	BI	nvoPumpOFFOn	Monitor Only	4003, Input	0 = Pumpdown Off Not Active, 1 = Pumpdown Off Active
PumpdownOnActiveFlag (5)	186	BI	nvoPumpONOn	Monitor Only	4004, Input	0 = Pumpdown On Not Active, 1 = Pumpdown On Active
ReheatValvePosition (5)	187	AI	nvoReheatPos	Monitor Only	4028, Input	Percentage of the Reheat Valve's Position
EevValvePosition (5)	188	AI	nvoEevValvePos	Monitor Only	4029, Input	Percentage of the EEV Valve's Position
IntakeDpActual (5)	189	AI	nvoInDpActual	Monitor Only	4030, Input	Actual Intake Dew Point Reading
SpaceDpActual (5)	190	AI	nvoSpDpActual	Monitor Only	4032, Input	Actual Space Dew Point Reading
CompressorPower (5)	191	AI	nvoCompPower	Monitor Only	4062, Input	Compressor Power Reading
CompressorFrequency (5)	192	AI	nvoCompFreq	Monitor Only	4064, Input	Compressor Frequency Reading
CompressorCurrent (5)	193	AI	nvoCompAmps	Monitor Only	4066, Input	Compressor Current Reading
ERVExhaustAirRh (5)	194	AI	nvoERVExhRh	Monitor Only	4077, Input	ERV Exhaust Air Relative Humidity
ERVWheelSupplyPsInches (5)	195	AI	nvoERVSupplyPs	Monitor Only	4078, Input	ERV Wheel Supply Pressure Differential
ERVWheelExhPsInches (5)	196	AI	nvoERVExhPs	Monitor Only	4081, Input	ERV Wheel Exhaust Pressure Differential
ERVExhCtrlVolts (5)	197	AI	nvoERVExhVolts	Monitor Only	4082, Input	0-10 Volt ERV Exhaust Speed Control
ERVExhAirTemp (5)	198	AI	nvoERVExhTemp	Monitor Only	4083, Input	ERV Exhaust Air Temperature

Name	ID	Object Type	Lon SNVT Name	Function	Modbus	Description
ERVOutsideAirRh (5)	199	AI	nvoERVOARh	Monitor Only	4084, Input	ERV Outside Air Relative Humidity
ERVOutsideAirTemp (5)	200	AI	nvoERVOATemp	Monitor Only	4085, Input	ERV Outside Air Temperature
ERVExhBlowerDutyCycle (5)	201	AI	nvoERVExhDuty	Monitor Only	4087, Input	PWM Signal to Exhaust Fan ECM
ERVExhBlowerPwmEnable (5)	202	BI	nvoERVExhPwmEn	Monitor Only	4088, Input	0 = Disable, 1 = Enable
ERVWheelDutyCycle (5)	203	AI	nvoERVWheelDuty	Monitor Only	4089, Input	PWM Signal to ERV Wheel ECM
ERVWheelPwmEnable (5)	204	BI	nvoERVWheelPwmEn	Monitor Only	4090, Input	0 = Disable, 1 = Enable
ERVState (5)	205	AI	nvoERVState	Monitor Only	4113, Input	0 = Idle, 5 = Defrost, 6 = Clean, 7 = Test, 8 = Stop
ERVAppliedWheelSpeed (5)	206	AI	nvoERVAppWSpeed	Monitor Only	4114, Input	Desired Energy Wheel Fan Speed
ERVAppliedExhFanSpeed (5)	207	AI	nvoERVAppEFSpeed	Monitor Only	4115, Input	Desired ERV Exhaust Fan Speed
Subcool (5)	208	AI	nvoSubcool	Monitor Only	4132, Input	Subcool Readings
Superheat (5)	209	AI	nvoSuperheat	Monitor Only	4133, Input	Superheat Readings
ActiveFault1 (5)	210	AI	nvoActiveFault0	Monitor Only	30501, Input	Active Fault Code (see fault code table)
ActiveFault2 (5)	211	AI	nvoActiveFault1	Monitor Only	30502, Input	Active Fault Code (see fault code table)
ActiveFault3 (5)	212	AI	nvoActiveFault2	Monitor Only	30503, Input	Active Fault Code (see fault code table)
ActiveFault4 (5)	213	AI	nvoActiveFault3	Monitor Only	30504, Input	Active Fault Code (see fault code table)
ActiveFault5 (5)	214	AI	nvoActiveFault4	Monitor Only	30505, Input	Active Fault Code (see fault code table)
ActiveFault6 (5)	215	AI	nvoActiveFault5	Monitor Only	30506, Input	Active Fault Code (see fault code table)
SchedulingEnabledFlag (4)	216	BV	nviSchedEnabled/nvoSchedEnabled	Control/Monitor	15016, Holding	Enable scheduling. Not an occupancy command. Refer to ID 5 “DDCOccupiedOverride” to toggle between occupied/unoccupied
HeatTemperModeOcc (2)	217	AV	nviHeatModeOcc/nvoHeatModeOcc	Control/Monitor	15055, Holding	Heat tempering mode during occupied time
HeatTemperModeUnocc (2)	218	AV	nviHeatModeUnocc/nvoHeatModeUnocc	Control/Monitor	15056, Holding	Heat tempering mode during unoccupied time
CoolTemperModeOcc (2)	219	AV	nviCoolModeOcc/nvoCoolModeOcc	Control/Monitor	15057, Holding	Cool tempering mode during occupied time
CoolTemperModeUnocc (2)	220	AV	nviCoolModeUnocc/nvoCoolModeUnocc	Control/Monitor	15058, Holding	Cool tempering mode during unoccupied time
ActivateOnOcc (2)	221	AV	nviActivateOcc/nvoActivateOcc	Control/Monitor	15059, Holding	"Activate based on" during occupied time
ActivateOnUnocc (2)	222	AV	nviActivateUnocc/nvoActivateUnocc	Control/Monitor	15060, Holding	"Activate based on" during unoccupied time
BlowerModeOcc (2)	223	AV	nviBlowModeOcc/nvoBlowModeOcc	Control/Monitor	15074, Holding	Blower mode during occupied times
BlowerModeUnocc (2)	224	AV	nviBlowModeUnocc/nvoBlowModeUnocc	Control/Monitor	15075, Holding	Blower mode during unoccupied times
MixingBoxMode (2)	225	AV	nviMBMode/nvoMBMode	Control/Monitor	15089, Holding	Mixing Box mode selection
ReheatDPAdjOcc (2)	226	AV	nviDPAdjOcc/nvoDPAdjOcc	Control/Monitor	15154, Holding	Reheat Dew Point adjust setpoint value when occupied
ReheatDPAdjUnocc (2)	227	AV	nviDPAdjUnocc/nvoDPAdjUnocc	Control/Monitor	15155, Holding	Reheat Dew Point adjust setpoint value when unoccupied
BlowerVfdMinFreqOcc (2)	228	AV	nviVFDMinFreqOcc/nvoVFDMinFreqOcc	Control/Monitor	15078, Holding	Min blower VFD Frequency when occupied
BlowerVfdMinFreqUnocc (2)	229	AV	nviVFDMinFUnocc/nvoVFDMinFUnocc	Control/Monitor	15079, Holding	Min blower VFD Frequency when unoccupied
BlowerVfdMaxFreqOcc (2)	230	AV	nviVFDMaxFreqOcc/nvoVFDMaxFreqOcc	Control/Monitor	15080, Holding	Max blower VFD Frequency when occupied
BlowerVfdMaxFreqUnocc (2)	231	AV	nviVFDMaxFUnocc/nvoVFDMaxFUnocc	Control/Monitor	15081, Holding	Max blower VFD Frequency when unoccupied
BlowerPwmMinRateOcc (2)	232	AV	nviPWMMinOcc/nvoPWMMinOcc	Control/Monitor	15082, Holding	Min blower ECM speed when occupied
BlowerPwmMinRateUnocc (2)	233	AV	nviPWMMinUnocc/nvoPWMMinUnocc	Control/Monitor	15083, Holding	Min blower ECM speed when unoccupied
BlowerPwmMaxRateOcc (2)	234	AV	nviPWMMaxOcc/nvoPWMMaxOcc	Control/Monitor	15084, Holding	Max blower ECM speed when occupied
BlowerPwmMaxRateUnocc (2)	235	AV	nviPWMMaxUnocc/nvoPWMMaxUnocc	Control/Monitor	15085, Holding	Max blower ECM speed when unoccupied
MixingBoxMinOAPercentOcc (2)	236	AV	nviMBMinOAPerOcc/nvoMBMinOAPerOcc	Control/Monitor	15092, Holding	Min occupied outdoor air percent when mixing box mode = outdoor air percent
MixingBoxMinOAPercentUnocc (2)	237	AV	nviMBMinOAPerUn/nvoMBMinOAPerUn	Control/Monitor	15093, Holding	Min unoccupied outdoor air percent when mixing box mode = outdoor air percent
MixingBoxMaxOAPercentOcc (2)	238	AV	nviMBMaxOAPerOcc/nvoMBMaxOAPerOcc	Control/Monitor	15094, Holding	Max occupied outdoor air percent when mixing box mode = outdoor air percent
MixingBoxMaxOAPercentUnocc (2)	239	AV	nviMBMaxOAPerUn/nvoMBMaxOAPerUn	Control/Monitor	15095, Holding	Max unoccupied outdoor air percent when mixing box mode = outdoor air percent
MixingBoxMinVoltsOcc (2)	240	AV	nviMBMinVoltsOcc/nvoMBMinVoltsOcc	Control/Monitor	15222, Holding	Max unoccupied mixing box voltage when mixing box mode = manual
MixingBoxMinVoltsUnocc (2)	241	AV	nviMBMinVoltsUn/nvoMBMinVoltsUn	Control/Monitor	15223, Holding	Min unoccupied mixing box voltage when mixing box mode = manual
MixingBoxMaxVoltsOcc (2)	242	AV	nviMBMaxVoltsOcc/nvoMBMaxVoltsOcc	Control/Monitor	15224, Holding	Max occupied mixing box voltage when mixing box mode = manual
MixingBoxMaxVoltsUnocc (2)	243	AV	nviMBMaxVoltsUn/nvoMBMaxVoltsUn	Control/Monitor	15225, Holding	Max unoccupied mixing box voltage when mixing box mode = manual
CFMReading (5)	244	AI	nvoCFMReading	Read Only	2207, Input	Fan CFM Reading
PressureSensor1 (5)	245	AI	nvoPsSens1	Read Only	2224, Input	Duct Static Pressure
CO2Reading	246	AI	nvoCO2Read	Read Only	2234, Input	CO2 Reading in PPM
ExternalSpaceTempEnable	247	BV	nvoExSpTempEn	Control/Monitor	15534, Holding	Enable network space temperature
ExternalSpaceTempValue	248	AV	nvoExSpTemp	Control/Monitor	5207, Holding	Network space temperature value, 1 decimal
Stg2CompressorPower	249	AI	nvoCompPower2	Read Only	4174, Input	Stage 2 Compressor Power Reading
Stg2CompressorFrequency	250	AI	nvoCompFreq2	Read Only	4176, Input	Stage 2 Compressor Frequency Reading
Stg2CompressorCurrent	251	AI	nvoCompAmps2	Read Only	4178, Input	Stage 2 Compressor Current Reading
Stg3CompressorPower	252	AI	nvoCompPower3	Read Only	4195, Input	Stage 3 Compressor Power Reading
Stg3CompressorFrequency	253	AI	nvoCompFreq3	Read Only	4197, Input	Stage 3 Compressor Frequency Reading
Stg3CompressorCurrent	254	AI	nvoCompAmps3	Read Only	4199, Input	Stage 3 Compressor Current Reading
Stg2OilBoostActiveFlag	255	BI	nvoOilBoostON2	Read Only	4299, Input	Stage 2: 0 = Oil Boost Not Active, 1 = Oil Boost Active
Stg2ReheatActiveFlag	256	BI	nvoReheatON2	Read Only	4300, Input	Stage 2: 0 = Reheat Not Active, 1 = Reheat Active
Stg2DefrostActiveFlag	257	BI	nvoDefrostON2	Read Only	4301, Input	Stage 2: 0 = Defrost Not Active, 1 = Defrost Active
Stg2PumpdownOffActiveFlag	258	BI	nvoPumpOFFOn2	Read Only	4302, Input	Stage 2: 0 = Pumpdown Off Not Active, 1 = Pumpdown Off Active
Stg2PumpdownOnActiveFlag	259	BI	nvoPumpONOn2	Read Only	4303, Input	Stage 2: 0 = Pumpdown On Not Active, 1 = Pumpdown On Active
Stg2ReheatValvePosition	260	AI	nvoReheatPos2	Read Only	4268, Input	Stage 2 Percentage of the Reheat Valve’s Position
Stg2EevValvePosition	261	AI	nvoEevValvePos2	Read Only	4269, Input	Stage 2 Percentage of the EEV Valve’s Position
Stg3OilBoostActiveFlag	262	BI	nvoOilBoostON3	Read Only	4315, Input	Stage 3: 0 = Oil Boost Not Active, 1 = Oil Boost Active
Stg3ReheatActiveFlag	263	AI	nvoReheatON3	Read Only	4316, Input	Stage 3: 0 = Reheat Not Active, 1 = Reheat Active
Stg3DefrostActiveFlag	264	AI	nvoDefrostON3	Read Only	4317, Input	Stage 3: 0 = Defrost Not Active, 1 = Defrost Active
Stg3PumpdownOffActiveFlag	265	AI	nvoPumpOFFOn3	Read Only	4318, Input	Stage 3: 0 = Pumpdown Off Not Active, 1 = Pumpdown Off Active
Stg3PumpdownOnActiveFlag	266	BI	nvoPumpONOn3	Read Only	4319, Input	Stage 3: 0 = Pumpdown On Not Active, 1 = Pumpdown On Active

Name	ID	Object Type	Lon SNVT Name	Function	Modbus	Description
Stg3ReheatValvePosition	267	AI	nvoReheatPos3	Read Only	4275, Input	Stage 3 Percentage of the Reheat Valve's Position
Stg3EevValvePosition	268	AI	nvoEevValvePos3	Read Only	4276, Input	Stage 3 Percentage of the EEV Valve's Position
ExternalSpaceRhEnable	269	BV	nviExSpaceRhEn/nvoExSpaceRhEn	Control/Monitor	15540, Holding	0 = Disable, 1 = Enable
ExternalSpaceRh	270	AV	nviExSpaceRh	Control/Monitor	5222, Holding	Virtual Relative Humidity Input
PressureSensor2	271	AI	nvoPsSens2	Control/Monitor	2236, Input	Building Static Pressure
StaticOaPsLowOcc	272	AV	nviStatOaPsLoOcc/nvoStatOaPsLoOcc	Control/Monitor	16208, Holding	Space Static Pressure Low Setpoint when occupied for Outdoor Air Damper control
StaticOaPsLowUnocc	273	AV	nviStatOaPsLoUn/nvoStatOaPsLoUn	Control/Monitor	16209, Holding	Space Static Pressure Low Setpoint when unoccupied for Outdoor Air Damper control
StaticOaPsHighOcc	274	AV	nviStatOaPsHiOcc/nvoStatOaPsHiOcc	Control/Monitor	16210, Holding	Space Static Pressure High Setpoint when occupied for Outdoor Air Damper control
StaticOaPsLowUnocc	275	AV	nviStatOaPsHiUn/nvoStatOaPsHiUn	Control/Monitor	16211, Holding	Space Static Pressure High Setpoint when unoccupied for Outdoor Air Damper control
StaticPePsLowOcc	276	AV	nviStatPePsLoOcc/nvoStatPePsLoOcc	Control/Monitor	5212, Holding	PS based Powered Exhaust control low set point when occupied
StaticPePsLowUnocc	277	AV	nviStatPePsLoUn/nvoStatPePsLoUn	Control/Monitor	5213, Holding	PS based Powered Exhaust control low set point when unoccupied
StaticPePsHighOcc	278	AV	nviStatPePsHiOcc/nvoStatPePsHiOcc	Control/Monitor	5214, Holding	PS based Powered Exhaust control high set point when occupied
StaticPePsHighUnocc	279	AV	nviStatPePsHiUn/nvoStatPePsHiUn	Control/Monitor	5215, Holding	PS based Powered Exhaust control high set point when unoccupied
StatCtrlBlower	280	BV	nviStatCtrlBlow/nvoStatCtrlBlow	Control/Monitor	17000, Holding	Virtual 'call for blower' for Activate On Stat (0 = Off, 1 = On)
StatCtrlHeat	281	BV	nviStatCtrlHeat/nvoStatCtrlHeat	Control/Monitor	17001, Holding	Virtual 'call for heat' for Activate On Stat (0 = Off, 1 = On)
StatCtrlCool	282	BV	nviStatCtrlCool/nvoStatCtrlCool	Control/Monitor	17002, Holding	Virtual 'call for cool' for Activate On Stat (0 = Off, 1 = On)
StatCtrlDehumid	283	BV	nviStatCtrlDehum/nvoStatCtrlDehum	Control/Monitor	17003, Holding	Virtual "call for dehumidification" for Activate On Stat (0 = Off, 1 = ON)
CfmKFactor	284	AV	nviCfmKFactor/nvoCfmKFactor	Control/Monitor	17004, Holding	Set K factor for airflow calculations
Hmi1TempOffset	285	AV	nviHmi1TempOff/nvoHmi1TempOff	Control/Monitor	15697, Holding	Manual temperature offset (degrees) for HMI 1
Hmi2TempOffset	286	AV	nviHmi2TempOff/nvoHmi2TempOff	Control/Monitor	15698, Holding	Manual temperature offset (degrees) for HMI 2
Hmi3TempOffset	287	AV	nviHmi3TempOff/nvoHmi3TempOff	Control/Monitor	15699, Holding	Manual temperature offset (degrees) for HMI 3
Hmi4TempOffset	288	AV	nviHmi4TempOff/nvoHmi4TempOff	Control/Monitor	15700, Holding	Manual temperature offset (degrees) for HMI 4
Hmi1RhOffset	289	AV	nviHmi1RhOff/nvoHmi1RhOff	Control/Monitor	15702, Holding	Manual relative humidity offset (percent) for HMI 1
Hmi2RhOffset	290	AV	nviHmi2RhOff/nvoHmi2RhOff	Control/Monitor	15703, Holding	Manual relative humidity offset (percent) for HMI 2
Hmi3RhOffset	291	AV	nviHmi3RhOff/nvoHmi3RhOff	Control/Monitor	15704, Holding	Manual relative humidity offset (percent) for HMI 3
Hmi4RhOffset	292	AV	nviHmi4RhOff/nvoHmi4RhOff	Control/Monitor	15705, Holding	Manual relative humidity offset (percent) for HMI 4
ReturnAsSpace	293	AV	nviReturnAsSpace/nvoReturnAsSpace	Control/Monitor	15037, Holding	Use Return temperature as Space temperature (0 = Off, 1 = ON)

DDC Faults

Refer to the **Troubleshooting section of the OIM** for more information.

Code	Description
0	None
1	FireDetect
2	SmokeDetect
3	SupplyOverload
4	ExhaustOverload
5	MasterRomCrc
6	AuxRomCrc
7	FlameProving
8	IntakeFirestat
9	DischargeFirestat
10	Freezestat
11	Overheat
12	HighTempLimit
13	FireEyeAlarm
14	GasHighPs
15	GasLowPs
16	AuxGasHighPs
17	AuxGasLowPs
18	CoAlarm
19	EvapWaterPs
20	EvapFloat
21	DxFloat
22	FurnaceFloat
23	BlowerVfdMbComm
24	DoorInterlock
25	ScrollDxVfdMbComm
26	MuaToAuxMbComm
27	IntakeDamperEnd
28	DischargeDamperEnd
29	BlowerAirProving
30	CloggedFilter
31	MissingSensorIntake
32	BrokenSensorIntake
33	MissingSensorDischarge
34	BrokenSensorDischarge
35	MissingSensorSpace
36	BrokenSensorSpace
37	MissingSensorOutsideAir
38	BrokenSensorOutsideAir
39	MissingSensorReturn
40	BrokenSensorReturn
41	MissingSensorSuctionLine
42	BrokenSensorSuctionLine
43	MissingSensorIndoorCoil
44	BrokenSensorIndoorCoil
45	MissingSensorOutdoorCoil
46	BrokenSensorOutdoorCoil
47	MissingSensorDxDischarge
48	BrokenSensorDxDischarge
49	RtcTempSensor
50	AuxRtcTempSensor
51	Hmi0TempInvalid

Code	Description
52	Hmi1TempInvalid
53	Hmi2TempInvalid
54	Hmi3TempInvalid
55	Hmi4TempInvalid
56	ProofOfClosure
57	LowFlameVoltage
58	SpPressureLowLimit
59	SpPressureHighLimit
60	Fsc1HighTemp
61	Fsc2HighTemp
62	AuxFsc1HighTemp
63	AuxFsc2HighTemp
64	Fsc1Rollout
65	Fsc2Rollout
66	AuxFsc1Rollout
67	AuxFsc2Rollout
68	Fsc1VentProving
69	Fsc2VentProving
70	AuxFsc1VentProving
71	AuxFsc2VentProving
72	LowRefridgePs
73	HighRefridgePs
74	RefridgeDischargeTemp
75	OilLow
76	DxEnvCondTempHigh
77	DxEnvCondTempLow
78	DxEnvEvapTempHigh
79	DxEnvEvapTempLow
80	DxEnvAngle
81	MaxHeadPs
82	EevPs
83	EevTemp
84	MinSuctionPs
85	ElectricHeat
86	SpaceRh
87	IntakeRh
88	DischargeRh
89	ScrollDxVfdNotAutoOn
90	MissingSensorLiquidLine
91	BrokenSensorLiquidLine
92	HmiMbComm0
93	HmiMbComm1
94	HmiMbComm2
95	HmiMbComm3
96	HmiMbComm4
97	DnfsPwrCardTemp
98	DnfsEarthFault
99	DnfsCtrlCardTemp
100	DnfsCtrlWordTimeout
101	DnfsOverCurrent
102	DnfsTorqueLimit
103	DnfsMotorEtrOver

Code	Description
104	DnfsInverterOvld
105	DnfsDcUnderVolt
106	DnfsDcOverVolt
107	DnfsShortCircuit
108	DnfsInrushFault
109	DnfsMainsPhaseLoss
110	DnfsInternalFault
111	DnfsUPhaseLoss
112	DnfsVPhaseLoss
113	DnfsWPhaseLoss
114	Dnfs24vSupplyLow
115	DnfsMainsFail
116	DnfsDriveInit
117	DnfsSafeStop
118	DnfsStartFail
119	DnfsSpeedLimit
120	DnfsCurrentLimit
121	Co2ShutdownRequired
122	Co2Override
123	ErvSupplyCloggedFilter
124	ErvExhaustCloggedFilter
125	ErvDeadbandFail
126	ErvExhaustAirProving
127	Vfd571IgbtTemp
128	Vfd571Output
129	Vfd571Ground
130	Vfd571Temp
131	Vfd571FlyingStart
132	Vfd571HighDcBus
133	Vfd571LowDcBus
134	Vfd571Overload
135	Vfd571Oem
136	Vfd571IllegalSetup
137	Vfd571DynamicBrake
138	Vfd571PhaseLost
139	Vfd571External
140	Vfd571Control
141	Vfd571Start
142	Vfd571IncompatParamSet
143	Vfd571EpmHw
144	Vfd571Internal1
145	Vfd571Internal2
146	Vfd571Internal3
147	Vfd571Internal4
148	Vfd571Internal5
149	Vfd571Internal6
150	Vfd571Internal7
151	Vfd571Internal8
152	Vfd571Personality
153	Vfd571Internal10
154	Vfd571RemoteKeypadLost
155	Vfd571AssertionLevel

Code	Description
156	Vfd571Internal11
157	Vfd571Internal12
158	Vfd571Internal13
159	Vfd571Internal14
160	Vfd571CommModuleFail
161	Vfd571Network
162	Vfd571Network1
163	Vfd571Network2
164	Vfd571Network3
165	Vfd571Network4
166	Vfd571Network5
167	Vfd571Network6
168	Vfd571Network7
169	Vfd571Network8
170	Vfd571Network9
171	ReturnRh
172	ErvExhaustRh
173	OutsideRh
174	Co2Threshold
175	ErvDoorInterlock
176	ExternalInterlockActive
177	Missing2ndEvapSensor
178	Broken2ndEvapSensor
179	ErvSupplyMissingFilter
180	ErvExhaustMissingFilter
181	AcbMbComm
182	ExhFanContactor1Prv
183	ExhFanContactor2Prv
184	MissingSensorHmi0
185	MissingSensorHmi1
186	MissingSensorHmi2
187	MissingSensorHmi3
188	MissingSensorHmi4
189	BrokenSensorHmi0
190	BrokenSensorHmi1
191	BrokenSensorHmi2
192	BrokenSensorHmi3
193	BrokenSensorHmi4
194	OaDamperLockout
195	VfdCoolStg2MbComm
196	VfdCoolStg3MbComm
197	Vfd571CS2IgbtTemp
198	Vfd571CS2Output
199	Vfd571CS2Ground
200	Vfd571CS2Temp
201	Vfd571CS2FlyingStart
202	Vfd571CS2HighDcBus
203	Vfd571CS2LowDcBus
204	Vfd571CS2Overload
205	Vfd571CS2Oem
206	Vfd571CS2IllegalSetup
207	Vfd571CS2DynamicBrake
208	Vfd571CS2PhaseLost
209	Vfd571CS2External
210	Vfd571CS2Control

Code	Description
211	Vfd571CS2Start
212	Vfd571CS2IncompatParamSet
213	Vfd571CS2EpmHw
214	Vfd571CS2Internal1
215	Vfd571CS2Internal2
216	Vfd571CS2Internal3
217	Vfd571CS2Internal4
218	Vfd571CS2Internal5
219	Vfd571CS2Internal6
220	Vfd571CS2Internal7
221	Vfd571CS2Internal8
222	Vfd571CS2Personality
223	Vfd571CS2Internal10
224	Vfd571CS2RemoteKeypadLost
225	Vfd571CS2AssertionLevel
226	Vfd571CS2Internal11
227	Vfd571CS2Internal12
228	Vfd571CS2Internal13
229	Vfd571CS2Internal14
230	Vfd571CS2CommModuleFail
231	Vfd571CS2Network
232	Vfd571CS2Network1
234	Vfd571CS2Network2
235	Vfd571CS2Network3
236	Vfd571CS2Network4
237	Vfd571CS2Network5
238	Vfd571CS2Network6
239	Vfd571CS2Network7
240	Vfd571CS2Network8
241	Vfd571CS2Network9
242	Vfd571CS3IgbtTemp
243	Vfd571CS3Output
244	Vfd571CS3Temp
245	Vfd571CS3FlyingStart
246	Vfd571CS3HighDcBus
247	Vfd571CS3LowDcBus
248	Vfd571CS3Overload
249	Vfd571CS3Oem
250	Vfd571CS3IllegalSetup
251	Vfd571CS3DynamicBrake
252	Vfd571CS3PhaseLost
253	Vfd571CS3External
254	Vfd571CS3Control
255	Vfd571CS3Start
256	Vfd571CS3IncompatParamSet
257	Vfd571CS3EpmHw
258	Vfd571CS3Internal1
259	Vfd571CS3Internal2
260	Vfd571CS3Internal3
261	Vfd571CS3Internal4
262	Vfd571CS3Internal5
263	Vfd571CS3Internal6
264	Vfd571CS3Internal7
265	Vfd571CS3Internal8
266	Vfd571CS3Personality

Code	Description
267	Vfd571CS3Internal10
268	Vfd571CS3RemoteKeypadLost
269	Vfd571CS3AssertionLevel
270	Vfd571CS3Internal11
271	Vfd571CS3Internal12
272	Vfd571CS3Internal13
273	Vfd571CS3Internal14
274	Vfd571CS3CommModuleFail
275	Vfd571CS3Network
276	Vfd571CS3Network1
277	Vfd571CS3Network2
278	Vfd571CS3Network3
279	Vfd571CS3Network4
280	Vfd571CS3Network5
281	Vfd571CS3Network6
282	Vfd571CS3Network7
283	Vfd571CS3Network8
284	Vfd571CS3Network9
285	AcbMscMbComm
286	CoolStg2MaxHeadPs
287	CoolStg2MinSuctionPs
288	CoolStg2EevTemp
289	CoolStg2MissSensorSuctLine
290	CoolStg2BrkSensorSuctLine
291	CoolStg2MissSensorLiqLine
292	CoolStg2BrkSensorLiqLine
293	CoolStg2MissSensorDischLine
294	CoolStg2BrkSensorDischLine
295	CoolStg3MaxHeadPs
296	CoolStg3MinSuctionPs
297	CoolStg3EevTemp
298	CoolStg3MissSensorSuctLine
299	CoolStg3BrkSensorSuctLine
300	CoolStg3MissSensorLiqLine
301	CoolStg3BrkSensorLiqLine
302	CoolStg3MissSensorDischLine
303	CoolStg3BrkSensorDischLine
304	DnfsCs2PwrCardTemp
305	DnfsCs2EarthFault
306	DnfsCs2CtrlCardTemp
307	DnfsCs2CtrlWordTimeout
308	DnfsCs2OverCurrent
309	DnfsCs2TorqueLimit
310	DnfsCs2MotorEtrOver
311	DnfsCs2InverterOvld
312	DnfsCs2DcUnderVolt
313	DnfsCs2DcOverVolt
314	DnfsCs2ShortCircuit
315	DnfsCs2InrushFault
316	DnfsCs2MainsPhaseLoss
317	DnfsCs2InternalFault
318	DnfsCs2UPhaseLoss
319	DnfsCs2VPhaseLoss
320	DnfsCs2WPhaseLoss
321	DnfsCs224vSupplyLow

Code	Description
322	DnfsCs2MainsFail
323	DnfsCs2DriveInit
324	DnfsCs2SafeStop
325	DnfsCs2StartFail
326	DnfsCs2SpeedLimit
327	DnfsCs2CurrentLimit
328	DnfsCs3PwrCardTemp
329	DnfsCs3EarthFault
330	DnfsCs3CtrlCardTemp
331	DnfsCs3CtrlWordTimeout
332	DnfsCs3OverCurrent
333	DnfsCs3TorqueLimit
334	DnfsCs3MotorEtrOver
335	DnfsCs3InverterOvld
336	DnfsCs3DcUnderVolt
337	DnfsCs3DcOverVolt
338	DnfsCs3ShortCircuit
339	DnfsCs3InrushFault
340	DnfsCs3MainsPhaseLoss
341	DnfsCs3InternalFault
342	DnfsCs3UPhaseLoss
343	DnfsCs3VPhaseLoss
344	DnfsCs3WPhaseLoss
345	DnfsCs324vSupplyLow
346	DnfsCs3MainsFail
347	DnfsCs3DriveInit
348	DnfsCs3SafeStop
349	DnfsCs3StartFail
350	DnfsCs3SpeedLimit
351	DnfsCs3CurrentLimit
352	Scroll2DxVfdNotAutoOn
353	Scroll3DxVfdNotAutoOn
354	Dx2EnvCondTempHigh

Code	Description
355	Dx2EnvCondTempLow
356	Dx2EnvEvapTempHigh
357	Dx2EnvEvapTempLow
358	Dx2EnvAngle
359	Dx3EnvCondTempHigh
360	Dx3EnvCondTempLow
361	Dx3EnvEvapTempHigh
362	Dx3EnvEvapTempLow
363	Dx3EnvAngle
364	Dx2OilLow
365	Dx3OilLow
366	BrokenAirPsSensor
367	BlowerAirProvingLowPs
355	Dx2EnvCondTempLow
356	Dx2EnvEvapTempHigh
357	Dx2EnvEvapTempLow
358	Dx2EnvAngle
359	Dx3EnvCondTempHigh
360	Dx3EnvCondTempLow
361	Dx3EnvEvapTempHigh
362	Dx3EnvEvapTempLow
363	Dx3EnvAngle
364	Dx2OilLow
365	Dx3OilLow
366	BrokenAirPsSensor
367	BlowerAirProvingLowPs
368	BlowerAirProvingHighPs
369	FscMaxCycles
370	Stg2LowRefridgePs
371	Stg2HighRefridgePs
372	Stg2RefridgeDischTemp
373	Stg3LowRefridgePs
374	Stg3HighRefridgePs

Code	Description
375	Stg3RefridgeDischTemp
376	SpaceTempDisabled
377	EconoDamperClosed
378	EconoExcessOa
379	EconoNoEcono
380	EconoEconoFault
381	EconoDamperFault
382	SysInfoCrcFault
383	UserSettingCrcFault
384	FireeyePilotLost
385	FireeyeMainLost
386	MaxStg1LowOilStops
387	MaxStg2LowOilStops
388	MaxStg3LowOilStops
389	ProfilePsLow
390	ProfilePsHigh
391	SltC1Diff
392	SltC2Diff
393	SltC3Diff
394	MissSensorSecS1SuctLine
395	BrkSensorSecS1SuctLine
396	MissSensorSecS2SuctLine
397	BrkSensorSecS2SuctLine
398	MissSensorSecS3SuctLine
399	BrkSensorSecS3SuctLine
400	HighDuctPsAlarm
401	LowBldgAlarm
402	HighBldgPsAlarm