MSA DESIGN

TRANSMITTAL

Date: June 18, 2024

Project: Green Township Police Department

Project Number: 23103.00

Company Name: Pepper Construction of Ohio
100 Williams Street
Cincinnati, OH 45215

If enclosures are not as noted, please inform us immediately.

Attention To: Dan Bonacci

If checked below, please
☒ Acknowledge receipt of enclosure
☐ Return enclosures to us

We Transmit:
☒ Herewith
☐ Under Separate Cover
☐ In Accordance With
☐ Other:_____

For Your:
☐ Approval
☐ Information
☒ Distribution to Parties
☐ Review and Comment
☐ Use
☒ Record
☐ Other:_____

Copies	Date	Description	Action Needed
1	06/18/24	237433-1.2_ Packaged Outdoor Rooftop Units_Product Data_240618msa klh	Reviewed & Revisions Noted; Exceptions Noted

Remarks:

Copies to: file

By: Sean Bostater

☐ Reviewed
☑ Reviewed & Revisions Noted
☐ Revise & Resubmit
☐ Other _____

Review is for general conformance and design concept. Contractor is responsible for dimensions, quantities, coordination with other trades, techniques of construction and performance of work in a safe and satisfactory manner. Review does not relieve Contractor from responsibility for errors or deviations from contract requirements. Notations do not authorize an extra cost.

sbostater 6/18/2024

Signature Date

MSA DESIGN

See comments from Christine Shea at KLH below

Kohrs Lonnemann Heil Engineers, Inc.

Fort Thomas Office
1538 Alexandria Pike, Suite 11
Ft. Thomas, KY 41075
859-442-8050 telephone
859-442-8058 fax

Product Data

Project Name:	Green Township - Police Station, Cincinnati, OH	**Submittal Code:**	237433.00-PD-04	**REV:** 00
Document Set:	Bid/Construction			
KLH Project #:	25019.01-Bid	**Received Date:**	06/17/2024	
Section Name:	Packaged Outdoor Rooftop Units			
Section Number:	237433.00			
Submitted By:	MSA Design			
Authored By:	Pepper Construction			
Client Name:	MSA Design			

SUBMITTAL REVIEW

[X] **Exceptions Noted**

By: Christine E. Shea **Date:** 06/18/2024

ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. COMMENTS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR REMAINS RESPONSIBLE FOR ACCURACY OF QUANTITIES, DIMENSIONS, DETAILS AND COORDINATION WITH OTHER TRADES.

General

1.1 Provide curb for mounting on roof.

End of Submittal Review

Note: Additional submittals are not required where "Exceptions Noted" is indicated. It will be assumed however that all necessary corrections will be executed. Provide as-built record copies within OM Manuals at project close-out (not before) for all affected submittals.

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PEPPER CONSTRUCTION | OHIO

Submittal Item

Cincinnati Office

100 Williams St.
Cincinnati, Ohio 45215
Phone: (513) 563-7700 Fax: (513) 952-9059

Project Name:	Green Township Police/Administrative Buildings
Project No.:	2001634
Project No. Arch:	
Project No. Owner:	
Project Location:	6200 Harrison Avenue , Cincinnati, Ohio 45247
Print Date:	6/17/2024

Number: 230000-012

To: Sean Bostater

From: Dan Bonacci

Decription:	RTU-1 REVISION	**Date Due:**	
Revision:	0001	**Date Required On Site**	
Type:	Product Data/Shop Drawings	**Required By Date:**	06/28/2024
Status:	For Approval	**Date Returned To Sub:**	
CSI:	23 74 00	**Copies:**	0

Signed: _____

Brian Frey

Pepper Construction
Tomorrow Transformed

- [x] **REVIEWED FOR APPROVAL**
- [ ] **REVIEWED AS NOTED FOR APPROVAL**
- [ ] **FOR RECORD**

Review of this shop drawing does not relieve the Architect, Engineer or Subcontractor of their contractual design responsibilities. Pepper Construction's review is not, nor is it responsible for, an engineering or architectural analysis of design elements, load or dimension calculations, or similar matters. The Subcontractor is responsible to furnish additional material or work as required by the Contract and review of these documents, as well as dimensions to be confirmed and correlated at the job site.

JOB: Green TwnShp PD **BY:** Brian Frey **DATE:** 6/17/2024

SUBMITTAL# 237433 **Rev #** 1

Submittal

Prepared For:
Dave Simpson
Mechanical Optimizers

Date: May 3, 2024 **Updated June 12, 2024**

Job Name:
Green Twsp Police Dept.

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty	Product
1	Packaged Rooftop, Cooling / Heating Units

Christian Melson
Trane U.S. Inc.
10300 Springfield Pike
Cincinnati, OH 45215
E-mail: Christian.Melson@Trane.com
Cell: (513) 415-1785

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

Trane Notes:

- BACnet points list is added at the end of this submittal
- Gas Heat has two stages of capacity. Low output is 324,000 btu/hr and high output is 648,000 btu/hr. This is shown on pag 77 of this submittal.
- Cooling minimum capacity is 23% with five stages of cooling capacity. This is shown on pag 77 of this submittal.
- Cut sheets for a rawal/APR device to further modulate minimum capacity is attached to the end of this submittal document. One APR-410-3 would be provided to modulate the lead 8-ton stage down to 4.5 tons and all points in between.

Table of Contents

Tag Data - Packaged Rooftop, Cooling / Heating Units (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	RTU-1 Horiz	1	27 1/2-50 Ton Packaged Commercial Roofto	YCH480CEL*6D3N64A0*****HHBE200R0N00E0000X********** 1

Product Data - Packaged Rooftop, Cooling / Heating Units

Item: A1 Qty: 1 Tag(s): RTU-1 Horiz

Standard Unit
US/Canada
DX Cooling, natural gas heat
Horizontal supply and horizontal return
40 ton 60 Hertz
R-410A
208 Volt 60 Hertz 3 Phase
Low gas heat capacity
100% Power exhaust w/ Stratitrac building pressure control
4" MERV 14 High efficiency, throwaway filters
15 hp supply motor
725 RPM
0-100% Economizer, differential enthalpy, low leak dampers & Traq OA measurement
VAV (DTC) with supply VFD w/o bypass
Service valves
Hinged service access doors
Louvered condenser coil hail guards
Adv Ctrl & BACnet/Modbus Comm. (BCI)
High fault SCCR w/ disconnect switch & convenience outlet
Stainless steel drain pan w/ condensate overflow switch
Standard efficiency unit
Clogged filter switch
Duct mounted humidity sensor (Field Installed)
2nd-5th Year Replacement Compressor Warranty
Year 1 Labor Warranty Whole Unit
1st Year Refrigerant Warranty

Performance Data - Packaged Rooftop, Cooling / Heating Units

Tags	RTU-1 Horiz
Derated Input Heating Capacity (MBh)	400.00
Design airflow (cfm)	15230
Elevation (ft)	0.00
Cooling EDB (F)	76.00
Cooling EWB (F)	64.00
Ambient temp (F)	95.00
Leaving unit DB (F)	56.75
Leaving unit WB (F)	54.83
Leaving coil DB (F)	53.51
Leaving coil WB (F)	53.44
Gross total capacity (MBh)	459.76
Gross sensible capacity (MBh)	364.26
Gross latent capacity (MBh)	95.51
Net total capacity (MBh)	419.11
Net sensible capacity (MBh)	323.61
Net sensible heat ratio (%)	0.77
Input htg capacity (MBh)	400.00
Output htg capacity (MBh)	324.00
Heating EAT (F)	70.00
Heating LAT (F)	89.79
Heating delta T (F)	19.79
ESP (in H2O)	1.500
Total static pressure (in H2O)	3.242
Actual Supply Motor BHP (bhp)	14.28
Indoor speed (rpm)	725
Supply Motor Power (kW) (kW)	10.66
Outdoor motor power (kW)	0.00
Compressor power (kW)	31.55
System power (kW)	47.82
EER @ AHRI (EER)	11.1
IEER @ AHRI (EER)	15.2
Min circuit ampacity (A)	206.00
Max overcurrent protection (A)	250.00
Min disconnect switch size (A)	250.00
Compressor 1 RLA (A)	28.40
Compressor 2 RLA (A)	46.50
Compressor 3 RLA (A)	46.50
Supply fan FLA (A)	43.00
Condenser fan FLA (A)	4.40
Condenser fan count (Each)	4.00
Exhaust fan FLA (A)	5.40
Exhaust fan count (Each)	2.00
Electric heater FLA (A)	0.00
Crankcase heater FLA (A)	1.00
Max Condenser Ambient (F)	115.00
Ambient Temp Calc (F)	-20.00
Estimated operating weight (lb)	6097.0
Fan motor heat (MBh)	36.38
Discharge duct - 63 Hz (dB)	99
Discharge duct - 125 Hz (dB)	93
Discharge duct - 250 Hz (dB)	83
Discharge duct - 500 Hz (dB)	85
Discharge duct - 1 kHz (dB)	78
Discharge duct - 2 kHz (dB)	76
Discharge duct - 4 kHz (dB)	73

Tags	RTU-1 Horiz
Discharge duct - 8 kHz (dB)	68
Outdoor - 63 Hz (dB)	104
Outdoor - 125 Hz (dB)	97
Outdoor - 250 Hz (dB)	96
Outdoor - 500 Hz (dB)	97
Outdoor - 1 kHz (dB)	95
Outdoor - 2 kHz (dB)	93
Outdoor - 4 kHz (dB)	88
Outdoor - 8 kHz (dB)	79
Return duct low exhaust - 63 Hz (dB)	95
Return duct low exhaust - 125 Hz (dB)	95
Return duct low exhaust - 250 Hz (dB)	88
Return duct low exhaust - 500 Hz (dB)	86
Return duct low exhaust - 1 kHz (dB)	86
Return duct low exhaust - 2 kHz (dB)	85
Return duct low exhaust - 4 kHz (dB)	84
Return duct low exhaust - 8 kHz (dB)	82
Return duct med. exhaust - 63 Hz (dB)	94
Return duct med. exhaust - 125 Hz (dB)	94
Return duct med. exhaust - 250 Hz (dB)	89
Return duct med. exhaust - 500 Hz (dB)	86
Return duct med. exhaust - 1 kHz (dB)	87
Return duct med. exhaust - 2 kHz (dB)	85
Return duct med. exhaust - 4 kHz (dB)	85
Return duct med. exhaust - 8 kHz (dB)	85
Return duct high exhaust - 63 Hz (dB)	93
Return duct high exhaust - 125 Hz (dB)	92
Return duct high exhaust - 250 Hz (dB)	89
Return duct high exhaust - 500 Hz (dB)	86
Return duct high exhaust - 1 kHz (dB)	87
Return duct high exhaust - 2 kHz (dB)	87
Return duct high exhaust - 4 kHz (dB)	86
Return duct high exhaust - 8 kHz (dB)	85
Refrig charge - ckt 1 (lb)	61.0
Entering DX DB in HGRH (F)	73.00
Entering DX WB in HGRH (F)	64.00
Ambient in HGRH mode (F)	75.00
Reheat Setpoint (LUDB in HGRH) (F)	70.00
Replication Run	282

Mechanical Specifications - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz

General R-410A
The units shall be downflow, horizontal, or mixed airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for all units. Cooling performance shall be rated in accordance with AHRI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A refrigerant and 100% run tested to check cooling operation, fan and blower rotation and control sequence before leaving the factory. Wiring internal to the unit shall be numbered for simplified identification. Units shall be cULus listed.

Compressors
The 3-D Scroll shall provide a completely enclosed compressor chamber with optimized scroll profiles which leads to increased efficiency. The 3-D Scroll shall include a direct-drive, 3600 rpm, suction gas cooled hermetic motor. The compressor shall include a centrifugal oil pump, scroll tips seals, internal heat shield that lowers the heat transfer from discharge and suction gas, oil level sight glass and oil charge valve. Some compressor models shall also provide a dip tube that allows for oil draining, in addition to a low leakage internal discharge check valve to help prevent refrigerant migration. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Hinged Service Access
Filter access panel and supply fan access panel shall be hinged for ease of unit service.

Phase and Voltage Monitor
Standard on all Voyager Commercial units. Shall protects 3-phase equipment from phase loss, phase reversal, and low voltage. Any fault condition shall send the unit into an auto stop condition. cULus approved.

Service Valves
Service valves shall be provided factory installed and include suction and discharge 3-way shutoff valves.

Refrigerant Circuits
Each refrigerant circuit shall have independent thermostatic expansion devices, service pressure ports and refrigerant line filter driers factory-installed as standard. An area shall be provided for replacement suction line driers.

Outdoor Fans
The outdoor fan shall be direct-drive statically and dynamically balanced, draw through in the vertical discharge position. The fan motors shall be permanently lubricated and have built-in thermal overload protection.

Evaporator and Condenser Coils
Condenser coils shall have all Aluminum Microchannel coils. Evaporator coils shall be internally finned Copper tubes mechanically bonded to high performance Aluminum plate fins. All coils shall be leak tested at the factory to ensure pressure integrity. The evaporator coil is pressure tested to 450 psig and the condenser coil at 650 psig. All dual circuit evaporator coils shall be of intermingled configuration. Sloped condensate drain pans are standard.

Condensate Overflow Switch
This option shall shut the unit down in the event that a clogged condensate drain line prevents proper condensate removal from the unit.

Louvered Hail Guard
Louvered, hail protection quality coil guards are available for condenser coil protection.

Stainless Steel Drain Pans
Sloped stainless steel evaporator coil drain pans shall be durable, long-lasting and highly corrosion resistant.

High/Low 2 Stage Gas Heat
The heating section shall have a drum and tube heat exchanger(s) design with primary and secondary surfaces of corrosion resistant aluminized steel or optional stainless steel. A forced combustion blower shall supply premixed fuel to a single burner ignited by a pilotless hot surface ignition system. In order to provide reliable operation, a regulated gas valve shall be used that requires blower operation to initiate gas flow. On an initial call for heat, the combustion blower shall purge the heat exchanger(s) 45 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat. Two stage gas heat units shall be suitable for use with natural gas or propane (field installed kit).

Indoor Fan, 60 Hz Supply Motor
Unit will have belt driven, forward curve, centrifugal fans with fixed motor sheaves. The supply fan motors will be circuit breaker protected. All 60 Hz supply fan motors meet the Energy Independence and Security Act of 2009 (EISA).

Bypass control
Provides full nominal airflow in the event of drive failure.

Variable Frequency Drive
Unit shall include factory-installed and tested variable frequency drive[s] (VFD) to provide motor speed modulation. The VFD shall receive a 0-10VDC speed signal from the unit controller. The drive will respond to the signal by accelerating or decelerating to maintain the controlling set point (duct static, space pressure, etc). VFD shall also include the following features:

1. Designed, constructed, and tested in accordance with NEMA ICS, NFPA, and IEC standards and housed in a plastic IP20 enclosure.

2. DC link reactors on both the positive and negative rails of the DC bus equal to 3% impedance to minimize power line harmonics.

3. Full rated output current continuously - 110% of rated current for 60 seconds and 160% of rated current for up to 0.5 second while starting.

4. Isolation between the Drive's power circuitry and control circuitry to ensure operator safety and to protect connected electronic control equipment from damage caused by voltage spikes, current surges, and ground loop currents.

5. Audible noise reduction through automatic adjustment of the carrier frequency and frequency avoidance.

6. Rated at 40°C with a standard operating range of -10° to 50°C (14° to 124°F) ambient temperatures and 0 to 95% relative humidity.

7. Self-diagnostics and motor protections such as: cULus listed overload, phase loss, and internal thermal overload.

8. Off/Stop and Auto/Start selector switches to start and stop the AC Drive and determine the speed reference.

   a. On units with bypass, an AC Drive/Off/Bypass hand selector switch shall be provided in the unit control box

   b. In DRIVE mode speed reference shall be provided by a 0-10 VDC analog input.

9. A keypad interface which shall be programmable by language and feature multiple lines for easy reading

10. Controlled and/or accessible points such as AC Drive Start/Stop, speed reference, and fault diagnostics.

11. Meter points such as motor power in HP, motor power in kW, motor kW-hr, motor current, motor voltage, hours run, DC link voltage, thermal load on motor, Thermal load on AC Drive and Heatsink temperature.

12. Troubleshooting features such as:
   a. AC Drive memory storage of the last 10 faults and related operational data
   b. Four simultaneous displays: frequency or speed, run time, output amps and output power
   c. Keypad which shall display: Reference Signal Value, Output Frequency in Hz or percent, Output Amps, Motor HP, Motor kW, kW

13. Coated circuit boards for protection against corrosive environments

14. Field readable BACnet points to allow for communication of stauts, setpoints and diagnostics to the BAS.

Modulating 100 Percent Exhaust Fan with Statitrac Control Option

A differential pressure control system, (Statitrac), shall use a differential pressure transducer to compare indoor building pressure to outdoor ambient atmospheric pressure and shall turn the exhaust fans on and off and modulate the barometric exhaust dampers to control the building pressure to within the adjustable, specified dead band that shall be adjustable at the RTVM board.

4" High Efficiency Filters - MERV 14
4" High Efficiency MERV 14 filters will be standard.

Clogged Filter Indication
This optional factory installed differential pressure switch allows dirty filter indication at the zone sensor with service LED. When closed, the dirty filter witch will light the service LED on the zone sensor and allow the unit to continue normal operation.

Economizer with Ultra Low Leak Dampers and Differential Control
An economizer will be factory installed. The assembly includes: 0-100% fully modulating low leak dampers, minimum position setting, preset linkage, wiring harness and differential control.

Outside Air Measurement (TRAQ)
A factory mounted airflow measurement station (Traq) shall be provided in the outside air opening to measure airflow. The airflow measurement station shall measure from 40 cfm/ton maximum airflow. The airflow measurement station shall adjust for temperature variations. Measurement accuracy shall meet requirements of LEED IEQ Credit 1 as defined by ASHRAE 62.1-2007.

Controls
Unit shall be completely factory wired with necessary controls and terminal block for power wiring. Units shall provide an external location for mounting fused disconnect device. The controls shall be provided for all 24 volt control functions. The resident control algorithms shall make all heating, cooling and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point and provides better building comfort. The controls shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Unit Interrupt Rating (High Fault Short Circuit Current Rating-SCCR)
An optional 65,000 Amp rating (480V) and 25,000 Amp rating (600V) shall be applied to the unit enclosure using a non-fused circuit breaker for disconnect switch purposes. Fan motors, compressors, and electric heat circuits shall be included with protective devices that will provide the elevated level of fault protection. The unit shall be marked with approved cULus markings and will adhere to cULus regulations.

GFI Convenience Outlet (Factory Powered)
A 15A, 115V Ground Fault Interrupter convenience outlet shall be factory installed. It shall be wired and powered from a factory mounted transformer. Unit mounted non-fused disconnect with external handle shall be furnished with factory powered outlet.

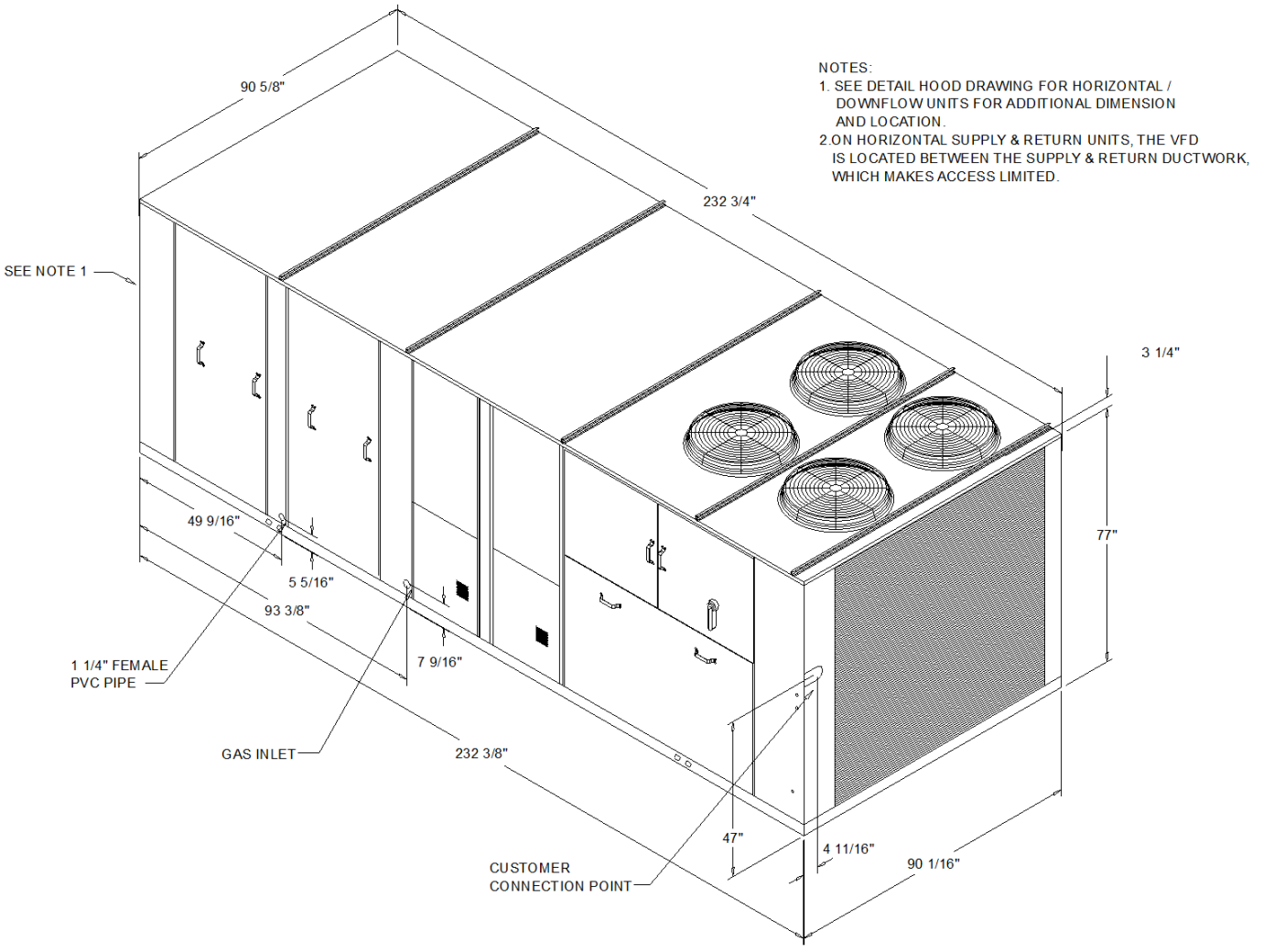
BACnet Communications
The BACnet communications interface shall allow the unit to communicate directly with a generic open protocol BACnet MS/TP Network Building Automation System Controls.

Humidity Sensor
This wall or duct-mounted humidity sensor shall be used to control activation of the hot gas reheat dehumidification option. The humidity sensor can be set for humidity levels between 40% and 60% relative humidity.

Certified AHRI Performance
Packaged Rooftop units cooling, heating capacities and efficiencies are rated within the scope of the Air-Conditioning, Heating & Refrigeration Institute (AHRI) Certification Program and display the AHRI Certified mark as a visual confirmation of conformance to the certification sections of AHRI Standard 340-360 (I-P) and ANSI Z83.8/CSA 2.6 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces.The applications in this catalog specifically excluded from the AHRI certification program are:

-Ventilation modes
-Heat Recovery

Dimensional Drawings - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz



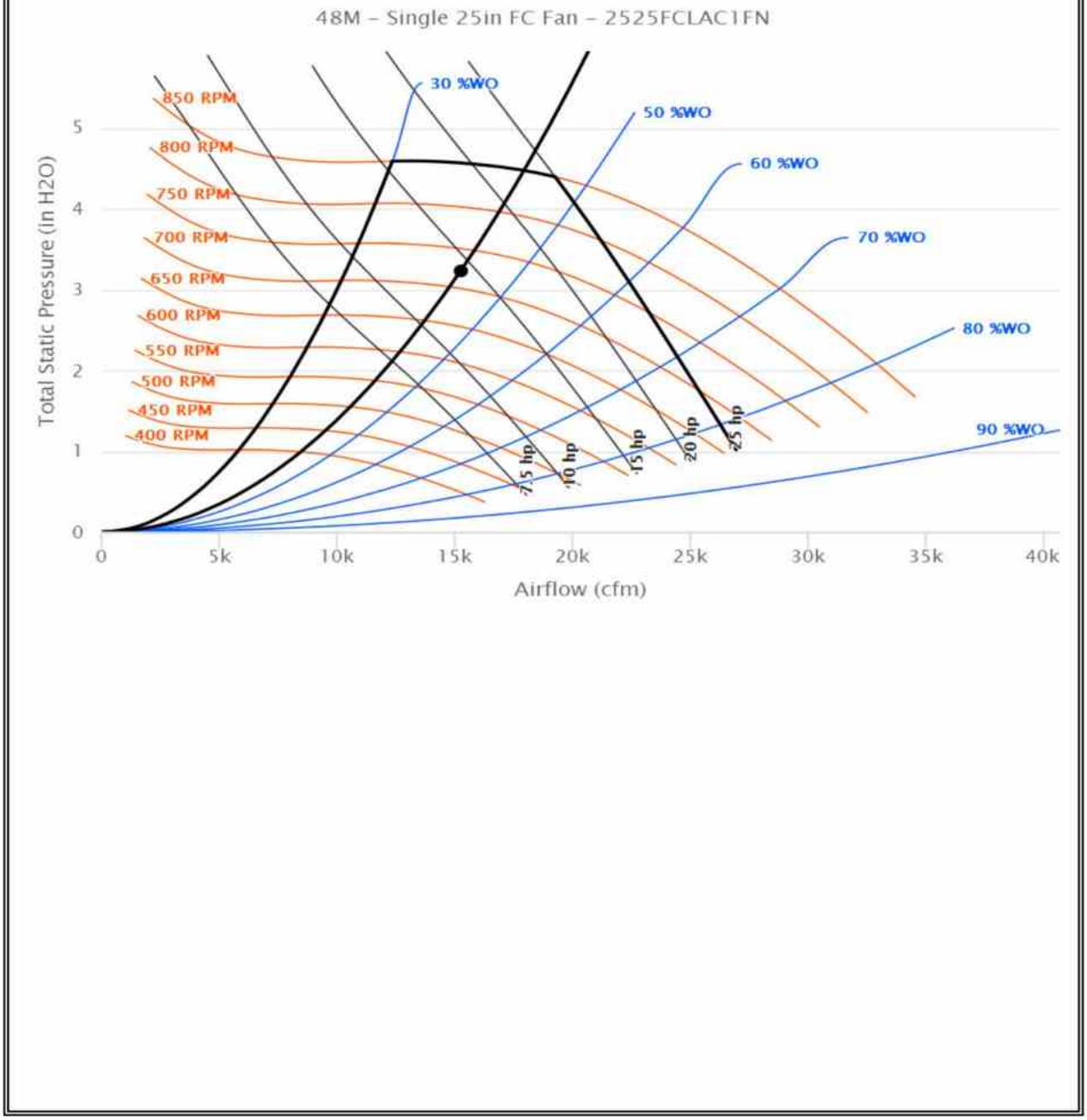
HORIZONTAL SUPPLY AND HORIZONTAL RETURN CONFIGURATION

DIMENSIONAL DRAWING

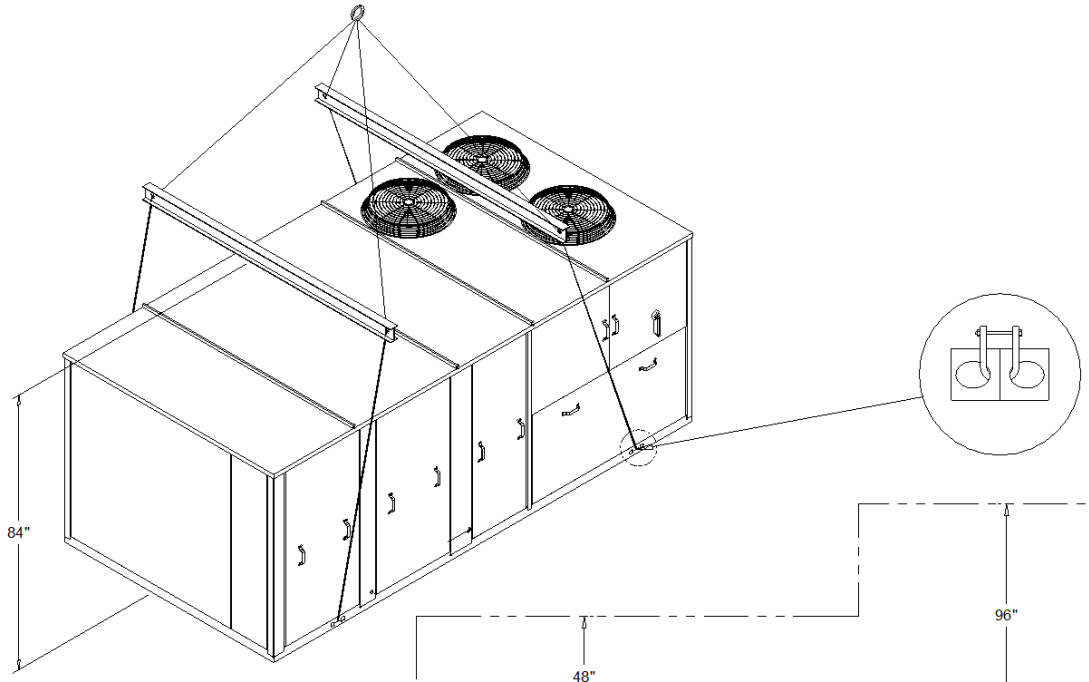
Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz

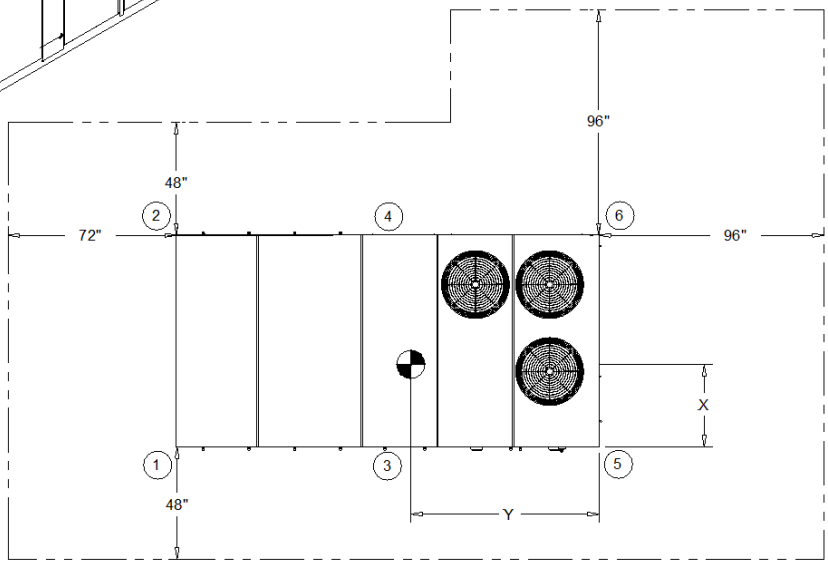
Fan Details

Unit Size		**Operating Brake Power**	14.28 bhp
Operating Airflow	15,230 cfm	**Altitude**	0.00 ft
Operating Static Pressure	3.242 in H2O	**Design Temp.**	53.51 F
Operating RPM	725 rpm		



Weight, Clearance & Rigging - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz



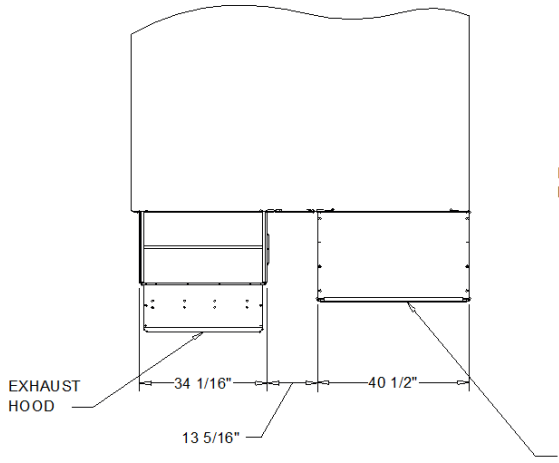


CLEARANCE NOTES:
1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS 96"

ESTIMATED OPERATING WEIGHT											
OPERATION WEIGHT: 6,097.0 lb											
CENTER OF GRAVITY						OPTIONAL COMPONENTS					
X	42"	Y	111"			POWER EXHAUST	200.0 lb	BARO. RELIEF	N/A	SERVICE VALVES	18.0 lb
CORNER LOADING PERCENTS						ECONOMIZER	300.0 lb	THRU-BASE ELECTRICAL	N/A	DISC. SWITCH	N/A
(1)	(2)	(3)	(4)	(5)	(6)	MANUAL DAMPERS	N/A	GFI WITH DISCON. SWITCH	N/A	VFD	115.0 lb
19%	15%	18%	16%	17%	16%	ULTRA LOW LEAK EXH.	N/A	ULTRA LOW LEAK ECON	N/A		
						COIL HAIL GUARD	130.0 lb	MOD. HOT GAS REHEAT	N/A		

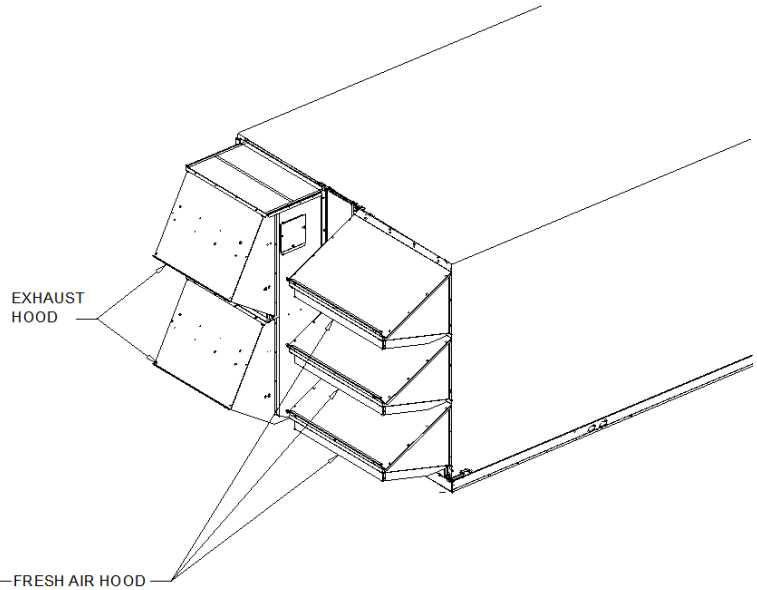
WEIGHT NOTES:
1. THE WEIGHT SHOWN REPRESENTS THE TYPICAL UNIT OPERATING WEIGHT FOR THE CONFIGURATION SELECTED. ESTIMATED AT +/- 10 % OF THE NAMEPLATE WEIGHT.
2. THE ACTUAL WEIGHT IS STAMPED ON THE UNIT NAMEPLATE.

Accessory - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz



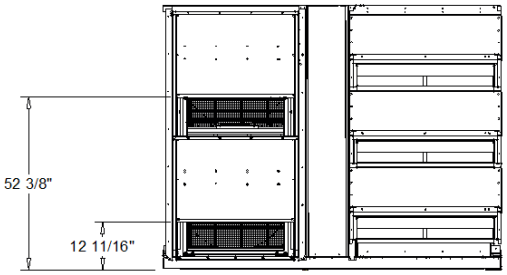
TOP VIEW

DIMENSIONAL DRAWING



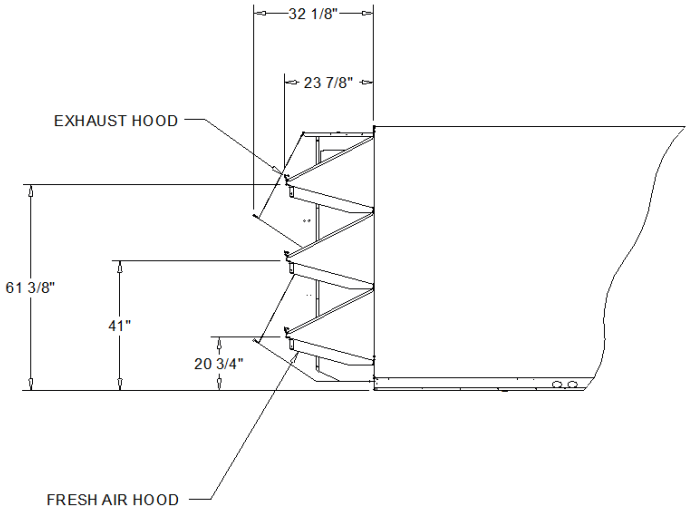
ISOMETRIC VIEW

PARTIAL DRAWING



BACK VIEW

DIMENSIONAL DRAWING



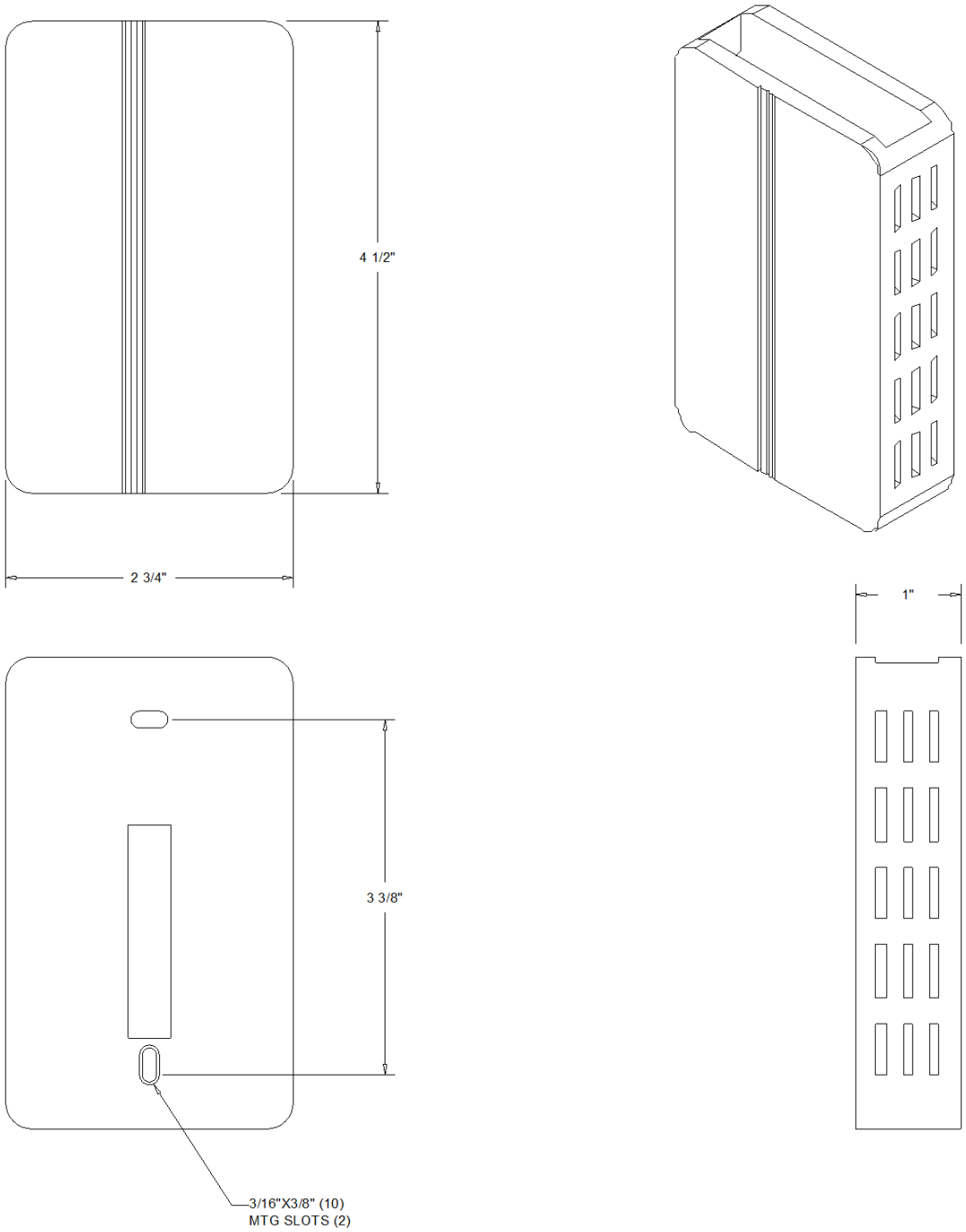
SIDE VIEW

DIMENSIONAL DRAWING

40-50 TON FRESH AIR AND POWER EXHAUST HOODS HORIZONTAL CONFIGURATION

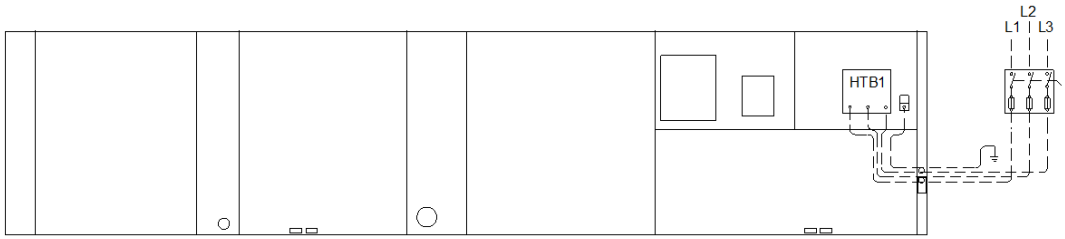
DIMENSIONAL DRAWING

Accessory - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz



BAYSENS037 - HUMIDITY DUCT MOUNTED SENSOR

Field Wiring - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-1 Horiz



ZONE SENSOR WIRE TABLE

WIRE SIZE	MAXIMUM WIRE LENGTH in
22 GAUGE	1800"
20 GAUGE	3000"
18 GAUGE	4500"
16 GAUGE	7200"
14 GAUGE	11700"

NOTE:
1. All wiring and devices shown dashed to be supplied and installed by the customer in accordance with national and local electrical codes.
2. Low voltage control wiring must not be run in conduit with power wiring.
3. Cut wire jumper adjacent to the terminal 1 on zone sensor.

Field Installed Options - Part/Order Number Summary
This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - Packaged Rooftop, Cooling / Heating Units

Item	Tag(s)	Qty	Description	Model Number
A1	RTU-1 Horiz	1	27 1/2-50 Ton Packaged Commercial Roofto	YCH480CEL*6D3N64A0*****HHBE200R0N00E0000X*********1

Field Installed Option Description	Part/Ordering Number
Duct mounted humidity sensor	BAYSENS037A

BACnet Points List

Object Naming Conventions

The communicated points for the Symbio™ controllers are generally named according to their function. While many of the points are read-only, others include both read and write capability. The established naming convention helps to identify the capabilities of each point. For most points, the suffix identifies the capability according to the following definition.

While there are some exceptions, the majority of the points have been defined according to these guidelines.

Suffix	Description
Status	Points with the Status suffix are defined as read-only. The status point reports the value being used by the controller.
Local	Points with the Local suffix are defined as read-only. The local point reports values associated with controller sensors, both wired and wireless. The local value may or may not be actively used by the controller, depending on the presence or absence of a communicated value (BAS). When both a local and communicated value exist, the communicated value is used.
Active	Points with the Active suffix are defined as read-only. Points designated as active are normally the result of the arbitration between a communicated value. The active point reports the value being input to the controller.
Setpoint	Points with the Setpoint suffix are defined as either read-only or read/write. For BACnet®, the binary input, analog input and multi-state input points are all read-only. These setpoints report the value currently in use by the controller. The analog value, binary value and multi-state value points are all read/write. These points are provided for use by the building automation system (BAS). When used, these points are written internally to arbitration logic. This defines the interaction with hardwired points, editable software configuration points and the relinquish default value/state. Refer to the Appendix for additional information.
Input	Points with the Input suffix are defined as read-only. These points normally reflect the status of a sensor input, either hardwired or communicating wirelessly (Air-Fi®). However, the input point reflects the arbitrated result of the controller sensor input and a communicated value, if present. When both a controller sensor and communicated value exist, the controller will use and report the communicated value.
Arbitrator	Points with the “Arbitrator” suffix are to be used as read-only. The arbitrator prioritizes inputs from communicating points, hardwired points and stored defaults points. The priority array of the arbitration point displays each of the values provided, including the active status, indicating which of the input sources is being used. Refer to the Appendix for additional information.
BAS	Points with the BAS suffix are defined as read/write. These points are provided for use by the building automation system (BAS). When used, these points are written to arbitration logic. This defines the interaction with hardwired points, editable software configuration points and the relinquished default value/state. Refer to the Appendix for additional information.
Command	Points with the Command suffix are defined as read/write. These points are written to change the default behavior of the controller. Once written, these point values may be persisted.
Request	Points with the Request suffix are defined as read/write. These points are written to request a change the operating behavior of the controller.

Object Data Points and Diagnostic Data Points

The following tables are sorted as follows:

- Tables are listed by input/output type and sorted by object identifier. These tables provide the user with the units type for each object type.
- Tables are sorted by object name and provide a complete list of object names, types, values/ ranges, and descriptions.

Note: *Not all points are available to the user. The available data points are defined during self-configuration and are dependent on the type of equipment.*

Table 2. Analog inputs

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-10101	Cooling Capacity Status	Indicates the actual operating unit cooling capacity, in %	Always	Read	NA	%	0	100	Input	30010	30011
AI-10102	Heating Capacity Primary Status	Indicates the unit (primary) heating capacity, in %	Primary Heating Source Installed	Read	NA	%	0	100	Input	30012	30013
AI-10104	Outdoor Air Relative Humidity Local	Indicates the OA humidity value from sensor connected to the controller	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Read	Sensor Complex	%	0	100	Input	30014	30015
AI-10110	Return Air Humidity Local	Indicates the return air humidity value from sensor connected to the controller	Economizer Type is Configured as Comparative Enthalpy	Read	Sensor Complex	%	0	100	Input	30016	30017
AI-10111	Outdoor Air Damper Position	Indicates OA Damper Actuator feedback signal.	Outside Air is Configured at 0-100% or 0-50% Motorized Damper	Read	NA	%	0	100	Input	30018	30019
AI-10112	Relief Damper Position	Indicates the unit commanded Relief damper position.	Relief fan installed	Read	NA	%	0	100	Input	30020	30021
AI-10116	Space Humidity Active	Indicates the active space relative humidity being used by the controller	Humidity Sensor Configured	Read	Sensor Complex	%	0	100	Input	30024	30025
AI-10117	Outdoor Air Dew Point	The outdoor air dewpoint value being utilized by the unit	Hot Gas Reheat is configured as Installed	Read	NA	°F	-39	200	Input	30424	30425
AI-10118	Outdoor Air Temperature Active	Indicates the active OA temperature currently being used by the controller	Always	Read	Sensor Complex	°F	-40	200	Input	30026	30027
AI-10120	Outdoor Air Humidity Active	Indicates the active outdoor air humidity value used by the controller	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Read	Sensor Complex	%	0	100	Input	30028	30029
AI-10124	Discharge Air Temperature Local	Indicates the discharge air temperature value from a sensor connected to the controller	System Type Configured as VVZT, VVDA, or Outside Air is Configured as 0-100% or Discharge Air Temperature Sensor is Configured	Read	NA	°F	-40	200	Input	30030	30031
AI-10126	Return Air Temperature Input	Indicates the actual return air temperature being used by the controller	Economizer Type is Configured as r Comparative Enthalpy or Differential Drybulb	Read	Sensor Complex	°F	-40	200	Input	30034	30035
AI-10155	Duct Static Pressure Local	Indicates the duct static pressure value from a sensor connected to the controller	System Type is Configured as VVDA	Read	NA	In. of water	-0	5	Input	30040	30041
AI-10156	Outdoor Air Temperature Local	Indicates the OA temp value from a sensor connected to the controller	Always	Read	Sensor Complex	°F	-40	200	Input	30042	30043
AI-10185	Outdoor Air Flow Active	Outdoor air flow utilized by the unit	0 to 100% Economizer w/ TRAQ installed	Read	NA	$Feet^3$ /min.	0	20000	Input	30044	30045
AI-10187	Space Static Pressure Active	Space static pressure value from a unit mounted sensor	StatiTrac Space Pressure Control configured.	Read	Sensor Complex	In. of water	-1	1	Input	30046	30047

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-10218	Space Temperature Input	Indicates the space temp from a wired sensor.	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Sensor Complex	°F	-40	200	Input	30048	30049
AI-10226	Space Dew Point	Calculated Space Dewpoint	Hot Gas Reheat is Configured as Installed	Read	NA	°F	-40	200	Input	30426	30427
AI-11103	Space CO2 Concentration Input	Indicates the space CO2 concentration from a sensor hardwired to the controller.	CO2 Sensor Configured	Read	Sensor Complex	PPM	50	2000	Input	30056	30057
AI-11104	Space Humidity Input	Indicates the space relative humidity from a sensor wired to the controller.	Humidity Sensor Configured	Read	Sensor Complex	%	0	100	Input	30058	30059
AI-11106	Supply Fan Speed Command Status	Indicates the unit commanded supply fan speed output. Typically reflects commands to a speed control device.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	%	0	100	Input	30062	30063
AI-11109	Modulating Heat Command Status	Indicates the unit commanded modulating heat output.	Modulating gas heat installed	Read	NA	%	0	100	Input	30066	30067
AI-11111	Outdoor Air Damper Command	Indicates the unit commanded outside air damper position.	Outside Air is Configured at 0-100%	Read	NA	%	0	100	Input	30068	30069
AI-11112	Outdoor Airflow Pressure	Hardwired input for outdoor airflow pressure sensor	0 to 100% Economizer w/ TRAQ installed	Read	NA	In. of water	-0	5	Input	30070	30071
AI-11132	On-Board I/O Firmware Major Version	Software Major Version for On-Board I/O Module	Always	Read	NA	NA	0	255	Input	30072	30073
AI-11133	On-Board I/O Firmware Minor Version	On-Board I/O Module Software build number	Always	Read	NA	NA	0	255	Input	30074	30075
AI-11134	Indoor Options Module Firmware Major Version	Software Major Version for Indoor Options Module	Indoor Options Module Installed and In-Use	Read	NA	NA	0	255	Input	30076	30077
AI-11135	Indoor Options Module Firmware Minor Version	Indoor Options Module Software build number	Indoor Options Module Installed and In-Use	Read	NA	NA	0	255	Input	30078	30079
AI-11136	Fresh Air Options Module Firmware Major Version	Software Major Version for Fresh Air Options Module	Fresh Air Options Module Installed and In-Use	Read	NA	NA	0	255	Input	30080	30081
AI-11137	Fresh Air Options Module Firmware Minor Version	Fresh Air Options Module Software build number	Fresh Air Options Module Installed and In-Use	Read	NA	NA	0	255	Input	30082	30083

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-11140	Customer Options Module Firmware Major Version	Software Major Version for Customer Connection Options Module	Customer Options Module Installed and In-Use	Read	NA	NA	0	255	Input	30088	30089
AI-11141	Customer Options Module Firmware Minor Version	Customer Options Module Software build number	Customer Options Module Installed and In-Use	Read	NA	NA	0	255	Input	30090	30091
AI-11142	IGN Module 1 Firmware Major Version	Software Major Version for Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	NA	0	255	Input	30092	30093
AI-11142	IGN Module 1 Firmware Major Version	Software Major Version for Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	NA	0	255	Input	30092	30093
AI-11143	IGN Module 1 Firmware Minor Version	Software Major Version for Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	NA	0	255	Input	30094	30095
AI-11143	IGN Module 1 Firmware Minor Version	Software Major Version for Gas Heat Ignition Module 1	Primary Heating Source is Configured as Gas	Read	NA	NA	0	255	Input	30094	30095
AI-11144	IGN Module 2 Firmware Major Version	Software Major Version for Gas Heat Ignition Module 2	Primary Heating Source is 800 MBH gas heat	Read	NA	NA	0	255	Input	30096	30097
AI-11145	IGN Module 2 Firmware Minor Version	Software Minor Version for Gas Heat Ignition Module 2	Primary Heating Source is 800 MBH gas heat	Read	NA	NA	0	255	Input	30098	30099
AI-11148	Remote Minimum Position	Hardwired remote minimum position for OA damper control.	Remote Minimum Position is Configured as Installed	Read	NA	%	0	50	Input	30100	30101
AI-11149	Return Air Temperature Active	Return Air Temperature being used for control	Economizer Type is Configured as r Comparative Enthalpy or Differential Drybulb	Read	Sensor Complex	°F	-40	200	Input	30102	30103
AI-11150	Sensor Battery Status Air-Fi	Status %age of connected AirFi sensor(s).	Air-Fi Sensor Installed and Communicating	Read	NA	%	5	100	Input	30104	30105
AI-11151	Space CO2 Concentration Air-Fi	Indicates the space CO2 concentration from a wireless sensor connected to the controller.	Air-Fi Sensor Installed and Communicating	Read	Sensor Complex	PPM	50	2000	Input	30106	30107
AI-11152	Space Humidity Air-Fi	Indicates the space relative humidity from a connected wireless sensor.	Air-Fi Sensor Installed and Communicating	Read	Sensor Complex	%	0	100	Input	30108	30109
AI-11154	Space Temperature Air-Fi	Indicates the space temp from a connected wireless (AirFi) sensor	Air-Fi Sensor Installed and Communicating	Read	Sensor Complex	°F	-40	200	Input	30112	30113
AI-11155	Space Temperature Cooling Setpoint Air-Fi	Indicates the (occupied) cooling setpoint from the connected wireless space sensor	Air-Fi Sensor Installed and Communicating	Read	Setpoint Simple BAS	°F	52	95	Input	30114	30115

Table 2. Analog inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Units	Low Limit	High Limit	Modbus Register Type	Modbus Register 1	Modbus Register 2
AI-11156	Space Temperature Heating Setpoint Air-Fi	Indicates the (occupied) heating setpoint from the connected wireless space sensor	Air-Fi Sensor Installed and Communicating	Read	Setpoint Simple BAS	°F	49	92	Input	30116	30117
AI-11157	Space Temperature Setpoint Air-Fi	Space Temperature Setpoint from a connected wireless sensor.	Air-Fi Sensor Installed and Communicating	Read	Setpoint Simple BAS	°F	49	95	Input	30118	30119
AI-11158	Space Static Pressure Input	Indicates the space statice pressure from a wired sensor connected to the controller	StatiTrac Space Pressure Control configured.	Read	Sensor Complex	In. of water	-1	1	Input	30120	30121
AI-11159	Space Temperature Cooling Setpoint Input	Indicates the (occupied) cooling setpoint from the connected wired space sensor	Space Controller Configured as Dual Setpoint Zone Sensor	Read	Setpoint Simple BAS	°F	52	95	Input	30122	30123
AI-11160	Space Temperature Heating Setpoint Input	Indicates the (occupied) heating setpoint from the connected wired space sensor	Heating Source Installed and Space Controller Configured as Dual Setpoint Zone Sensor	Read	Setpoint Simple BAS	°F	49	92	Input	30124	30125
AI-11161	Space Temperature Setpoint Input	Space Temperature Setpoint from a connected wired sensor.	Space Controller Configured as Single Setpoint Zone Sensor	Read	Setpoint Simple BAS	°F	49	95	Input	30126	30127
AI-11164	Reheat Valve 1 Step Status	Reheat Valve 1 Status in steps from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	NA	0	65535	Input	30132	30133
AI-11165	Reheat Valve 2 Step Status	Reheat Valve 2 (Cooling) Status in steps from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	NA	0	65535	Input	30134	30135
AI-11166	Evaporator Entering Refrigerant Temperature	Indicates the Evaporator Entering Refrigerant Temperature from a connected wire sensor on the Indoor Options Module.	Hot Gas Reheat is Configured as Installed	Read	NA	°F	-40	200	Input	30402	30403
AI-11167	Stepper Motor Module Firmware Major Version	Software Major Version for Stepper Motor Module	Stepper Motor Module Installed and In-Use	Read	NA	NA	0	255	Input	30428	30429
AI-11168	Stepper Motor Module Firmware Minor Version	Stepper Motor Module Software build number	Stepper Motor Module Installed and In-Use	Read	NA	NA	0	255	Input	30430	30431
AI-11171	Refrigerant LFL Concentration Sensor A	Expressed in % of LFL (Lower Flammability Limit). At 100% of the LFL, the refrigerant concentration is potentially flammable.	Refrigerant Type is R454B	Read	NA	%	0	100	Input	30470	30471
AI-11172	Refrigerant LFL Concentration Alarm Threshold Sensor A	Defines the %LFL setpoint. When Refrigerant Concentration exceeds this setpoint, the Refrigerant Leak Detection System Input shall go to alarm/ active state.	Refrigerant Type is R454B	Read	NA	%	0	100	Input	30472	30473

Table 3. Analog values

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10103	Outdoor Air Temperature Arbitrator	Indicates the OA temp determined by arbitration	Always	Write	Sensor Complex	65535	°F	-40	200	0	Holding	40010	40011
AV-10104	Outdoor Air Humidity Arbitrator	Indicates the actual outdoor air humidity being used by the controller	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Write	Sensor Complex	65535	%	0	100	0	Holding	40012	40013
AV-10106	Space Temperature Arbitrator	Indicates the space temp determined by arbitration	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Sensor Complex	65535	°F	-40	200	0	Holding	40014	40015
AV-10107	Space Static Pressure Arbitrator	Space static pressure value from a unit mounted sensor	StatiTrac Space Pressure Control configured.	Write	Sensor Complex	65535	In. of water	-1	1	0	Holding	40016	40017
AV-10108	Space CO2 Concentration Arbitrator	Indicates the space CO2 concentration being used by the controller	CO2 Sensor Configured	Write	Sensor Complex	65535	PPM	50	2000	0	Holding	40018	40019
AV-10109	Space Humidity Arbitrator	Indicates the space relative humidity, determined by the arbitration	Space Humidity Sensor Configured	Write	Sensor Complex	65535	%	0	100	0	Holding	40020	40021
AV-10113	Outdoor Air Temperature BAS	Used to send the outdoor air temperature sensor value	Always	Write	Sensor Complex		°F	-40	200	900	Holding	40022	40023
AV-10114	Space Temperature BAS	Used to send the space temperature value	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Sensor Complex		°F	-40	200	900	Holding	40024	40025
AV-10116	Outdoor Air Humidity BAS	Used to send the outdoor air humidity sensor value	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy and/or Hot Gas Reheat is Configured as Installed	Write	Sensor Complex		%	0	100	900	Holding	40026	40027
AV-10117	Space Static Pressure BAS	BAS supplied space static pressure sensor value	StatiTrac Space Pressure Control configured.	Write	Sensor Complex		In. of water	-1	1	900	Holding	40206	40207
AV-10118	Space CO2 Concentration BAS	Used to send the space CO2 concentration value	CO2 Sensor Configured	Write	Sensor Complex		PPM	0	2000	900	Holding	40028	40029
AV-10119	Space Humidity BAS	Used to send the space relative humidity value	Space Humidity Sensor Configured	Write	Sensor Complex		%	0	100	900	Holding	40030	40031
AV-10121	Discharge Air Cooling Setpoint BAS	Used to request the discharge air temp cooling setpoint value	System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	55	°F	40	80	0	Holding	40032	40033

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10122	Discharge Air Heating Setpoint BAS	Used to request the discharge air temperature heating setpoint value	System Type is Configured as VVDA and Primary Heat is Configured or Conventional Thermostat with modulating gas heat installed.	Write	Setpoint Simple with Priority Array	100	°F	50	158	0	Holding	40034	40035
AV-10123	Unoccupied Cooling Setpoint	Used to define the cooling temp setpoint used for control in unoccupied mode	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	85	°F	50	90	0	Holding	40036	40037
AV-10124	Unoccupied Heating Setpoint	Used to define the heating temp setpoint used for control in unoccupied mode	Heating Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	60	°F	50	90	0	Holding	40038	40039
AV-10125	Outdoor Air Minimum Flow Setpoint BAS	Used to send the requested minimum OA flow setpoint	0 to 100% Economizer w/ TRAQ installed	Write	Setpoint Simple with Priority Array	10000	Feet3/ min	0	400000	0	Holding	40214	40215
AV-10127	Space Temperature Setpoint BAS	BAS-supplied space temperature setpoint value	Space Controller Configured as Single Setpoint Zone Sensor	Write	Setpoint Simple BAS	72.5	°F	40	115	0	Holding	40040	40041
AV-10128	Space Static Pressure Setpoint BAS	Space Static Pressure Setpoint	StatiTrac Space Pressure Control configured.	Write	Setpoint Simple with Priority Array	0.08	In. of water	-0	0	0	Holding	40208	40209
AV-10130	Occupied Offset	Difference between the occ cool and heat setpts when a single setpoint is used	Space Controller Configured As Single Setpoint Zone Sensor	Write	NA	2.5	Delta ° F	1	10	0	Holding	40042	40043
AV-10134	Discharge Air Reheat Setpoint BAS	Used to request the discharge air temperature reheat setpoint value, for dehumidification control	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	70	°F	65	80	0	Holding	40044	40045
AV-10138	Filter Runtime Hours Setpoint	The setpoint value used by the filter run hours calculation	Always	Write	Setpoint Simple with Priority Array	0	NA	0	10000	0	Holding	40048	40049
AV-10139	Cooling Capacity Enable	Used to limit the cooling capacity of the unit; 0% = no cooling possible	Always	Write	Setpoint Simple with Priority Array	100	%	0	100	0	Holding	40050	40051
AV-10140	Heat Primary Enable BAS	Used to demand limit the heating capacity; 0% = No Heating Possible	Primary Heating Source is Configured	Write	Setpoint Simple with Priority Array	100	%	0	100	0	Holding	40052	40053

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10141	Morning Warmup Setpoint BAS	Defines the space temp below which MWU is enabled	Primary Heating Source is Configured and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	70	°F	50	90	0	Holding	40054	40055
AV-10142	Occupied Standby Offset	Difference between the occ standby cool and heat setpts when a single setpoint is used	Space Controller Configured as Single Setpoint Zone Sensor	Write	NA	7.5	Delta ° F	1	20	0	Holding	40056	40057
AV-10143	Duct Static Pressure Setpoint BAS	Used to request the duct static pressure setpoint value	System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	1	In. of water	0	4	0	Holding	40058	40059
AV-10144	Economizer Minimum Position Setpoint BAS	Used to request the ecominizer minimum position setpoint	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Write	Setpoint Simple with Priority Array	25	%	0	100	0	Holding	40060	40061
AV-10149	Daytime Warmup Setpoint BAS	Defines the space temp below which daytime warmup will be enabled	System Type is Configured as VVDA and Primary Heat is Configured.	Write	Setpoint Simple with Priority Array	68	°F	50	90	0	Holding	40062	40063
AV-10150	Economizer Outdoor Air Enable Setpoint BAS	Temperature setpoint below which economizing can be used	Outside Air is Configured as 0-100%	Write	Setpoint Simple with Priority Array	60	°F	50	140	0	Holding	40064	40065
AV-10154	Space Cooling Setpoint High Limit BAS	Space Cooling Setpoint High Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	NA	90	°F	40	110	0	Holding	40066	40067
AV-10155	Space Cooling Setpoint Low Limit BAS	Space Cooling Setpoint Low Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	NA	50	°F	40	110	0	Holding	40068	40069
AV-10157	Space Heating Setpoint High Limit BAS	Space Heating Setpoint High Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	NA	80	°F	40	105	0.00	Holding	40070	40071

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10158	Space Heating Setpoint Low Limit BAS	Space Heating Setpoint Low Limit BAS	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	NA	50	°F	40	105	0.00	Holding	40072	40073
AV-10159	Occupied Cooling Setpoint BAS	Used to define the occ cooling setpt when both heat and cool setpoints are used	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	Setpoint Simple BAS	74	°F	40	115	0.00	Holding	40074	40075
AV-10160	Occupied Heating Setpoint BAS	Used to define the occ heating setpt when both heat and cool setpoints are used	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	Setpoint Simple BAS	71	°F	40	115	0.00	Holding	40076	40077
AV-10161	Occupied Standby Cooling Setpoint BAS	Defines the occ standby cooling setpt when both heat/cool setpoints are provided	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Write	Setpoint Simple with Priority Array	78	°F	52	95	0.00	Holding	40078	40079
AV-10162	Occupied Standby Heating Setpoint BAS	Defines the occ standby heating setpt when both heat/cool setpoints are provided	Space Controller is Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT and Primary Heating is Configured	Write	Setpoint Simple with Priority Array	67	°F	50	92	0.00	Holding	40080	40081
AV-10167	Discharge Air Temperature Minimum Cool Limit	Used to define the discharge air temperature minimum cool limit	Discharge Air Temperature Sensor is Configured as Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	50	°F	40	100	0.00	Holding	40082	40083
AV-10168	Relief Enable Position Setpoint	The OA damper position above which the Relief sequence is enabled	Space Pressure Control is Configured	Write	Setpoint Simple with Priority Array	25	%	0	100	0.00	Holding	40084	40085
AV-10169	Occupied Bypass Time	Used to configure the occupied bypass time (occupancy override)	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	120	NA	0	240	0.00	Holding	40086	40087

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-10170	Economizer Outdoor Air Enthalpy Enable Setpoint BAS	Used to determine the outdoor air enthalpy below which economizing is enabled	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy	Write	Setpoint Simple with Priority Array	25	BTUs/ pound	19	36	0.00	Holding	40088	40089
AV-10175	Space CO2 High Limit	Used to define the CO2 high limit, for ventilation purposes	Demand Controlled Ventilation is Configured as Installed	Write	Setpoint Simple with Priority Array	1100	PPM	1000	2000	0.00	Holding	40090	40091
AV-10176	Space CO2 Low Limit	Normally provided by the BMS to define the CO2 low limit	Demand Controlled Ventilation is Configured as Installed	Write	Setpoint Simple with Priority Array	400	PPM	300	1900	0.00	Holding	40092	40093
AV-10214	Space Dehumidifica-tion Unoccupied Setpoint Active	Active value for Space Dehumidification Setpoint BAS point being used for control.	Hot Gas Reheat is Configured as Modulating and Dehumidification Control is Configured as Relative Humidity or Dew Point	Read	Setpoint Simple with Priority Array		%	40	65	0.00	Input	30408	30409
AV-10228	Space Dew Point Unoccupied Setpoint Active	Indicates the Unoccupied Space Dew Point Setpoint actively being used for dehumidification control.	Hot Gas Reheat is Configured as Modulating and Dehumidification Control is Configured as Relative Humidity or Dew Point	Read	Setpoint Simple with Priority Array		°F	40	80	0.00	Input	30412	30413
AV-10281	Discharge Air Temperature Setpoint Active	Indicates the discharge air temp setpoint actively being used for control.	System Type Configured as VVZT and	Read	NA		°F	40	200	0.00	Input	30400	30401
			Space Controller not Configured as Conventional TStat, or HGRH installed, or Economizer installed.										
AV-11103	Return Air Humidity BAS	BAS Source for Return Air Humidity	Economizer Type is Configured as Comparative Enthalpy	Write	Sensor Complex		%	0	100	900.00	Holding	40094	40095
AV-11104	Run Time - Compressor 3 (Hours)	Compressor 3 Runtime	Always	Read	NA		NA	0	200000	0.00	Input	30142	30143
AV-11105	Starts - Compressor 3	Compressor 3 Starts	Always	Read	NA		NA	0	1.5E6	0.00	Input	30144	30145
AV-11106	Run Time - Condenser Fan 3 (Hours)	Condenser Fan 3 Runtime	Always	Read	NA		NA	0	200000	0.00	Input	30146	30147
AV-11107	Starts - Condenser Fan 3	Condenser Fan 3 Starts	Always	Read	NA		NA	0	1.5E6	0.00	Input	30148	30149
AV-11108	Cabinet Style	Indicates the cabinet style of the unit	Always	Read	NA		NA	0	255	0.00	Input	30150	30151

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11110	Supply Fan Speed Command	Remote supply fan speed request	Always	Write	Setpoint Simple with Priority Array	0	%	0	100	0.00	Holding	40096	40097
AV-11112	Cooling Capacity Setpoint BAS	Remote cooling capacity request	Always	Write	Setpoint Simple with Priority Array	0	%	0	100	0.00	Holding	40100	40101
AV-11113	Space Dehumidification Setpoint Offset BAS - Active	The active value for the offset applied to the Space Dehumidification Setpoint.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array		%	2	20	0.00	Input	30420	30421
AV-11115	Exhaust Or Return Fan Type	Identifies the product exhaust or return fan type	Always	Read	NA		NA	0	255	0.00	Input	30154	30155
AV-11116	Filter Runtime Hours	Indicates the number of hours air has flowed through the filter	Always	Read	NA		NA	0	10000	0.00	Input	30156	30157
AV-11117	Outdoor Air Enthalpy Active	The outdoor air enthalpy value being utilized by the unit	Economizer Type is Configured as Comparative Enthalpy or Reference Enthalpy	Read	NA		BTUs/ pound	10	96	0.00	Input	30158	30159
AV-11118	Return Air Temperature Arbitrator	Arbitrator for Return Air Temperature	Economizer Type is Configured as Comparative Enthalpy or Differential Drybulb	Write	Sensor Complex	65535	°F	-40	200	0.00	Holding	40104	40105
AV-11119	Return Air Temperature BAS	BAS source for Return Air Temperature	Economizer Type is Configured as Comparative Enthalpy or Differential Drybulb	Write	Sensor Complex		°F	-40	200	900.00	Holding	40106	40107
AV-11120	Heating Demand Limit Capacity Enable Setpoint	Heating Demand Limit Capacity Enable Setpoint	Demand Management Configured as Demand Limit and Primary Heating Source Configured	Write	Setpoint Simple with Priority Array	100	%	0	100	0.00	Holding	40108	40109
AV-11121	Discharge Air Temperature Maximum Cool Limit	Maximum discharge air temperature allowed during space temperature cooling mode of operation.	System Type Configured as VVZT and Space Controller not Configured as Conventional TStat	Write	Setpoint Simple with Priority Array	104	°F	40	200	0.00	Holding	40110	40111
AV-11122	Run Time - Condenser Fan 1 (Hours)	Condenser Fan 1 Runtime	Always	Read	NA		NA	0	200000	0.00	Input	30160	30161
AV-11123	Run Time - Condenser Fan 2 (Hours)	Condenser Fan 2 Runtime	Dual Condenser Fan Systems	Read	NA		NA	0	200000	0.00	Input	30162	30163

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11124	Run Time - Relief Fan (Hours)	Relief Fan Runtime	Space Pressure Control is Configured	Read	NA		NA	0	200000	0.00	Input	30164	30165
AV-11125	Run Time - Electric Heat Stage 1 (Hours)	Electric Heat Stage 1 Runtime	One or more stages of Staged Electric Heat configured	Read	NA		NA	0	200000	0.00	Input	30166	30167
AV-11126	Run Time - Electric Heat Stage 2 (Hours)	Electric Heat Stage 2 Runtime	Two or more stages of Staged Electric Heat configured	Read	NA		NA	0	200000	0.00	Input	30168	30169
AV-11127	Run Time - Supply Fan (Hours)	Supply Fan Runtime	Always	Read	NA		NA	0	200000	0.00	Input	30170	30171
AV-11128	Space Temp Cooling Setpoint Status	Indicates the space cooling setpoint, determined by arbitration	Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	NA		°F	52	95	0.00	Input	30172	30173
AV-11129	Space Temp Heating Setpoint Status	Indicates the space heating setpoint, determined by arbitration	Heating Installed and Space Controller is Configured as Single or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	NA		°F	49	92	0.00	Input	30174	30175
AV-11130	Design Minimum OA Damper Position at Full Fan Capacity	Design Minimum OA Damper Position at Full Fan Capacity	Outside Air is Configured as 0-100%	Write	Setpoint Simple with Priority Array	10	%	0	50	0.00	Holding	40112	40113
AV-11131	Design Minimum OA Damper Position at Mid Fan Capacity	Design Minimum OA Damper Position at Mid Fan Capacity	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and Indoor Fan Type is Configured as Variable Speed	Write	Setpoint Simple with Priority Array	15	%	0	100	0.00	Holding	40114	40115
AV-11132	Design Minimum OA Damper Position at Min Fan Capacity	Design Minimum OA Damper Position at Min Fan Capacity	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Write	Setpoint Simple with Priority Array	25	%	0	100	0.00	Holding	40116	40117

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11133	DCV Minimum OA Damper Position at Full Fan Capacity	DCV Minimum OA Damper Position at Full Fan Capacity	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and DCV is Configured	Write	Setpoint Simple with Priority Array	5	%	0	40	0.00	Holding	40118	40119
AV-11134	DCV Minimum OA Damper Position at Mid Fan Capacity	DCV Minimum OA Damper Position at Mid Fan Capacity	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed and DCV is Configured	Write	Setpoint Simple with Priority Array	10	%	0	100	0.00	Holding	40120	40121
AV-11135	DCV Minimum OA Damper Position at Min Fan Capacity	DCV Minimum OA Damper Position at Min Fan Capacity	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed and DCV is Configured	Write	Setpoint Simple with Priority Array	15	%	0	100	0.00	Holding	40122	40123
AV-11136	Space Dehumidification Setpoint BAS - Active	The active value for the Space Dehumidification Setpoint for Relative Humidity control.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array		%	40	60	0.00	Input	30422	30423
AV-11137	Discharge Air Heating Setpoint High Limit	Discharge Air Heating Setpoint High Limit (deg F)	VVZT and modulating gas heat installed	Write	Setpoint Simple with Priority Array	150	°F	50	150	0.00	Holding	40124	40125
AV-11138	Discharge Air Heating Setpoint (Target)	Discharge Air Heating Setpoint (Target)	VVZT and modulating gas heat installed	Write	Setpoint Simple with Priority Array	100	°F	50	150	0.00	Holding	40126	40127
AV-11140	Discharge Air Cooling Setpoint (Target)	Discharge Air Cooling Setpoint (Target)	System Type Configured as VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	55	°F	40	80	0.00	Holding	40128	40129
AV-11142	Space Static Pressure Setpoint Deadband	Space Static Pressure Setpoint Deadband	StatiTrac Space Pressure Control configured.	Write	Setpoint Simple with Priority Array	0.04	In. of water	0	0	0.00	Holding	40216	40217
AV-11143	Design Min Outdoor Airflow Setpoint	Design Minimum OA CFM Setpoint	0 to 100% Economizer w/ TRAQ and Demand Controlled Ventilation installed	Write	Setpoint Simple with Priority Array	10000	Feet3/ min	0	20000	0.00	Holding	40256	40257
AV-11144	Standby Min Outdoor Airflow Setpoint	Standby Minimum OA CFM Setpoint	0 to 100% Economizer w/ TRAQ and Demand Controlled Ventilation installed	Write	Setpoint Simple with Priority Array	7500	Feet3/ min	0	20000	0.00	Holding	40218	40219

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11145	DCV Min Outdoor Airflow Setpoint	DCV Minimum OA CFM Setpoint	0 to 100% Economizer w/ TRAQ and Demand Controlled Ventilation installed	Write	Setpoint Simple with Priority Array	5000	Feet3/ min	0	19000	0.00	Holding	40204	40205
AV-11147	Economizer Dry Bulb Enable Offset	Outdoor air temperature offset below dry bulb economizer enable setpoint.	Outside Air is Configured as 0-100%	Write	NA	5	Delta ° F	2	10	0.00	Holding	40130	40131
AV-11148	Duct Static Pressure P-Gain (%/IWC)	Proportional gain for fan speed on duct static pressure control (%/IWC)	System Type Configured as VVDA	Write	NA	3.3	%	1	10	0.00	Holding	40198	40199
AV-11149	Duct Static Pressure Deadband BAS	Supply Air Pressure Setpoint Deadband	System Type Configured as VVDA	Write	Setpoint Simple with Priority Array	0.2	In. of water	0	1	0.00	Holding	40134	40135
AV-11150	Cooling Reset Start Temp	Discharge air cooling reset start temperature	System Type Configured as VVDA	Write	NA	90	°F	0	95	0.00	Holding	40136	40137
AV-11151	Cooling Reset End Temp	Discharge air cooling reset end temperature	System Type Configured as VVDA	Write	NA	70	°F	0	95	0.00	Holding	40138	40139
AV-11152	Cooling Reset Amount	Discharge air cooling amount to reset between start and end temperatures	System Type Configured as VVDA	Write	NA	5	Delta_° F	0	20	0.00	Holding	40266	40267
AV-11153	Service Test Timeout (Minutes)	Timer (minutes) to indicate when the unit should cease service test.	Always	Write	NA	60	NA	1	120	0.00	Holding	40140	40141
AV-11154	Economizer Cooling Reference Enthalpy Offset	Economizer Cooling Reference Enthalpy Offset	Economizer Type is Configured as Comparative Enthalpy or Reference Enthalpy	Write	NA	3	BTUs/ pound	2	6	0.00	Holding	40142	40143
AV-11155	Starts - Condenser Fan 1	Condenser Fan 1 Starts	Always	Read	NA		NA	0	1.5E6	0.00	Input	30186	30187
AV-11156	Starts - Condenser Fan 2	Condenser Fan 2 Starts	Dual Condenser Fan Systems	Read	NA		NA	0	1.5E6	0.00	Input	30188	30189
AV-11157	Starts - Relief Fan	Relief Fan Starts	Space Pressure Control is Configured	Read	NA		NA	0	1.5E6	0.00	Input	30190	30191
AV-11158	Starts - Electric Heat Stage 1	Electric Heat Stage 1 Starts	One or more stages of Staged Electric Heat configured	Read	NA		NA	0	1.5E6	0.00	Input	30192	30193
AV-11159	Starts - Electric Heat Stage 2	Electric Heat Stage 2 Starts	Two or more stages of Staged Electric Heat configured	Read	NA		NA	0	1.5E6	0.00	Input	30194	30195
AV-11160	Starts - Supply Fan	Counter for Supply Fan Starts	Always	Read	NA		NA	0	1.5E6	0.00	Input	30196	30197

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11161	Supply Fan Type	Indicates the unit supply fan type	Always	Read	NA		NA	0	255	0.00	Input	30198	30199
AV-11163	Supply Fan Speed Status	Estimated supply fan speed being utilized.	Always	Read	NA		%	0	100	0.00	Input	30202	30203
AV-11164	Heating Capacity Setpoint BAS	Setpoint to command the unit to a given heating capacity output	Primary Heating Source Configured	Write	Setpoint Simple with Priority Array	0	%	0	100	0.00	Holding	40144	40145
AV-11167	Demand Shed Offset Setpoint	Demand Shed Offset Setpoint	Demand Management Configured as Demand Shed	Write	Setpoint Simple with Priority Array	4	Delta ° F	0	10	0.00	Holding	40148	40149
AV-11168	Cooling Demand Limit Capacity Enable Setpoint	Cooling Demand Limit Capacity Enable Setpoint	Demand Management Configured as Demand Limit	Write	Setpoint Simple with Priority Array	0	%	0	100	0.00	Holding	40150	40151
AV-11169	Run Time - Compressor 1 (Hours)	Compressor 1 Runtime	Always	Read	NA		NA	0	200000	0.00	Input	30204	30205
AV-11170	Run Time - Compressor 2 (Hours)	Compressor 2 Runtime	Multi-Compressor Systems	Read	NA		NA	0	200000	0.00	Input	30206	30207
AV-11173	Supply Fan Minimum Speed Setpoint	Minimum supply fan speed command.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Write	Setpoint Simple with Priority Array	0	%	0	100	0.00	Holding	40152	40153
AV-11174	Supply Fan Maximum Speed Setpoint	Maximum supply fan speed command.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Write	Setpoint Simple with Priority Array	100	%	50	100	0.00	Holding	40154	40155
AV-11178	Space Temperature Active	Indicates the active space temperature being used by the controller	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Sensor Complex		°F	-40	200	0.00	Input	30212	30213
AV-11180	Space Temperature Heating Setpoint Input Active	Active heating space temperature input setpoint as determined by arbitrating the heating setpoint inputs (wired and air-fi) with the occupied setpoint BAS.	Heating Installed and Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple BAS		°F	49	92	0.00	Input	30214	30215
AV-11181	Space Temperature Setpoint Active	Indicates the active space temperature setpoint being used by the controller	Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	NA		°F	49	95	0.00	Input	30216	30217
AV-11183	Starts - Compressor 1	Compressor 1 Starts	Always	Read	NA		NA	0	1.5E6	0.00	Input	30218	30219

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11184	Starts - Compressor 2	Compressor 2 Starts	Multi-Compressor Systems	Read	NA		NA	0	1.5E6	0.00	Input	30220	30221
AV-11185	Cooling Capacity Enable - Active	Active value for Cooling Capacity Enable point being used for control.	Always	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30222	30223
AV-11186	Daytime Warmup Setpoint BAS - Active	Active value for Daytime Warmup Setpoint BAS point being used for control.	Heating Installed and System Type is Configured at VVDA	Read	Setpoint Simple with Priority Array		°F	50	90	0.00	Input	30224	30225
AV-11187	Supply Fan Speed Command - Active	Active value for Supply Fan Speed Command point being used for control.	Always	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30226	30227
AV-11189	Cooling Capacity Setpoint BAS - Active	Active value for Cooling Capacity Setpoint BAS point being used for control.	Always	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30230	30231
AV-11190	Discharge Air Cooling Setpoint BAS - Active	Active value for Discharge Air Cooling Setpoint BAS point being used for control.	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array		°F	40	80	0.00	Input	30232	30233
AV-11191	Discharge Air Heating Setpoint BAS - Active	Active value for Discharge Air Heating Setpoint BAS point being used for control.	Heating Installed and System Type is Configured at VVDA or Conventional Thermostat with modulating gas heat installed.	Read	Setpoint Simple with Priority Array		°F	50	158	0.00	Input	30234	30235
AV-11192	Discharge Air Reheat Setpoint BAS - Active	Active value for Discharge Air Reheat Setpoint BAS point being used for control.	Hot Gas Reheat is Configured as Modulating	Read	Setpoint Simple with Priority Array		°F	65	80	0.00	Input	30236	30237
AV-11193	Discharge Air Temperature Minimum Cool Limit - Active	Active value for Discharge Air Temperature Minimum Cool Limit point being used for control.	(System Type Configured as VVZT or	Read	Setpoint Simple with Priority Array		°F	40	100	0.00	Input	30238	30239
			Supply Air Tempering Configured as Enabled and Space Controller Configured as Single or Dual Setpoint Zone Sensor										
AV-11195	Economizer Minimum Position Setpoint BAS - Active	Active value for Economizer Minimum Position Setpoint BAS point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30240	30241

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11196	Economizer Outdoor Air Enthalpy Enable Setpoint BAS - Active	Active value for Economizer Outdoor Air Enthalpy Enable Setpoint BA point being used for control.	Economizer Type is Configured as Reference Enthalpy or Comparative Enthalpy	Read	Setpoint Simple with Priority Array		BTUs/ pound	19	36	0.00	Input	30242	30243
AV-11197	Economizer Outdoor Air Enable Setpoint BAS - Active	Active value for Economizing Outdoor Air Enable Setpoint point being used for control.	Outside Air is Configured as 0-100%	Read	Setpoint Simple with Priority Array		°F	50	140	0.00	Input	30244	30245
AV-11198	Relief Enable Position Setpoint - Active	Active value for Relief Enable Position Setpoint point being used for control.	Space Pressure Control is Configured	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30246	30247
AV-11199	Heating Demand Limit Capacity Enable Setpoint - Active	Active value for Heating Demand Limit Capacity Enable Setpoint point being used for control.	Demand Management Configured as Demand Limit and Primary Heating Source Configured	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30248	30249
AV-11200	Discharge Air Temperature Maximum Cool Limit - Active	Active value for Discharge Air Temperature Maximum Cool Limit point being used for control.	System Type Configured as VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array		°F	40	200	0.00	Input	30250	30251
AV-11202	Cool Type	Describes the type of cooling in the unit	Always	Read	NA		NA	0	255	0.00	Input	30252	30253
AV-11203	DCV Min Outdoor Airflow Setpoint - Active	Active value for DCV Minimum OA CFM Setpoint point being used for control.	0 to 100% Economizer w/ TRAQ and Demand Controlled Ventilation installed	Read	Setpoint Simple with Priority Array		Feet3/ min	0	19000	0.00	Input	30254	30255
AV-11204	DCV Minimum OA Damper Position at Full Fan Capacity - Active	Active value for DCV Minimum OA Damper Position at Full Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and DCV is Configured	Read	Setpoint Simple with Priority Array		%	0	40	0.00	Input	30256	30257
AV-11205	DCV Minimum OA Damper Position at Mid Fan Capacity - Active	Active value for DCV Minimum OA Damper Position at Mid Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed and DCV is Configured	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30258	30259

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11206	DCV Minimum OA Damper Position at Min Fan Capacity - Active	Active value for DCV Minimum OA Damper Position at Min Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed and DCV is Configured	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30260	30261
AV-11209	Demand Shed Offset Setpoint - Active	Active value for Demand Shed Offset Setpoint point being used for control.	Demand Management Configured as Demand Shed	Read	Setpoint Simple with Priority Array		Delta ° F	0	10	0.00	Input	30264	30265
AV-11210	Design Min Outdoor Airflow Setpoint - Active	Active value for Design Minimum OA CFM Setpoint point being used for control.	0 to 100% Economizer w/ TRAQ and Demand Controlled Ventilation installed	Read	Setpoint Simple with Priority Array		Feet3/ min	0	20000	0.00	Input	30266	30267
AV-11211	Design Minimum OA Damper Position at Full Fan Capacity - Active	Active value for Design Minimum OA Damper Position at Full Fan Capacity point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Read	Setpoint Simple with Priority Array		%	0	50	0.00	Input	30268	30269
AV-11212	Design Minimum OA Damper Position at Mid Fan Capacity - Active	Active value for Design Minimum OA Damper Position at Mid Fan Capacity point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and Indoor Fan Type is Configured as Variable Speed	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30270	30271
AV-11213	Design Minimum OA Damper Position at Min Fan Capacity - Active	Active value for Design Minimum OA Damper Position at Min Fan Capacity point being used for control.	Outside Air is Configured as 0-50% Motorized Damper or 0-100% and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30272	30273
AV-11214	Economizer Dry Bulb Disable Return Air Offset	Differential dry bulb economizer disable offset.	Outside Air is Configured as 0-100%	Write	NA	6	Delta ° F	2	10	0.00	Holding	40290	40291
AV-11217	Filter Runtime Hours Setpoint - Active	Active value for Filter Runtime Hours Setpoint point being used for control.	Always	Read	Setpoint Simple with Priority Array		NA	0	10000	0.00	Input	30280	30281
AV-11218	Heat Primary Enable BAS - Active	Active value for Heat Primary Enable BAS point being used for control.	Primary Heating Source Configured	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30282	30283

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11219	Heating Capacity Setpoint BAS - Active	Active value for Heating Capacity Setpoint BAS point being used for control.	Primary Heating Source Configured	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30284	30285
AV-11220	Morning Warmup Setpoint BAS - Active	Active value for Morning Warmup Setpoint BAS point being used for control.	Heating Installed and System Type is Configured at VVDA or Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array		°F	50	90	0.00	Input	30286	30287
AV-11222	Outdoor Air Minimum Flow Setpoint BAS - Active	Active value for Outdoor Air Minimum Flow Setpoint BAS point being used for control.	0 to 100% Economizer w/ TRAQ installed	Read	Setpoint Simple with Priority Array		Feet3/ min	0	400000	0.00	Input	30290	30291
AV-11226	Space CO2 High Limit - Active	Active value for Space CO2 High Limit point being used for control.	Demand Controlled Ventilation is Configured as Installed	Read	Setpoint Simple with Priority Array		PPM	1000	2000	0.00	Input	30292	30293
AV-11227	Space CO2 Low Limit - Active	Active value for Space CO2 Low Limit point being used for control.	Demand Controlled Ventilation is Configured as Installed	Read	Setpoint Simple with Priority Array		PPM	300	1900	0.00	Input	30294	30295
AV-11229	Space Static Pressure Setpoint Deadband - Active	Active value for Space Static Pressure Setpoint Deadband point being used for control.	StatiTrac Space Pressure Control configured.	Read	Setpoint Simple with Priority Array		In. of water	0	0	0.00	Input	30298	30299
AV-11231	Standby Min Outdoor Airflow Setpoint - Active	Active value for Standby Minimum OA CFM Setpoint point being used for control.	0 to 100% Economizer w/ TRAQ and Demand Controlled Ventilation installed	Read	Setpoint Simple with Priority Array		Feet3/ min	0	20000	0.00	Input	30300	30301
AV-11236	Discharge Air Cooling Setpoint (Target) - Active	Active value for Discharge Air Cooling Setpoint (Target) point being used for control.	System Type Configured as VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array		°F	40	80	0.00	Input	30302	30303
AV-11237	Discharge Air Heating Setpoint High Limit - Active	Active value for Discharge Air Heating Setpoint High Limit point being used for control.	VVZT and modulating gas heat installed	Read	Setpoint Simple with Priority Array		°F	50	150	0.00	Input	30304	30305
AV-11238	Duct Static Pressure Reset Time (seconds)	Reset time for fan speed on duct static pressure control (seconds)	System Type Configured as VVDA	Write	NA	5	NA	1	60	0.00	Holding	40200	40201
AV-11240	Duct Static Pressure Deadband Active	Active value for Supply Air Pressure Setpoint Deadband point being used for control.	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array		In. of water	0	1	0.00	Input	30310	30311

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11241	Heating Reset Start Temp	Discharge air heating reset start temperature	Heating is Installed and System Type is Configured as VVDA	Write	NA	32	°F	0	95	0.00	Holding	40260	40261
AV-11242	Heating Reset End Temp	Discharge air heating reset end temperature	Heating is Installed and System Type is Configured as VVDA	Write	NA	60	°F	0	95	0.00	Holding	40262	40263
AV-11243	Supply Fan Maximum Speed Setpoint - Active	Active value for Supply Fan Maximum Speed Setpoint point being used for control.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	Setpoint Simple with Priority Array		%	25	100	0.00	Input	30316	30317
AV-11244	Supply Fan Maximum Output Frequency Status	Active value for Supply Fan Maximum Output Frequency point being used for control.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA		NA	0	120	0.00	Input	30318	30319
AV-11245	Supply Fan Minimum Speed Setpoint - Active	Active value for Supply Fan Minimum Speed Setpoint point being used for control.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30320	30321
AV-11246	Supply Fan Minimum Output Frequency Status	Active value for Supply Fan Minimum Output Frequency point being used for control.	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA		NA	0	120	0.00	Input	30322	30323
AV-11247	Cooling Demand Limit Capacity Enable Setpoint - Active	Active value for Cooling Demand Limit Capacity Enable Setpoint point being used for control.	Demand Management Configured as Demand Limit	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30324	30325
AV-11248	Economizer Minimum Position Setpoint Active	Indicates the economizer min position setpoint value resulting from arbitration	Outside Air is Configured as 0-50% Motorized Damper or 0-100%	Read	NA		%	0	100	0.00	Input	30326	30327

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11249	Heating Capacity Secondary Status	Indicates the unit secondary heating capacity being utilized.	Secondary Heating Source Configured	Read	NA		%	0	100	0.00	Input	30328	30329
AV-11250	Occupied Standby Cooling Setpoint BAS - Active	Active value for Occupied Standby Cooling Setpoint BAS	Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple with Priority Array		°F	52	95	0.00	Input	30330	30331
AV-11251	Occupied Standby Heating Setpoint BAS - Active	Active value for Occupied Standby Heating Setpoint BAS	Heating Installed and Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple with Priority Array		°F	50	92	0.00	Input	30332	30333
AV-11252	Preheat Type	Identifies the product preheat type	Always	Read	NA		NA	0	255	0.00	Input	30334	30335
AV-11253	Reheat Type	Identifies the product reheat type	Always	Read	NA		NA	0	255	0.00	Input	30336	30337
AV-11254	Space CO2 Concentration Active	Indicates the active space CO2 concentration being used by the controller	CO2 Sensor Configured	Read	Sensor Complex		PPM	0	2000	0.00	Input	30338	30339
AV-11256	Compressor Cooling P-Gain (%/F)	Proportional gain for single loop Compressor Cooling PI controller (%/F)	System Type Configured as CVZT or VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	80	%	0	100	0.00	Holding	40156	40157
AV-11256	Compressor Cooling P-Gain (%/F)	Proportional gain for discharge air control - compressor cooling PI controller (%/F)	System Type Configured as VVDA	Write	NA	5	%	0	100	0.00	Holding	40156	40157

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11257	Compressor Cooling Reset Time (seconds)	Reset time for single loop compressor Cooling PI controller (second)	System Type Configured as CVZT or VVZT and Space Controller is Configured as Single or Dual Setpoint Zone Sensor	Write	NA	500	NA	10	3600	0.00	Holding	40158	40159
AV-11257	Compressor Cooling Reset Time (seconds)	Reset time for discharge air controls - compressor cooling PI controller (seconds)	System Type Configured as VVDA	Write	NA	80	NA	10	3600	0.00	Holding	40158	40159
AV-11258	Economizer Cooling P-Gain - 1 (%/F)	Proportional gain for 1st loop Econ PI controller (%/F), for CVZT/VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is configured as 0-100%	Write	NA	2	%	0	100	0.00	Holding	40160	40161
AV-11259	Economizer Cooling Reset Time - 1 (Seconds)	Reset time for 1st loop Econ PI controller (seconds), for CVZT/VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is configured as 0-100%	Write	NA	1000	NA	10	3600	0.00	Holding	40162	40163
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for Electric single loop PI controller (%/F)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	80	%	0	100	0.00	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for Gas single loop PI controller (%/F)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	40	%	0	100	0.00	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for PI controller (%/F) for VVDA with electrical heat type.	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	5	%	0	100	0.00	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for discharge air control - Staged Gas Heating PI controller (%/F)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	5	%	0	100	0.00	Holding	40172	40173
AV-11266	Auxiliary Heating P-Gain (%/F)	Proportional gain for discharge air control - Modulating Gas Heating PI controller (%/F)	Modulating gas heat installed and System Type is configured as VVDA or Conventional Thermostat with modulating gas heat installed.	Write	NA	1	%	0	100	0.00	Holding	40172	40173
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for Electric single loop PI controller (in seconds)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	500	NA	10	3600	0.00	Holding	40174	40175

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for Gas single loop PI controller (in seconds)	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and Primary Heat is Installed	Write	NA	500	NA	10	3600	0.00	Holding	40174	40175
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for PI controller (%/F) for VVDA with electrical heat type.	VVDA with electric heat	Write	NA	80	NA	10	3600	0.00	Holding	40174	40175
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for discharge air control - Staged Gas Heating PI controller (%/F)	VVDA with staged gas heat installed	Write	NA	80	NA	10	3600	0.00	Holding	40174	40175
AV-11267	Auxiliary Heating Reset Time (seconds)	Reset time for discharge air control - Modulating Gas Heating PI controller (%/F)	VVDA or Conventional Thermostat control with modulating gas heat installed	Write	NA	100	NA	10	3600	0.00	Holding	40174	40175
AV-11268	Compressor Cooling P-Gain - 1 (%/F)	Proportional gain for 1st loop Cooling PI controller (%/F)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	2	%	0	100	0.00	Holding	40176	40177
AV-11269	Compressor Cooling Reset Time - 1 (seconds)	Reset time for 1st loop Cooling PI controller (second)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	1000	NA	10	3600	0.00	Holding	40178	40179
AV-11270	Compressor Cooling P-Gain - 2 (%/F)	Proportional gain for 2nd loop compressor cooling PI controller (%/F)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	5	%	0	100	0.00	Holding	40180	40181
AV-11271	Compressor Cooling Reset Time - 2 (seconds)	Reset time for 2nd loop compressor cooling PI controller (second)	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor	Write	NA	80	NA	1	1000	0.00	Holding	40182	40183
AV-11272	Economizer Discharge Air Setpoint	Discharge Air Setpoint selection to be used for Economizer control on Conventional Thermostat controlled units.	Outside Air is Configured as 0-100% and Space Controller is Configured as Conventional TStat	Write	Setpoint Simple with Priority Array	55	°F	40	80	0.00	Holding	40184	40185
AV-11273	Economizer Discharge Air Setpoint - Active	Active Discharge Air Setpoint used for Economizer control on Conventional Thermostat controlled units.	Outside Air is Configured as 0-100% and Space Controller is Configured as Conventional TStat	Read	Setpoint Simple with Priority Array		°F	40	80	0.00	Input	30340	30341

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11276	Space Temperature Setpoint Input Active	Active space temperature input setpoint as determined by arbitrating the space temperature setpoint inputs (wired and air-fi) with the space temperature setpoint BAS.	Space Controller Configured as Single Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple BAS		°F	49	95	0.00	Input	30344	30345
AV-11277	Space Temperature Cooling Setpoint Input Active	Active cooling space temperature input setpoint as determined by arbitrating the cooling setpoint inputs (wired and air-fi) with the occupied setpoint BAS.	Space Controller Configured as Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple BAS		°F	52	95	0.00	Input	30346	30347
AV-11278	Supply Fan Power	Supply Fan Drive Output Power	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA		KW	0	120	0.00	Input	30348	30349
AV-11279	Supply Fan Current	Supply Fan Drive Output Current	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA		Am-peres	0	120	0.00	Input	30350	30351
AV-11280	Duct Static Pressure Setpoint Active	Indicates the duct static pressure control setpoint value resulting from arbitration	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array		In. of water	0	4	0.00	Input	30352	30353
AV-11281	Dehumidifica-tion Control Status	Indicates the status of the unit dehumidification capacity	Hot Gas Reheat is Configured as Installed	Read	NA		%	0	100	0.00	Input	30354	30355
AV-11286	Motorized Damper Position Setpoint	Motorized Damper Position Setpoint	Outside Air is Configured as 0-50% Motorized Damper	Write	Setpoint Simple with Priority Array	10	%	0	50	0.00	Holding	40188	40189
AV-11287	Motorized Damper Position Setpoint - Active	Active value for Motorized Damper Position Setpoint	Outside Air is Configured as 0-50% Motorized Damper	Read	Setpoint Simple with Priority Array		%	0	50	0.00	Input	30364	30365
AV-11288	Standby Minimum OA Damper Position at Full Fan Capacity	Standby Minimum OA Damper Position at Full Fan Capacity	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT	Write	Setpoint Simple with Priority Array	10	%	0	50	0.00	Holding	40190	40191

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11289	Standby Minimum OA Damper Position at Full Fan Capacity - Active	Active value for Standby Minimum OA Damper Position at Full Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT	Read	Setpoint Simple with Priority Array		%	0	50	0.00	Input	30366	30367
AV-11290	Standby Minimum OA Damper Position at Mid Fan Capacity	Standby Minimum OA Damper Position at Mid Fan Capacity	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed	Write	Setpoint Simple with Priority Array	15	%	0	100	0.00	Holding	40192	40193
AV-11291	Standby Minimum OA Damper Position at Mid Fan Capacity - Active	Active value for Standby Minimum OA Damper Position at Mid Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30368	30369
AV-11292	Standby Minimum OA Damper Position at Min Fan Capacity	Standby Minimum OA Damper Position at Min Fan Capacity	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Write	Setpoint Simple with Priority Array	25	%	0	100	0.00	Holding	40194	40195
AV-11293	Standby Minimum OA Damper Position at Min Fan Capacity - Active	Active value for Standby Minimum OA Damper Position at Min Fan Capacity point being used for control.	Outside Air is Configured as 0-100% and Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor and System Type is Configured as VVZT or CVZT and Indoor Fan Type is Configured as Variable Speed or Multi Speed	Read	Setpoint Simple with Priority Array		%	0	100	0.00	Input	30370	30371

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11299	Return Air Humidity Active	Active Return Air Humidity sensor used for control	Economizer Type is Configured as Comparative Enthalpy	Read	Sensor Complex		%	0	100	0.00	Input	30382	30383
AV-11300	Return Air Humidity Arbitrator	Arbitrator for Return Air Humidity	Economizer Type is Configured as Comparative Enthalpy	Write	Sensor Complex	65535	%	0	100	0.00	Holding	40196	40197
AV-11301	Return Air Enthalpy Active	The return air enthalpy value being utilized by the unit	Economizer Type is Configured as Comparative Enthalpy	Read	NA		BTUs/ Pound	10	96	0.00	Input	30384	30385
AV-11302	Relief Enable Position Setpoint Status	Outdoor air damper position to enable Relief sequence	Space Pressure Control is Configured	Read	NA		%	0	100	0.00	Input	30038	30039
AV-11307	Discharge Air Heating Setpoint (Target) - Active	Active value for Discharge Air Heating Setpoint (Target) point being used for control.	VVZT and modulating gas heat installed	Read	Setpoint Simple with Priority Array		°F	50	150	0.00	Input	30306	30307
AV-11308	Duct Static Pressure Setpoint High Limit Setpoint BAS	Duct Static Pressure Setpoint High Limit is used to limit fan speed prevent damage to equipment	System Type Configured as VVDA	Write	Setpoint Simple with Priority Array	3.5	In. of water	1	5	0.00	Holding	40202	40203
AV-11309	Duct Static Pressure Setpoint High Limit Setpoint BAS - Active	Active Duct Static Pressure Setpoint High Limit is used to limit fan speed prevent damage to equipment	System Type Configured as VVDA	Read	Setpoint Simple with Priority Array		In. of water	1	5	0.00	Input	30390	30391
AV-11314	Comfort Purge Interval (minutes)	User adjustable setpoint used to set the amount of time the compressor will run on the reheat circuit before entering Comfort Purge Cycle.	Hot Gas Reheat is configured as Installed	Write	NA	90	NA	60	120	0.00	Holding	40246	40247
AV-11315	Reheat Purge Interval (minutes)	User adjustable setpoint used to set the amount of time the compressors on the reheat circuit will operate in Reheat mode before entering Reheat Purge Cycle.	Hot Gas Reheat is configured as Installed	Write	NA	120	NA	60	180	0.00	Holding	40248	40249
AV-11316	Reheat P-Gain 1	Proportional gain for 1st loop Reheat PI controller (%/F)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	4	%	0	100	0.00	Holding	40222	40223
AV-11316	Reheat P-Gain 1	Proportional gain for 1st loop Reheat PI controller (%/F)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	4	%	0	100	0.00	Holding	40222	40223

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11317	Reheat Reset Time - 1	Reset time for 1st loop Reheat PI controller (second)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	1200	NA	10	3600	0.00	Holding	40226	40227
AV-11317	Reheat Reset Time - 1	Reset time for 1st loop Reheat PI controller (second)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	1200	NA	10	3600	0.00	Holding	40226	40227
AV-11318	Reheat P-Gain 2	Proportional gain for 2nd loop Reheat PI controller (%/F)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	1	%	0	100	0.00	Holding	40228	40229
AV-11318	Reheat P-Gain 2	Proportional gain for 2nd loop Reheat PI controller (%/F)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	1	%	0	100	0.00	Holding	40228	40229
AV-11319	Reheat Reset Time - 2	Reset time for discharge air Reheat PI controller (second)	Space Controller and Hot Gas Reheat is configured as Installed	Write	NA	100	NA	10	3600	0.00	Holding	40232	40233
AV-11319	Reheat Reset Time - 2	Reset time for discharge air Reheat PI controller (second)	VVDA and Hot Gas Reheat is configured as Installed	Write	NA	100	NA	10	3600	0.00	Holding	40232	40233
AV-11320	Space Dew Point Setpoint BAS	User adjustable setpoint used to set the maximum Space Dew Point Setpoint in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	60	°F	40	80	0.00	Holding	40234	40235
AV-11321	Dew Point Setpoint Offset BAS	User adjustable setpoint used to set the maximum Space Dew Point Setpoint Offset in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	5	°F	2	20	0.00	Holding	40238	40239
AV-11323	Outdoor Air Dew Point Setpoint BAS	User adjustable setpoint used to set the Outdoor Air Dew Point Setpoint in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	60	°F	40	80	0.00	Holding	40240	40241
AV-11325	Space Static Pressure Setpoint Active	Indicates the active space static pressure being used by the controller	StatiTrac Space Pressure Control configured.	Read	Setpoint Simple with Priority Array		In. of water	-0	0	0.00	Input	30036	30037
AV-11326	Space Dehumidification Setpoint Offset BAS	Setting for unit to use for applying a % offset to the space relative humidity setpoint.	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	10	%	2	20	0.00	Holding	40242	40243
AV-11327	Space Dehumidification Setpoint BAS	Setting for unit to use to control dehumidification.	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	60	%	40	60	0.00	Holding	40244	40245

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11329	Space Dehumidification Unoccupied Setpoint BAS	Used to define the (occupied) space dehumidification setpoint	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	65	%	40	65	0.00	Holding	40258	40259
AV-11330	Space Dew Point Unoccupied Setpoint BAS	User adjustable setpoint used to set the maximum Space Dew Point Unoccupied Setpoint in Dew Point Humidity Control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Write	Setpoint Simple with Priority Array	60	°F	40	80	0.00	Holding	40236	40237
AV-11331	Compressor Dehumid P-Gain 2	Proportional Gain for 2nd loop Compressor Dehumid PI controller (%/deg F)	Hot Gas Reheat is configured as Installed	Write	NA	2	°F	0	80	0.00	Holding	40250	40251
AV-11331	Compressor Dehumid P-Gain 2	Proportional Gain for 2nd loop Compressor Dehumid PI controller (%/deg F)	Hot Gas Reheat is configured as Installed	Write	NA	2	°F	0	80	0.00	Holding	40250	40251
AV-11332	Compressor Dehumid P-Gain 1	Proportional gain for 1st loop Compressor Dehumid PI controller (%/F)	Hot Gas Reheat is configured as Installed	Write	NA	3	°F	0	80	0.00	Holding	40252	40253
AV-11332	Compressor Dehumid P-Gain 1	Proportional gain for 1st loop Compressor Dehumid PI controller (%/F)	Hot Gas Reheat is configured as Installed	Write	NA	3	°F	0	80	0.00	Holding	40252	40253
AV-11333	Compressor Dehumid Reset Time - 2 (seconds)	Reset time for 2nd loop compressor Dehumid PI controller (second)	Hot Gas Reheat is configured as Installed	Write	NA	100	NA	1	1000	0.00	Holding	40230	40231
AV-11333	Compressor Dehumid Reset Time - 2 (seconds)	Reset time for 2nd loop compressor Dehumid PI controller (second)	Hot Gas Reheat is configured as Installed	Write	NA	100	NA	1	1000	0.00	Holding	40230	40231
AV-11334	Compressor Dehumid Reset Time - 1 (seconds)	Reset time for 1st loop Dehumid PI controller (second)	Hot Gas Reheat is configured as Installed	Write	NA	1000	NA	10	3600	0.00	Holding	40224	40225
AV-11334	Compressor Dehumid Reset Time - 1 (seconds)	Reset time for 1st loop Dehumid PI controller (second)	Hot Gas Reheat is configured as Installed	Write	NA	1000	NA	10	3600	0.00	Holding	40224	40225
AV-11335	Pre Cool Setpoint BAS	Defines the space temp above which Pre Cool is enabled	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor or System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	74	°F	50	90	0.00	Holding	40254	40255

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11336	Pre Cool Setpoint BAS - Active	Active value for Pre Cool Setpoint BAS point being used for control.	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor or System Type is Configured as VVDA	Read	Setpoint Simple with Priority Array		°F	50	90	0.00	Input	30404	30405
AV-11337	Refrigerant Target Setpoint Active	Indicates the refrigerant target setpoint actively being used for dehumidification control.	Hot Gas Reheat is Configured as installed	Read	NA		°F	39	200	0	Input	30406	30407
AV-11338	Space Dew Point Setpoint Active	Indicates the Occupied Space Dew Point Setpoint actively being used for dehumidification control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Read	Setpoint Simple with Priority Array		°F	40	80	0	Input	30410	30411
AV-11340	Dew Point Setpoint Offset BAS - Active	Indicates the Dew Point Setpoint Offset actively being used for dehumidification control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Read	Setpoint Simple with Priority Array		°F	2	20	0	Input	30414	30415
AV-11341	Outdoor Air Dew Point Setpoint BAS - Active	Indicates the Outdoor Air Dew Point Setpoint Offset actively being used for dehumidification control.	Hot Gas Reheat is configured as Installed and Humidistat is Configured as Not installed	Read	Setpoint Simple with Priority Array		°F	40	80	0	Input	30416	30417
AV-11342	Unoccupied Dehumidifica-tion Timer	User adjustable time the space relative humidity is controlled <65% in unoccupied mode.	Hot Gas Reheat is Configured as installed	Write	NA	720	NA	0	720	0	Holding	40270	40271
AV-11343	Heating Reset Amount	Discharge air heating amount to reset between start and end temperatures	System Type is Configured as VVDA and Primary Heat is Configured.	Write	NA	5	Delta_°F	0	20	0	Holding	40264	40265
AV-11344	VAV Box Stroke Timer	User adjustable VAV Box Stroke time that should be allowed for full airflow modes of operation.	System Type is Configured as VVDA	Write	NA	360	NA	0	600	0	Holding	40268	40269
AV-11346	Economizer Cooling P-Gain (%/F)	Proportional gain for VVDA systems Econ PI controller (%/F).	System Type Configured as VVDA and Outside Air is Configured as 0-100%	Write	NA	2	%	0.1	100	0	Holding	40272	40273
AV-11347	Economizer Cooling Reset Time (Seconds)	Reset time for VVDA systems Econ PI controller (in seconds).	System Type Configured as VVDA and Outside Air is Configured as 0-100%	Write	NA	100	NA	10	3600	0	Holding	40274	40275
AV-11348	Economizer Cooling P-Gain - 2 (%/F)	Proportional gain for 2nd loop Econ PI controller (%/F), for CVZT/VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is Configured as 0-100%	Write	NA	2	%	0.1	100	0	Holding	40276	40277

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11349	Economizer Cooling Reset Time - 2 (Seconds)	Reset time for 2nd loop Econ PI controller (seconds), for CVZT/VVZT systems.	System Type Configured as CVZT/VVZT and Outside Air is Configured as 0-100%	Write	NA	100	NA	10	3600	0	Holding	40278	40279
AV-11350	Auxiliary Heating P-Gain - 1 (%/F)	Space control proportional gain for 1st loop Heating PI controller (%/F)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	2	%	0.1	100	0	Holding	40280	40281
AV-11351	Auxiliary Heating Reset Time - 1 (seconds)	Space control reset Time for 1st loop Auxiliary Heating PI Controller (in seconds)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	1000	NA	10	3600	0	Holding	40282	40283
AV-11352	Auxiliary Heating P-Gain - 2 (%/F)	Space control proportional gain for 2nd loop Heating PI controller (%/F)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	1	%	0.1	100	0	Holding	40284	40285
AV-11353	Auxiliary Heating Reset Time - 2 (seconds)	Space control reset Time for 2nd loop Auxiliary Heating PI Controller (in seconds)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	NA	100	NA	10	3600	0	Holding	40286	40287
AV-11354	Discharge Air Heating Setpoint Low Limit	Discharge Air Heating Setpoint Low Limit (deg F)	System type VVZT with Modulating Gas Auxiliary Heat Installed	Write	Setpoint Simple with Priority Array	50	°F	50	150	0	Holding	40288	40289
AV-11355	Discharge Air Heating Setpoint Low Limit - Active	Active value for Discharge Air Heating Setpoint Low Limit point being used for control.	System type VVZT with Modulating Gas Auxiliary Heat Installed	Read	Setpoint Simple with Priority Array		°F	50	150	0	Input	30432	30433
AV-11356	Discharge Air Cooling Setpoint Status	Indicates actual discharge air cooling setpoint value being used for control	System Type is Configured as VVDA	Read	NA		°F	-40	200	0	Input	30434	30435
AV-11357	Discharge Air Heating Setpoint Status	Indicates actual discharge air heating setpoint value being used for control	System Type is Configured as VVDA and Primary Heating Source is Installed	Read	NA		°F	-40	200	0	Input	30436	30437
AV-11358	Discharge Air Reheating Setpoint High Limit - Active	Active value for Discharge Air Reheating Setpoint High Limit point being used for control.	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array		°F	50	150	0	Input	30438	30439
AV-11359	Discharge Air Reheating Setpoint Low Limit - Active	Active value for Discharge Air Reheating Setpoint Low Limit point being used for control.	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array		°F	40	150	0	Input	30440	30441

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11360	Discharge Air Reheating Setpoint High Limit	Discharge Air Reheating Setpoint High Limit (deg F)	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	104	°F	50	150	0	Holding	40292	40293
AV-11361	Discharge Air Reheating Setpoint Low Limit	Discharge Air Reheating Setpoint Low Limit (deg F)	Hot Gas Reheat is Configured as Installed and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	50	°F	40	150	0	Holding	40294	40295
AV-11362	Run Time - Gas Heat Manifold 1 Burner 1 (Hours)	Gas heat runtime	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating	Read	NA		NA	0	200000	0	Input	30442	30443
AV-11363	Starts - Gas Heat Manifold 1 Burner 1	Gas heat starts	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating	Read	NA		NA	0	150000-0	0	Input	30444	30445
AV-11364	Run Time - Gas Heat Manifold 1 Burner 2 (Hours)	Gas heat runtime	Gas Heat is installed with a second gas valve on manifold 1.	Read	NA		NA	0	200000	0	Input	30446	30447
AV-11365	Starts - Gas Heat Manifold 1 Burner 2	Gas heat starts	Gas Heat is installed with a second gas valve on manifold 1.	Read	NA		NA	0	150000-0	0	Input	30448	30449
AV-11366	Run Time - Gas Heat Manifold 2 Burner 1 (Hours)	Gas heat runtime	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating (800 MBH)	Read	NA		NA	0	200000	0	Input	30450	30451
AV-11367	Starts - Gas Heat Manifold 2 Burner 1	Gas heat starts	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating (800 MBH)	Read	NA		NA	0	150000-0	0	Input	30452	30453
AV-11368	Auxiliary Heating P-Gain Modulating Gas Staging (%/F)	Proportional gain for 2nd loop- Staging control for Modulating Gas Heating	Modulating gas heat is configured	Write	NA	5	%	0.1	100	0	Holding	40306	40307

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11369	Auxiliary Heating Reset Time Modulating Gas Staging (seconds)	Reset Time for 2nd loop-Staging control for Modulating Gas Heating	Modulating gas heat is configured	Write	NA	80	NA	10	3600	0	Holding	40308	40309
AV-11370	Outdoor Airflow Calibration Gain	Outdoor airflow Traq measurement Calibration Gain	Outside Air Configured as 0% to 100% w/ TRAQ	Write	NA	1	NA	0.25	1.75	0	Holding	40296	40297
AV-11371	Outdoor Airflow Calibration Offset	Outdoor airflow Traq measurement calibration Offset	Outside Air Configured as 0% to 100% w/ TRAQ	Write	NA	0	NA	-1000	1000	0	Holding	40298	40299
AV-11372	Outdoor Airflow P-Gain (%/CFM)	Proportional gain for outdoor airflow Traq Minimum Position Control	Outside Air Configured as 0% to 100% w/ TRAQ	Write	NA	0.75	%	0.05	10	0	Holding	40300	40301
AV-11373	Outdoor Airflow Reset Time (Seconds)	Reset time for Outdoor airflow Traq Minimum Position Control	Outside Air Configured as 0% to 100% w/ TRAQ	Write	NA	35	NA	2	300	0	Holding	40302	40303
AV-11374	Local Atmospheric Pressure	Local atmospheric pressure	Outside Air Configured as 0% to 100% w/ TRAQ	Write	NA	14.696	Pounds for CE per in2	1	20	0	Holding	40304	40305
AV-11379	Space Pressure Control P-Gain (%/IWC)	Proportional gain for building static space pressure control.	StatiTrac Space Pressure Control configured.	Write	NA	6	%	0.5	500	0	Holding	40310	40311
AV-11380	Space Pressure Control Reset Time (Seconds)	Reset time for building static space pressure control.	StatiTrac Space Pressure Control configured.	Write	NA	2	NA	0.1	1000	0	Holding	40312	40313
AV-11381	Space Pressure Control Feed Forward Gain	Feed Forward gain for building static space pressure control.	StatiTrac Space Pressure Control configured.	Write	NA	80	%	0	100	0	Holding	40314	40315
AV-11382	Relief Air Damper Minimum Position Setpoint	Relief Air Damper Minimum Position Setpoint	StatiTrac Space Pressure Control configured.	Write	NA	20	%	0	100	0	Holding	40316	40317

Table 3. Analog values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Units	Low Limit	High Limit	Heartbeat Interval (seconds)	Modbus Register Type	Modbus Register 1	Modbus Register 2
AV-11383	Condenser Fan Capacity	Indicates the status of the total unit condenser fan capacity.		Read	NA		%	0	100	0	Input	30464	30465
AV-11388	Control State	Control State Status.		Read	NA		NA	0	100	0	Input	30466	30467

Table 4. Binary inputs

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-10105	FDD: Unit Economizing When It Should Not	Diagnostic: Unit Economizing When It Should Not	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true - Active	0	Input	33010
BI-10106	FDD: Unit Not Economizing When It Should	Diagnostic: Unit Not Economizing When It Should	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true - Active	0	Input	33011
BI-10107	FDD: Excessive Outdoor Air	Diagnostic: Excessive Air	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true - Active	0	Input	33012
BI-10108	FDD: Outdoor Air Damper Not Modulating	Diagnostic: Damper NOT Modulating	Outside Air is Configured as 0-100% Economizer	Read	NA	false = Inactive true - Active	0	Input	33013
BI-10121	Relief Fan Output Status	Indicates the status of the Relief fan output on the controller	Space Pressure Control is Configured	Read	NA	false = Off true = On	0	Input	33014
BI-10143	VAV Box Command	Indicates whether the associated VAV boxes should be AUTO or forced open	System Type is Configured as VVDA	Read	NA	false = Off true = On	0	Input	33015
BI-10170	Condensate Overflow Input	Indicates the status of the condensate overflow input	Condensate Overflow Switch is Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33017
BI-10172	Occupancy Input	Indicates the status of the wired occupancy input	Space Controller is Configured as Single Setpoint or Dual Setpoint Sensor with/without Outside Air Configured as 0-100% or System Type is Configured as VVDA	Read	Sensor Complex	false = Occupied true = Unoccupied	0	Input	33018
BI-10210	Equipment Shutdown Input Status	Indicates the status of the equipment shutdown function of the unit	Always	Read	NA	false = Equipment Run true = Equipment Shutdown	0	Input	33019
BI-10211	External Auto Stop Input Status	Indicates the status of the externally-wired auto/stop input	External Auto/Stop Configured as Installed	Read	NA	false = Stop true = Auto	1	Input	33020
BI-10219	Economizer Airside Status	Indicates the status of airside economizing	Outside Air is Configured as 0-100%	Read	NA	false = Inactive true - Active	0	Input	33021
BI-10226	Supply Fan Status	Indicates the status of the supply fan output of the controller	Always	Read	NA	false = Off true = On	0	Input	33022
BI-11100	Compressor 1 Command Status	Compressor 1 Run Command Status	Efficiency is not Configured as High	Read	NA	false = Off true = On	0	Input	33023
BI-11101	Circuit 1 LPC Status	Circuit 1 LPC Input Status	Always	Read	NA	false = Open true = Closed	0	Input	33024
BI-11102	Compressor 1 Proving Status	Status of input for monitoring Compressor 1 proof of operation circuit.	Always	Read	NA	false = Not Proved true = Proved	0	Input	33025
BI-11103	Compressor 2 Command Status	Compressor 2 Run Command Status	Multi-Compressor Systems	Read	NA	false = Off true = On	0	Input	33026
BI-11105	Compressor 2 Proving Status	Status of input for monitoring Compressor 2 proof of operation circuit.	Multi-Compressor Systems	Read	NA	false = Not Proved true = Proved	0	Input	33028
BI-11106	Compressor 3 Command Status	Compressor 3 Run Command Status	Always	Read	NA	false = Off true = On	0	Input	33029

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11108	Compressor 3 Proving Status	Status of input for monitoring Compressor 3 proof of operation circuit.	Always	Read	NA	false = Not Proved true = Proved	0	Input	33031
BI-11113	Demand Limit Input	Configurable, hardwired input to command Demand Limit	Demand Management Configured as Demand Limit	Read	Setpoint Simple BAS	false = Not Limited true = Limited	0	Input	33035
BI-11114	Demand Shed Input	Configurable, hardwired input to command Demand Shed	Demand Management Configured as Demand Shed	Read	NA	false = Off true = On	0	Input	33036
BI-11115	Phase Monitor Status	Status of local Phase Monitor Input	Always	Read	NA	false = Tripped true = Okay	0	Input	33037
BI-11116	Condenser Fan 1 Command Status	Condenser Fan 1 Run Command Status	Always	Read	NA	false = Off true = On	0	Input	33038
BI-11117	Condenser Fan 2 Command Status	Condenser Fan 2 Run Command Status	Dual Condenser Fan Systems	Read	NA	false = Off true = On	0	Input	33039
BI-11120	Thermostat G Input	Thermostat Fan Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33042
BI-11121	Thermostat W1/O Input	Thermostat Heat Stage 1 Request or Thermostat Heat/Cool Mode Request for HP	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33043
BI-11122	Thermostat W2 Input	Thermostat Heat Stage 2 Request (or Emergency Heat)	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33044
BI-11123	Thermostat X2 Input	Thermostat Emergency Heat Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33045
BI-11124	Thermostat Y1 Input	Thermostat Compressor Stage 1 Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33046
BI-11125	Thermostat Y2 Input	Thermostat Compressor Stage 2 Request	Space Controller Configured as Conventional TStat	Read	NA	false = Open true = Closed	0	Input	33047
BI-11127	FroStat Input	Status of Hardwired Frostat Input	FroStat Configured as Installed	Read	NA	false = Open true = Closed	1	Input	33049
BI-11128	Electric Heat Stage 1 Status	Status of Electric Heat Stage 1 command	One or more stages of Staged Electric Heat configured	Read	NA	false = Off true = On	0	Input	33050
BI-11129	Electric Heat Stage 2 Status	Status of Electric Heat Stage 2 command	Two or more stages of Staged Electric Heat configured	Read	NA	false = Off true = On	0	Input	33051
BI-11130	Clogged Filter Input	Status of Hardwired Clogged Filter Input	Clogged Filter Configured as Installed	Read	NA	false = Clean true = Dirty Filter	0	Input	33052
BI-11131	Condenser Fan 3 Command Status	Condenser Fan 3 Run Command Status	Always	Read	NA	false = Off true = On	0	Input	33053
BI-11133	Ventilation Override Exhaust Status	Hardwired input VOM Exhaust	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33054
BI-11134	Ventilation Override Pressurize Status	Hardwired input VOM Pressurize	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33055
BI-11135	Ventilation Override Purge Status	Hardwired input VOM Purge	Ventilation Override Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33056
BI-11143	Reheat Humidistat Input	Hardwired input to support dehumidification requests on hot gas reheat units.	Humidistat is Configured as Installed	Read	NA	false = Open true = Closed	0	Input	33059
BI-11144	Diagnostic: VFD Fault Supply Fan - 1	Diagnostic: VFD Fault Supply Fan - 1	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	false = Inactive true = Active	0	Input	33060

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11145	Diagnostic: VFD Supply Fan Ground Fault - 1	Diagnostic: VFD Supply Fan Ground Fault - 1	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	false = Inactive true = Active	0	Input	33061
BI-11147	Diagnostic: VFD Supply Fan Motor Current Overload - 1	Diagnostic: VFD Supply Fan Motor Current Overload - 1	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	false = Inactive true = Active	0	Input	33062
BI-11148	Diagnostic: VFD Supply Fan Short Circuit - 1	Diagnostic: VFD Supply Fan Short Circuit - 1	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	false = Inactive true = Active	0	Input	33063
BI-11149	Fan Mode - Air-Fi	Supply Fan Mode as set from a wireless sensor connected to the controller.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensors and System Type is Configured as VVZT or CVZT	Read	NA	false = Cycling true = Continuous	0	Input	33064
BI-11150	Occupancy Input - Air-Fi	Local Occupancy Input as detected by a wireless sensor connected to the controller.	Space Controller not Configured as Conventional TStat	Read	Sensor Complex	false = Occupied true = Unoccupied	0	Input	33065
BI-11151	Fan Mode Input	Supply Fan Mode as set from a wired sensor connected to the controller.	Space Controller not Configured as Conventional TStat	Read	NA	false = Cycling true = Continuous	0	Input	33066
BI-11154	Gas Heat Stage 1 Status	Status of gas heat Stage 1	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	false = Off true = On	0	Input	33069
BI-11155	Gas Heat Stage 2 Status	Status of gas heat Stage 2	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged	Read	NA	false = Off true = On	0	Input	33070
BI-11187	Reheat Pumpout Solenoid Status	Reheat Pumpout Solenoid IMC Command Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Off true = On	0	Input	33195
BI-11188	Reheat Valve 2 Fault Status	Reheat Valve 2 (Cooling) Fault Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	0	Input	33197
BI-11189	Reheat Valve 1 Fault Status	Reheat Valve 1 Fault Status	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	0	Input	33196
BI-11190	Reheat Valve 1 Calibration Status	Reheat Valve 1 Calibration Status from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	0	Input	33199
BI-11191	Reheat Valve 2 Calibration Status	Reheat Valve 2 (Cooling) Calibration Status from Stepper Motor Module	Hot Gas Reheat is Configured as Installed	Read	NA	false = Inactive true = Active	0	Input	33198
BI-11192	VAV Changeover Input	VAV Changeover Request	System Type is Configured as VVDA	Read	NA	false = Open true = Closed	0	Input	33093
BI-11194	Diagnostic: VFD Supply Fan Broken Belt - 1	Diagnostic: VFD Supply Fan Broken Belt - 1	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA	false = Inactive true = Active	0	Input	33210
BI-11195	Diagnostic: Gas Heat Unexpected Flame Manif 1 Burner 1	Modulating gas heat ignition controller, unexpected flame detected with gas valve is off	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33212
BI-11196	Diagnostic: Gas Heat Unexpected Flame Manif 1 Burner 2	Modulating gas heat ignition controller, unexpected flame detected with gas valve is off	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33213
BI-11197	Diagnostic: Modulating Gas Invalid ID Plug Manifold 1	Gas heat ignition controller detected an invalid or failed ID Plug	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33214

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11198	Diagnostic: Modulating Gas Heat Configuration Invalid	Unit controller configuration does not match gas heat ignition controller ID Plug configuration	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33215
BI-11199	Diagnostic: Gas Heat Weak Flame Manif 1 Burner 1	Weak flame or aged flame rod detected on burner 1	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33216
BI-11200	Diagnostic: Gas Heat Weak Flame Manif 1 Burner 2	Weak flame or aged flame rod detected on burner 2	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33217
BI-11201	Diagnostic: Gas Heat Insufficient Combustion Air	Gas heat is being derated/reduced due to insufficient combustion air	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33218
BI-11202	Diagnostic: Modulating Gas Primary Limit Open Manifold 1	Gas heat failure, primary limit detected open	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33219
BI-11203	Diagnostic: Modulating Gas Heat Open Fuse Manifold 1	Gas heat failure, fuse detected open	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33220
BI-11204	Diagnostic: Gas Heat Failed Ignition Manifold 1	Gas heat is locked out for one hour due to failed ignition attempts	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33221
BI-11205	Diagnostic: Modulating Gas Valve Failure Manifold 1	Modulating gas valve did not reach park or full On position	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33222
BI-11206	Diagnostic: Modulating Gas Control Board Failure Manifold 1	Ignition control board failure during startup self test	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33223
BI-11207	Diagnostic: Gas Heat Unexpected Flame Manifold 1	Staged gas heat ignition controller, unexpected flame detected when controller has gas valve off.	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33224
BI-11208	Diagnostic: Staged Gas Heat Invalid ID Plug Manifold 1	Gas heat ignition controller detected an invalid or failed ID Plug	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33225
BI-11209	Diagnostic: Staged Gas Heat Configuration Invalid Manifold 1	Unit controller configuration does not match gas heat ignition controller ID Plug configuration	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33226
BI-11210	Diagnostic: Staged Gas Heat Primary Limit Open Manifold 1	Gas heat failure, primary limit detected open	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33227
BI-11211	Diagnostic: Staged Gas Heat Open Fuse Manifold 1	Gas heat failure, fuse detected open	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33228
BI-11212	Diagnostic: Heat Failed Ignition Manifold 1	Gas heat is locked out for one hour due to failed ignition attempts	Staged Gas Heat is Configured	Read	NA	false = Disabled true = Enabled	0	Input	33229

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11213	Diagnostic: Staged Gas Heat Valve Failure Manifold 1	Gas valve state is low when it should be high, or high when it should low	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33230
BI-11214	Diagnostic: Gas Heat Inducer High Pressure Manifold 1	Gas heat inducer air pressure switch high is open when it is expected to be closed, or air pressure switch high is closed when inducer is off	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33231
BI-11215	Diagnostic: Gas Heat Valve Short Manifold 1	Gas heat valve shorted to 24V, ignition control failure or faulty wiring	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33232
BI-11216	Diagnostic: Gas Heat Flame Loss Manifold 1	Gas heat locked out due to flame loss occurring three times	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33233
BI-11217	Diagnostic: Staged Gas Heat Control Board Failure Manifold 1	Ignition control board failure during startup self test	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33234
BI-11218	Diagnostic: Gas Heat Start Failure Manifold 1	Ignition controller checks at startup failed or flame circuitry idle state is incorrect	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33235
BI-11219	Diagnostic: Gas Heat Unexpected Flame Manifold 2	Staged gas heat ignition controller, unexpected flame detected when controller has gas valve off.	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33236
BI-11220	Diagnostic: Staged Gas Heat Invalid ID Plug Manifold 2	Gas heat ignition controller detected an invalid or failed ID Plug	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33237
BI-11221	Diagnostic: Staged Gas Heat Configuration Invalid Manifold 2	Unit controller configuration does not match gas heat ignition controller ID Plug configuration	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33238
BI-11222	Diagnostic: Staged Gas Heat Primary Limit Open Manifold 2	Gas heat failure, primary limit detected open	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33239
BI-11223	Diagnostic: Staged Gas Heat Open Fuse Manifold 2	Gas heat failure, fuse detected open	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33240
BI-11224	Diagnostic: Heat Failed Ignition Manifold 2	Gas heat is locked out for one hour due to failed ignition attempts	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33241
BI-11225	Diagnostic: Staged Gas Heat Valve Failure Manifold 2	Gas valve state is low when it should be high, or high when it should low	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33242

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11226	Diagnostic: Gas Heat Inducer High Pressure Manifold 2	Gas heat inducer air pressure switch high is open when it is expected to be closed, or air pressure switch high is closed when inducer is off	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33243
BI-11227	Diagnostic: Gas Heat Valve Short Manifold 2	Gas heat valve shorted to 24V, ignition control failure or faulty wiring	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33244
BI-11228	Diagnostic: Gas Heat Flame Loss Manifold 2	Gas heat locked out due to flame loss occurring three times	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33245
BI-11229	Diagnostic: Staged Gas Heat Control Board Failure Manifold 2	Ignition control board failure during startup self test	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33246
BI-11230	Diagnostic: Gas Heat Start Failure Manifold 2	Ignition controller checks at startup failed or flame circuitry idle state is incorrect	Primary Heating Source is Configured as Heat Gas and Heat Output Type is High Heat (40 or 50 ton unit)	Read	NA	false = Inactive true = Active	0	Input	33247
BI-11231	Diagnostic: Gas Heat Lockout Manifold 1	Modulating gas heat ignition controller operation is locked out.	Modulating Gas Heat Configured	Read	NA	false = Inactive true = Active	0	Input	33248
BI-11231	Diagnostic: Gas Heat Lockout Manifold 1	Staged gas heat ignition controller is operation locked out on manifold 1	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33248
BI-11232	Diagnostic: Gas Heat Lockout Manifold 2	Staged gas heat ignition controller is operation locked out on manifold 2	800 MBH Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33249
BI-11233	Diagnostic: Gas Heat Flame Rod Aged Manifold 1	Weak flame or aged flame rod detected on manifold 1	Staged Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33250
BI-11234	Diagnostic: Gas Heat Flame Rod Aged Manifold 2	Weak flame or aged flame rod detected on manifold 1	800 MBH Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33251
BI-11235	Diagnostic: Gas Heat Failed Ignition Manifold 1 Burner 2	Modulating gas heat ignition controller burner 2 operation failed ignition.	Modulating gas heat configured	Read	NA	false = Inactive true = Active	0	Input	33252
BI-11236	Reheat LPC Status	Reheat LPC Status	Modulating Hot Gas Reheat on Voyager 3	Read	NA	false = Open true = Closed	0	Input	33257
BI-11241	Diagnostic: Gas Heat Air Pressure Sensor Reading Low	Modulating gas heat ignition controller, air pressure sensor is reading low	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33264
BI-11242	Diagnostic: Gas Heat Air Pressure Sensor Reading High	Modulating gas heat ignition controller, air pressure sensor is reading high, air pressure switch failed to close	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33265
BI-11243	Diagnostic: Gas Heat Loss of Inducer Motor Control	Modulating gas heat ignition controller, loss of inducer motor control	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33266
BI-11244	Diagnostic: Gas Heat Air Sensor Null Pressure Check	Modulating gas heat ignition controller, air sensor null pressure check out of tolerance	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33267

Table 4. Binary inputs (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Reverse Polarity	Modbus Register Type	Modbus Register 1
BI-11245	Diagnostic: Gas Heat Limited Low Fire	Modulating gas heat ignition controller, flame loss at low fire results in an auto-adjustment that limits the burner turn down during the rest of the current call for heat.	Modulating Gas Heat is Configured	Read	NA	false = Inactive true = Active	0	Input	33268
BI-11247	Diagnostic: Refrigerant Concentration Sensor A	Diagnostic point that is be active when Refrigerant Leak Sensor is in the alarm state. Diagnostic resets when the Refrigerant Leak Sensor alarm has reset (refrigerant concentration has reduced below the lower concentration threshold).	Refrigerant Type is R454B	Read	NA	false = Inactive true = Active	0	Input	33270
BI-11248	Refrigerant Leak Detection System Input	The Active state will be maintained for the duration of the alarm state.	Refrigerant Type is R454B	Read	NA	false = Inactive true = Active	0	Input	33271
BI-11249	Diagnostic: Refrigerant Leak Sensor Failure Sensor A	Diagnostic point that shall be active when the refrigerant sensor reports a fault (Fault Status is active).	Refrigerant Type is R454B	Read	NA	false = Inactive true = Active	0	Input	33272

Table 5. Binary values

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-10103	Heat Lockout Command	Normally used by the BMS to command the unit to prevent heating operation	Primary Heating Source Installed	Write	Setpoint Simple with Priority Array	Normal	false = Normal true = Locked out	Holding	43010
BV-10104	Supply Fan Configuration Command	Used to command the supply fan configuration as either cycling or continuous	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	NA	Continuous	false = Cycling true = Continuous	Holding	43011
BV-10106	Dehumidification Enable Command	Normally used by the BMS to disable unit dehumidification	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	Auto	false = Disabled true = Auto	Holding	43012
BV-10109	Filter Timer Reset	Command the unit to reset the accumulated filter run hours.	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43013
BV-10110	Reset Diagnostic	Used to initiate a request to reset any controller diagnostics	Always	Write	NA	Normal	false = Normal true = Reset	Holding	43014
BV-10111	Daytime Warmup Enable Command	Used to enable daytime warmup	System Type is Configured as VVDA and Primary Heat is Configured.	Write	Setpoint Simple with Priority Array	Disabled	false = Disabled true = Enabled	Holding	43015
BV-10112	Morning Warmup Enable Command	Normally used by the BMS to enable morning warmup	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA and Primary Heat is Installed	Write	Setpoint Simple with Priority Array	Disabled	false = Disabled true = Enabled	Holding	43016
BV-10113	Occupancy Input BAS	Normally used by the BMS to provide the requested occupancy state to the unit	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor with/ without Outside Air Configured as 0-100% or System Type is configured as VVDA	Write	Sensor Complex		false = Occupied true = Unoccupied	Holding	43017
BV-10115	Cooling Lockout BAS	Used to prevent all mechanical cooling	Always	Write	Setpoint Simple with Priority Array	Normal	false = Normal true = Locked out	Holding	43018
BV-10119	Supply Air Tempering Enable	Used to enable the supply (discharge) air tempering feature of the unit	Supply Air Tempering Configured as Enabled	Write	Setpoint Simple with Priority Array	Disable	false = Disabled true = Enabled	Holding	43019
BV-11100	Alarm Indicator Status	Indicates the state of the alarm output command from the controller	Always	Read	NA		false = Off true = On	Input	33090
BV-11100	Alarm Indicator Status	Indicates the state of the alarm output of the controller	Always	Read	NA		false = Off true = On	Input	33090
BV-11111	Compressor Lockout Status	One or more compressors are locked out with no diagnostic	Always	Read	NA		false = Normal true = Locked out	Input	33097

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11113	Unit Stop Command	Point used to force the unit into an immediate stop condition. Primary use-case is at local or mobile service tool UI.	Always	Write	NA	Auto	false = Auto true = Stop	Holding	43020
BV-11114	Supply Fan Speed Command Enable	Enables the unit to use Supply Fan Speed Command to override the units internally determined fan speed.	Always	Write	Setpoint Simple with Priority Array	Disabled	false = Disabled true = Enabled	Holding	43021
BV-11115	Cooling Capacity Setpoint Enable BAS	Commands the unit to use Cooling Capacity Setpoint BAS value to override internal algorithm's cooling capacity output request.	Always	Write	Setpoint Simple with Priority Array	Disabled	false = Disabled true = Enabled	Holding	43022
BV-11116	Heating Capacity Setpoint Enable BAS	Commands the unit to use Heating Capacity Setpoint BAS value to override internal algorithm's heating capacity output request.	Primary Heating Source Installed	Write	Setpoint Simple with Priority Array	Disabled	false = Disabled true = Enabled	Holding	43023
BV-11119	Supply Fan Compensation	Command the unit to utilize "Economizer Minimum Position Setpoint BAS" instead of its internally determined minimum position setpoint.	Outside Air is Configured as 0-100%	Write	Setpoint Simple with Priority Array	Enabled	false = Disabled true = Enabled	Holding	43026
BV-11121	Compressor 1 Run Time Reset	Compressor 1 Runtime Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43027
BV-11122	Compressor 1 Starts Reset	Compressor 1 Starts Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43028
BV-11123	Compressor 2 Run Time Reset	Compressor 2 Runtime Reset	Multi-Compressor Systems	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43029
BV-11124	Compressor 2 Starts Reset	Compressor 2 Starts Reset	Multi-Compressor Systems	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43030
BV-11125	Compressor 3 Run Time Reset	Compressor 3 Runtime Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43031
BV-11126	Compressor 3 Starts Reset	Compressor 3 Starts Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43032
BV-11127	Condenser Fan 1 Run Time Reset	Condenser Fan 1 Runtime Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43033
BV-11128	Condenser Fan 1 Starts Reset	Condenser Fan 1 Starts Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43034

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11129	Condenser Fan 2 Run Time Reset	Condenser Fan 2 Runtime Reset	Dual Condenser Fan Systems	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43035
BV-11130	Condenser Fan 2 Starts Reset	Condenser Fan 2 Starts Reset	Dual Condenser Fan Systems	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43036
BV-11131	Condenser Fan 3 Run Time Reset	Condenser Fan 3 Runtime Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43058
BV-11132	Condenser Fan 3 Starts Reset	Condenser Fan 3 Starts Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43059
BV-11133	Relief Fan Run Time Reset	Relief Fan Runtime Reset	Space Pressure Control is Configured	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43037
BV-11134	Relief Fan Starts Reset	Relief Fan Starts Reset	Space Pressure Control is Configured	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43038
BV-11135	Electric Heat Stage 1 Run Time Reset	Electric Heat Stage 1 Runtime Reset	One or more stages of Staged Electric Heat configured	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43039
BV-11136	Electric Heat Stage 1 Starts Reset	Electric Heat Stage 1 Starts Reset	One or more stages of Staged Electric Heat configured	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43040
BV-11137	Electric Heat Stage 2 Run Time Reset	Electric Heat Stage 2 Runtime Reset	Two or more stages of Staged Electric Heat configured	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43041
BV-11138	Electric Heat Stage 2 Starts Reset	Electric Heat Stage 2 Starts Reset	Two or more stages of Staged Electric Heat configured	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43042
BV-11139	Supply Fan Run Time Reset	Supply Fan Runtime Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43043
BV-11140	Supply Fan Starts Reset	Supply Fan Starts Reset	Always	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43044
BV-11141	Diagnostic: Supply Fan Failure	Diagnostic: Fan Failure	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA		false = Inactive true = Active	Input	33102
BV-11143	Diagnostic: Duct Static Pressure Limit Trip	Diagnostic: Duct Static Pressure Limit Trip	System Type is Configured as VVDA	Read	NA		false = Inactive true = Active	Input	33104
BV-11144	Diagnostic: Filter Change Required	Diagnostic: Dirty Filter	Clogged Filter Configured as Installed	Read	NA		false = Inactive true = Active	Input	33105
BV-11145	Diagnostic: Condensate Overflow Lockout	Condensate Drain Pan Overflow Lockout	Condensate Overflow Switch is Configured as Installed	Read	NA		false = Inactive true = Active	Input	33106
BV-11146	Diagnostic: FroStat Trip	Diagnostic: FroStat Trip	FroStat Configured as Installed	Read	NA		false = Inactive true = Active	Input	33107
BV-11155	Diagnostic: Comp 1 Proving Trip	Diagnostic: Comp 1 Proving Trip	Always	Read	NA		false = Inactive true = Active	Input	33110

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11156	Diagnostic: Comp 2 Proving Trip	Diagnostic: Comp 2 Proving Trip	Multi-Compressor Systems	Read	NA		false = Inactive true = Active	Input	33111
BV-11157	Diagnostic: Comp 3 Proving Trip	Diagnostic: Comp 3 Proving Trip	Always	Read	NA		false = Inactive true = Active	Input	33112
BV-11158	Diagnostic: Circuit 1 LPC Trip	Diagnostic: Circuit 1 LPC Trip	Always	Read	NA		false = Inactive true = Active	Input	33113
BV-11161	Diagnostic: Compressor 1 Contactor Failure	Diagnostic: Compressor 1 Contactor Fail Lockout	Always	Read	NA		false = Inactive true = Active	Input	33116
BV-11162	Diagnostic: Circuit 1 LPC Lockout	Diagnostic: Circuit 1 LPC Lockout	Always	Read	NA		false = Inactive true = Active	Input	33117
BV-11166	VVZT DAT Control Mode	Determines Auto or Manual mode for discharge air temperature control for VVZT applications.	System Type Configured as VVZT and Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	Auto	false = Auto true = Manual	Holding	43046
BV-11172	Diagnostic: Compressor 1 Proving Lockout	Diagnostic: Compressor 1 Proving Lockout	Always	Read	NA		false = Inactive true = Active	Input	33120
BV-11173	Occupancy Input Active	Occupancy Input being actively used for status determination.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor with/ without Outside Air Configured as 0-100% or System Type is configured as VVDA	Read	Sensor Complex		false = Occupied true = Unoccupied	Input	33121
BV-11174	Diagnostic: Compressor 2 Contactor Failure	Diagnostic: Compressor 2 Contactor Fail Lockout	Multi-Compressor Systems	Read	NA		false = Inactive true = Active	Input	33122
BV-11175	Diagnostic: Circuit 2 LPC Lockout	Diagnostic: Circuit 2 LPC Lockout	Multi-Compressor Systems	Read	NA		false = Inactive true = Active	Input	33123
BV-11176	Diagnostic: Compressor 2 Proving Lockout	Diagnostic: Compressor 2 Proving Lockout	Multi-Compressor Systems	Read	NA		false = Inactive true = Active	Input	33124
BV-11190	Diagnostic: Maintenance Required	Diagnostic: Maintenance Required	Always	Read	NA		false = Inactive true = Active	Input	33138
BV-11192	Diagnostic: Unit Communica-tions Failure	Diagnostic: Unit Communications Failure	Always	Read	NA		false = Inactive true = Active	Input	33140

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11199	Supply Fan Configuration Status	Indicates the supply fan configuration	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT	Read	NA		false = Cycling true = Continuous	Input	33141
BV-11200	Timed Override Timer Is Active	Indicates whether or not the timed override timer is active	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or System Type is Configured as VVDA	Read	NA		false = Inactive true = Active	Input	33142
BV-11201	Supply Fan Speed Command Enable - Active	Active value for Supply Fan Speed Command Enable point being used for control.	Always	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33143
BV-11202	Cooling Capacity Setpoint Enable BAS - Active	Active value for Cooling Capacity Setpoint Enable BAS point being used for control.	Always	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33144
BV-11203	Cooling Lockout BAS - Active	Active value for Cooling Lockout BAS point being used for control.	Always	Read	Setpoint Simple with Priority Array		false = Normal true = Locked out	Input	33145
BV-11204	Heating Capacity Setpoint Enable BAS - Active	Active value for Heating Capacity Setpoint Enable point being used for control.	Primary Heating Source Installed	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33146
BV-11205	Daytime Warmup Enable Command - Active	Active value for Daytime Warmup Enable Command point being used for control.	System Type is Configured as VVDA and Primary Heat is Configured.	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33147
BV-11208	Supply Fan Compensation - Active	Active value for Supply Fan Compensation point being used for control.	Outside Air is Configured as 0-100%	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33150
BV-11209	Dehumidification Enable Command - Active	Active value for Dehumidification Enable Command point being used for control.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array		false = Disabled true = Auto	Input	33151
BV-11211	VVZT DAT Control Mode - Active	Active value for VVZT DAT Control Mode point being used for control.	System Type Configured as VVZT and	Read	Setpoint Simple with Priority Array		false = Auto true = Manual	Input	33153
BV-11216	Heat Lockout Command - Active	Active value for Heat Lockout Command point being used for control.	Primary Heating Source Installed	Read	Setpoint Simple with Priority Array		false = Normal true = Locked out	Input	33156

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11217	Morning Warmup Enable Command - Active	Active value for Morning Warmup Enable Command point being used for control.	Primary Heating Source is Installed and Space Controller is Single Setpoint or Dual Setpoint Zone Sensor or System Type is Configured as VVDA	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33157
BV-11221	Supply Air Tempering Status	Indicates the status of the Supply Air Tempering function	Supply Air Tempering Configured as Enabled	Read	NA		false = Disabled true = Enabled	Input	33160
BV-11222	Supply Air Tempering Enable - Active	Active value for Supply Air Tempering Enable point being used for control.	Supply Air Tempering Configured as Enabled	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33161
BV-11224	Occupancy Input Arbitrator	Indicates the status of the arbitrated occupancy inputs	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor with/ without Outside Air Configured as 0-100% or System Type is configured as VVDA	Write	Sensor Complex	Occupied	false = Occupied true = Unoccupied	Holding	43049
BV-11226	Demand Limit Request BAS	Used to demand limit the unit remotely.	Demand Management Configured as Demand Limit	Write	Setpoint Simple BAS	Not Limited	false = Not Limited true = Limited	Holding	43050
BV-11227	Demand Limit Request - Active	Active Demand Limit Request value used by the equipment.	Demand Management Configured as Demand Limit	Read	Setpoint Simple BAS		false = Not Limited true = Limited	Input	33164
BV-11228	Diagnostic: Compressor 3 Contactor Failure	Diagnostic: Compressor 3 Contactor Fail Lockout	Always	Read	NA		false = Inactive true = Active	Input	33165
BV-11229	Diagnostic: Compressor 3 Proving Lockout	Diagnostic: Compressor 3 Proving Lockout	Always	Read	NA		false = Inactive true = Active	Input	33166
BV-11231	Daytime Warmup Active	Indicates if daytime warmup is currently active	System Type is Configured as VVDA and Primary Heat is Configured.	Read	NA		false = Inactive true = Active	Input	33168
BV-11232	Morning Warmup Active	Indicates if morning warmup is active	Primary Heating Source is Installed and Space Controller is Single Setpoint or Dual Setpoint Zone Sensor or System Type is Configured as VVDA	Read	NA		false = Inactive true = Active	Input	33169
BV-11235	Occupied Standby Supply Fan Configuration Command	Used to select the Occupied Standby Fan Mode setting	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Write	Setpoint Simple with Priority Array	Cycling	false = Cycling true = Continuous	Holding	43053

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11236	Occupied Standby Supply Fan Configuration Command - Active	Indicates the Occupied Standby Fan Mode setting	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	NA		false = Cycling true = Continuous	Input	33170
BV-11248	Diagnostic: High Condensate Level Detected	Diagnostic: High Condensate Level Detected	Condensate Overflow Switch is Configured as Installed	Read	NA		false = Inactive true = Active	Input	33178
BV-11249	Diagnostic: Morning Warmup Mode Exceeded 120 Minutes	Diagnostic: Morning Warmup Mode Exceeded 120 Minutes	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA and Primary Heat is Installed	Read	NA		false = Inactive true = Active	Input	33179
BV-11250	Diagnostic: Pre Cool Mode Exceeded 120 Minutes	Diagnostic: Precool Mode Exceeded 120 Minutes	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA	Read	NA		false = Inactive true = Active	Input	33193
BV-11251	Diagnostic: Night Purge Mode Exceeded 120 Minutes	Diagnostic: Night Purge Mode Exceeded 120 Minutes	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA	Read	NA		false = Inactive true = Active	Input	33194
BV-11252	Diagnostic: Circuit 3 LPC Lockout	Diagnostic: Circuit 3 LPC Lockout	Always	Read	NA		false = Inactive true = Active	Input	33058
BV-11255	Dehumidification Status	Active state showing whether dehumidification is active or inactive.	Hot Gas Reheat is Configured as Installed	Read	NA		false = Inactive true = Active	Input	33203
BV-11256	Pre Cool Enable Command	Normally used by the BMS to enable pre Cool	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA	Write	Setpoint Simple with Priority Array	Disabled	false = Disabled true = Enabled	Holding	43061
BV-11257	Pre Cool Enable Command - Active	Active value for Pre Cool Enable Command point being used for control.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33201
BV-11258	Pre Cool Active	Indicates if Pre Cool is active	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is configured as VVDA	Read	NA		false = Inactive true = Active	Input	33202

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11259	Occupied Dehumidification Enable BAS	Setting for unit to use "Enable" or "Disable" for Occupied Dehumidification Control	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	Enabled	false = Disabled true = Enabled	Holding	43062
BV-11260	Occupied Dehumidification Enable BAS - Active	Active value for Dehumidification Enable BAS point being used for control.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33204
BV-11261	Unoccupied Dehumidification Enable BAS	Setting for unit to use "Enable" or "Disable" for Occupied Dehumidification Control	Hot Gas Reheat is Configured as Installed	Write	Setpoint Simple with Priority Array	Enabled	false = Disabled true = Enabled	Holding	43063
BV-11262	Unoccupied Dehumidification Enable BAS - Active	Active value for Dehumidification Enable BAS point being used for control.	Hot Gas Reheat is Configured as Installed	Read	Setpoint Simple with Priority Array		false = Disabled true = Enabled	Input	33205
BV-11263	Diagnostic: Duct Static Pressure Limit Lockout	Diagnostic: Duct Static Pressure Limit Lockout	System Type is configured as VVDA	Read	NA		false = Inactive true = Active	Input	33207
BV-11265	Diagnostic: Duct Static Pressure Local Lockout	Diagnostic: Duct Static Pressure Local Lockout	System Type is configured as VVDA	Read	NA		false = Inactive true = Active	Input	33209
BV-11266	Gas Heat Manifold 1 Burner 1 Run Time Reset	Gas heat runtime reset	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43064
BV-11267	Gas Heat Manifold 1 Burner 1 Starts Reset	Gas heat starts counter reset	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43065
BV-11268	Gas Heat Manifold 1 Burner 2 Run Time Reset	Gas heat runtime reset	Gas Heat is installed with a second gas valve on manifold 1.	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43066
BV-11269	Gas Heat Manifold 1 Burner 2 Starts Reset	Gas heat starts reset counter	Gas Heat is installed with a second gas valve on manifold 1.	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43067
BV-11270	Gas Heat Manifold 2 Burner 1 Run Time Reset	Gas heat runtime reset	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating (800 MBH)	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43068
BV-11271	Gas Heat Manifold 2 Burner 1 Starts Reset	Gas heat starts counter reset	Primary Heating Source is Configured as Gas and Primary Heating Type is Staged or Modulating (800 MBH)	Write	NA	Accumulating	false = Accumulating true = Reset	Holding	43069

Table 5. Binary values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
BV-11276	Diagnostic: Supply Fan Bypass Enable	Diagnostic: Supply Fan VFD Bypass Enable	Unit has Supply Fan VFD Bypass feature installed.	Read	NA		false = Inactive true = Active	Input	33211
BV-11277	Diagnostic: Reheat Valve 1 Fault	Diagnostic: Reheat Valve 1 Fault	Hot Gas Reheat is Configured as Installed	Read	NA		false = Inactive true = Active	Input	33253
BV-11278	Diagnostic: Reheat Valve 2 Fault	Diagnostic: Reheat Valve 2 Fault	Hot Gas Reheat is Configured as Installed	Read	NA		false = Inactive true = Active	Input	33254
BV-11279	Diagnostic: Outdoor Airflow Pressure Calibration Limit	Diagnostic: Outdoor Airflow Pressure Calibration Limit (Traq)	Economizer with Fresh Air Measurement and Control (Traq) Installed.	Read	NA		false = Inactive true = Active	Input	33255
BV-11280	Diagnostic: Space Pressure Calibration Limit	Diagnostic: Space Pressure Calibration Limit (Statitrac)	Space Pressure Control (Statitrac) is configured.	Read	NA		false = Inactive true = Active	Input	33256
BV-11281	Diagnostic: Reheat LPC Trip	Diagnostic: Reheat LPC Trip	Modulating Hot Gas Reheat on Voyager 3	Read	NA		false = Inactive true = Active	Input	33258
BV-11282	Diagnostic: Reheat LPC Lockout	Diagnostic: Reheat LPC Lockout	Modulating Hot Gas Reheat on Voyager 3	Read	NA		false = Inactive true = Active	Input	33259
BV-11283	Refrigerant Mitigation Active	Active when the Symbio 700 controller is in a mitigation state for any reason.	Refrigerant Type is R454B	Read	NA		false = Inactive true = Active	Input	33273

Table 6. Multi-state inputs

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Object States	Modbus Register Type	Modbus Register 1
MI-10101	Heat Cool Mode Status	Indicates the current heat cool mode of the controller	Always	Read	NA	1 = Auto 2 = Heat 3 = Morning Warm-up 4 = Cool 5 = Night Purge 6 = Pre Cool 7 = Off 8 = Test 9 = Emergency Heat 10 = Fan Only 11 = Free Cool 12 = Ice-Making 13 = Max Heat 14 = Economizer 15 = Dehumidify 16 = Calibrate	Input	32010
MI-10144	Econo-mizer System Status	Indicates the operating state of the airside economizer system.	Always	Read	NA	1 = Disabled 2 = Enabled 3 = Not Present	Input	32012
MI-11100	System Mode Switch Air-Fi	Indicates the status of the wireless system mode switch connected to the controller.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Local Only	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency Heat	Input	32013
MI-11101	Timed Override Air-Fi	Indicates the status of the Timed Override wireless input.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Read	Setpoint Simple BAS	1 = Idle 2 = On 3 = Cancel	Input	32014
MI-11102	System Mode Switch Input	Indicates the status of the wired system mode switch connected to the controller.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Local Only	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency Heat	Input	32015
MI-11103	Timed Override Input	Indicates the status of the Timed Override wired input.	Space Controller Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Read	Setpoint Simple BAS	1 = Idle 2 = On 3 = Cancel	Input	32016

Table 7. Multi-state values

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-10101	Cooling Reset Type Status	Indicates the type of cooling reset used by the controller	System Type is Configured as VVDA	Read	NA		1 = None 2 = Outdoor Air 3 = Zone 4 = Return Air	Input	32047
MV-10102	Emergency Override BAS	Used to command the unit into an emergency mode of operation	Always	Write	Setpoint Simple with Priority Array	Normal	1 = Normal 2 = Pressurize 3 = Depressurize 4 = Purge 5 = Shutdown 6 = Fire	Holding	42010
MV-10103	Economizer Airside Enable BAS	Normally provided by the BAS to enable airside economizing	Outside Air is Configured as 0-100% Economizer	Write	Setpoint Simple with Priority Array	Auto	1 = Disabled 2 = Enabled 3 = Auto	Holding	42011
MV-10104	Heat Cool Mode Request	Used to command the unit into a heat/cool mode	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	Auto	1 = Auto 2 = Heat 3 = Morning Warm-up 4 = Cool 5 = Night Purge 6 = Pre Cool 7 = Off 8 = Test 9 = Emergency Heat 10 = Fan Only 11 = Free Cool 12 = Ice-Making 13 = Max Heat 14 = Economizer 15 = Dehumidify 16 = Calibrate	Holding	42012
MV-10106	Occupancy Request	Normally used by the BMS to command the unit into an occupancy mode	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVDA	Write	Setpoint Simple with Priority Array	Auto	1 = Occupied 2 = Unoccupied 3 = Occupied Bypass 4 = Occupied Standby 5 = Auto	Holding	42013
MV-10110	Timed Override Request	Used to request a temporary timed override during unoccupied	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VZT or CVZT or System Type is Configured as VVDA	Write	Setpoint Simple BAS	Idle	1 = Idle 2 = On 3 = Cancel	Holding	42014
MV-11100	Arbitration Method Request	Setting for unit to use "Enable External/BAS Control" or "Standalone Control" data prioritization.	Always	Write	NA	Enable External/BAS Control	1 = Enable External/ BAS Control 2 = Standalone Control	Holding	42015
MV-11101	Customer Options Module Communication Status	Communication Status of the Customer Options Module	Customer Options Module Installed and In-Use	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32017

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11102	Economizer Type	Indicates the general description of the type of economizer system	Always	Read	NA		1 = None 2 = 2 Position Ventilation 3 = Modulation Economizer 4 = 2 Position Ventilation/Waterside Economizer 5 = Waterside Economizer 6 = Airside/Waterside Economizer 7 = TRAQ Damper 8 = Airside Economizer and TRAQ Damper/ Sensor 9 = Waterside Economizer and TRAQ Damper/Sensor 10 = Airside/Waterside Economizer and TRAQ Damper/Sensor	Input	32018
MV-11103	Fresh Air Options Module Communication Status	Communication Status of the Fresh Air Options Module	Fresh Air Options Module Installed and In-Use	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32019
MV-11105	Indoor Options Module Communication Status	Communication Status of the Indoor Options Module	Indoor Options Module Installed and In-Use	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32021
MV-11106	On-Board I/O Communication Status	Communication Status of the On-Board Inputs and Outputs	Always	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32022
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5	Holding	42017

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Reheat 9 = Open Reheat Valve 1 10 = Close Reheat Valve 1 11 = Refrigerant Recovery	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Reheat 11 = Open Reheat Valve 1 12 = Close Reheat Valve 1 13 = Refrigerant Recovery	Holding	42017

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Reheat 12 = Open Reheat Valve 1 13 = Close Reheat Valve 1 14 = Refrigerant Recovery	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Heat 1 9 = Heat 2	Holding	42017

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On 3 = Cool 1 4 = Cool 2 5 = Cool 3 6 = Cool 4 7 = Cool 5 8 = Reheat 9 = Heat 1 10 = Heat 2 11 = Open Reheat Valve 1 12 = Close Reheat Valve 1 13 = Refrigerant Recovery	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Heat 1 11 = Heat 2	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation High Fan Speed 5 = Cool 1 6 = Cool 2 7 = Cool 3 8 = Cool 4 9 = Cool 5 10 = Reheat 11 = Heat 1 12 = Heat 2 13 = Open Reheat Valve 1 14 = Close Reheat Valve 1 15 = Refrigerant Recovery	Holding	42017

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Heat 1 12 = Heat 2	Holding	42017
MV-11110	Service Test State Request	Point to request the unit into a service test step.	Always	Write	NA	Inactive	1 = Inactive 2 = Fan On Econ Open 3 = Ventilation Low Fan Speed 4 = Ventilation Mid Fan Speed 5 = Ventilation High Fan Speed 6 = Cool 1 7 = Cool 2 8 = Cool 3 9 = Cool 4 10 = Cool 5 11 = Reheat 12 = Heat 1 13 = Heat 2 14 = Open Reheat Valve 1 15 = Close Reheat Valve 1 16 = Refrigerant Recovery	Holding	42017
MV-11111	Cooling Reset Type	Selectable discharge air cooling reset type based on outdoor, space, or return air temperature.	System Type is Configured as VVDA	Write	NA	None	1 = None 2 = Outdoor Air 3 = Zone 4 = Return Air	Holding	42018
MV-11112	System Mode Switch Local	Indicates the status of the system mode switch connected to the controller as arbitrated between wired and wireless sources.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT	Read	Local Only	Auto	1 = Off 2 = Auto 3 = Cool 4 = Heat 5 = Emergency Heat	Input	32025

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11113	Timed Override Status	Indicates the status of the timed override request	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor and System Type is Configured as VVZT or CVZT or System Type is Configured as VVDA	Read	Setpoint Simple BAS		1 = Idle 2 = On 3 = Cancel	Input	32026
MV-11114	Trane Unit Type	Indicates the equipment type according to the manufacturer's classification	Always	Read	NA		1 = 1 Heat/1 Cool 2 = Heat Pump 3 = Blower Coil 4 = Unit Ventilator 5 = Fan Coil 6 = Rooftop 7 = Air Handler 8 = Vertical Self Contained 9 = Unitary 10 = VAV Box	Input	32027
MV-11115	Unit Stop Source	Source of the stop command that turned off the equipment.	Always	Read	NA		1 = None 2 = Emergency Stop 3 = Drain Pan Overflow 4 = Local HI 5 = Remote HI 6 = External Auto Stop 7 = Phase Monitor 8 = Emergency Override 9 = Supply Fan Fault 10 = Equipment Shutdown Input 11 = Smoke Detector 12 = Equipment Limit 13 = Sensor Failure	Input	32028
MV-11116	Emergency Override BAS - Active	Active value for Emergency Override BAS point being used for control.	Always	Read	Setpoint Simple with Priority Array		1 = Normal 2 = Pressurize 3 = Depressurize 4 = Purge 5 = Shutdown 6 = Fire	Input	32029
MV-11118	Economizer Decision Method	Used to indicate the method of enabling airside economizing	Outside Air is configured as 0-100%	Read	NA		1 = Absolute Temperature 2 = Relative Temperature 3 = Absolute Enthalpy 4 = Comparative Enthalpy 5 = Differential Dry Bulb	Input	32030

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11119	Refrigerant Type	Indicates the type of refrigerant used in the equipment	Always	Read	NA		1 = R-11 2 = R-12 3 = R-22 4 = R-123 5 = R-134a 6 = R-407C 7 = R-410A 8 = R-113 9 = R-114 10 = R-500 11 = R-502 12 = R-404A 13 = R-513A 14 = R-1233zd(E) 15 = R-514A 16 = R-1234ze(E) 17 = R-454B	Input	32031
MV-11120	Economizer Airside Enable BAS - Active	Active value for Economizer Airside Enable BAS point being used for control.	Outside Air is configured as 0-100%	Read	Setpoint Simple with Priority Array		1 = Disabled 2 = Enabled 3 = Auto	Input	32032
MV-11121	Heat Cool Mode Request - Active	Active value for Heat Cool Mode Request point being used for control.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor or System Type is Configured as VVDA	Read	Setpoint Simple with Priority Array		1 = Auto 2 = Heat 3 = Morning Warm-up 4 = Cool 5 = Night Purge 6 = Pre Cool 7 = Off 8 = Test 9 = Emergency Heat 10 = Fan Only 11 = Free Cool 12 = Ice-Making 13 = Max Heat 14 = Economizer 15 = Dehumidify 16 = Calibrate	Input	32033
MV-11123	Occupancy Status	Indicates the active occupancy mode of the controller	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	NA		1 = Occupied 2 = Unoccupied 3 = Occupied Bypass 4 = Occupied Standby 5 = Auto	Input	32035
MV-11124	Supply Fan VFD Communication Status	Communication Status of the Modbus Supply Fan VFD	Indoor Fan Type Configured as Multi Speed or Variable Speed	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32036

Table 7. Multi-state values (continued)

Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11125	Occupancy Request Active	Active Occupancy mode being requested of the unit.	Space Controller is Configured as Single Setpoint or Dual Setpoint Zone Sensor	Read	Setpoint Simple with Priority Array		1 = Occupied 2 = Unoccupied 3 = Occupied Bypass 4 = Occupied Standby 5 = Auto	Input	32037
MV-11128	Gas Heat Ignition Module 1 Communication Status	Communication Status of the Modbus Gas Heat Ignition Module 1	Always	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32043
MV-11128	Gas Heat Ignition Module 1 Communication Status	Communication Status of the Modbus Gas Heat Ignition Module 1	Always	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32043
MV-11128	Gas Heat Ignition Module 1 Communication Status	Communication Status of the Modbus Gas Heat Ignition Module 1	Always	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32043
MV-11129	Gas Heat Ignition Module 2 Communication Status	Communication Status of the Modbus Gas Heat Ignition Module 2	800 MBH Gas Heat is Configured	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32044
MV-11130	Emergency Override Status	Indicates the active Emergency Override mode in control of the equipment	Always	Read	NA		1 = Normal 2 = Pressurize 3 = Depressurize 4 = Purge 5 = Shutdown 6 = Fire	Input	32042
MV-11133	Stepper Motor Communication Status	Communication Status of the Stepper Motor Inputs and Outputs	Stepper Motor Module Installed and In-Use	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32045
MV-11136	Heating Reset Type	Selectable discharge air heating reset type of outdoor, space, or return air temperature.	System Type is Configured as VVDA and Heat Installed	Write	NA	None	1 = None 2 = Outdoor air 3 = Zone 4 = Return Air	Holding	42021

Table 7. Multi-state values (continued)

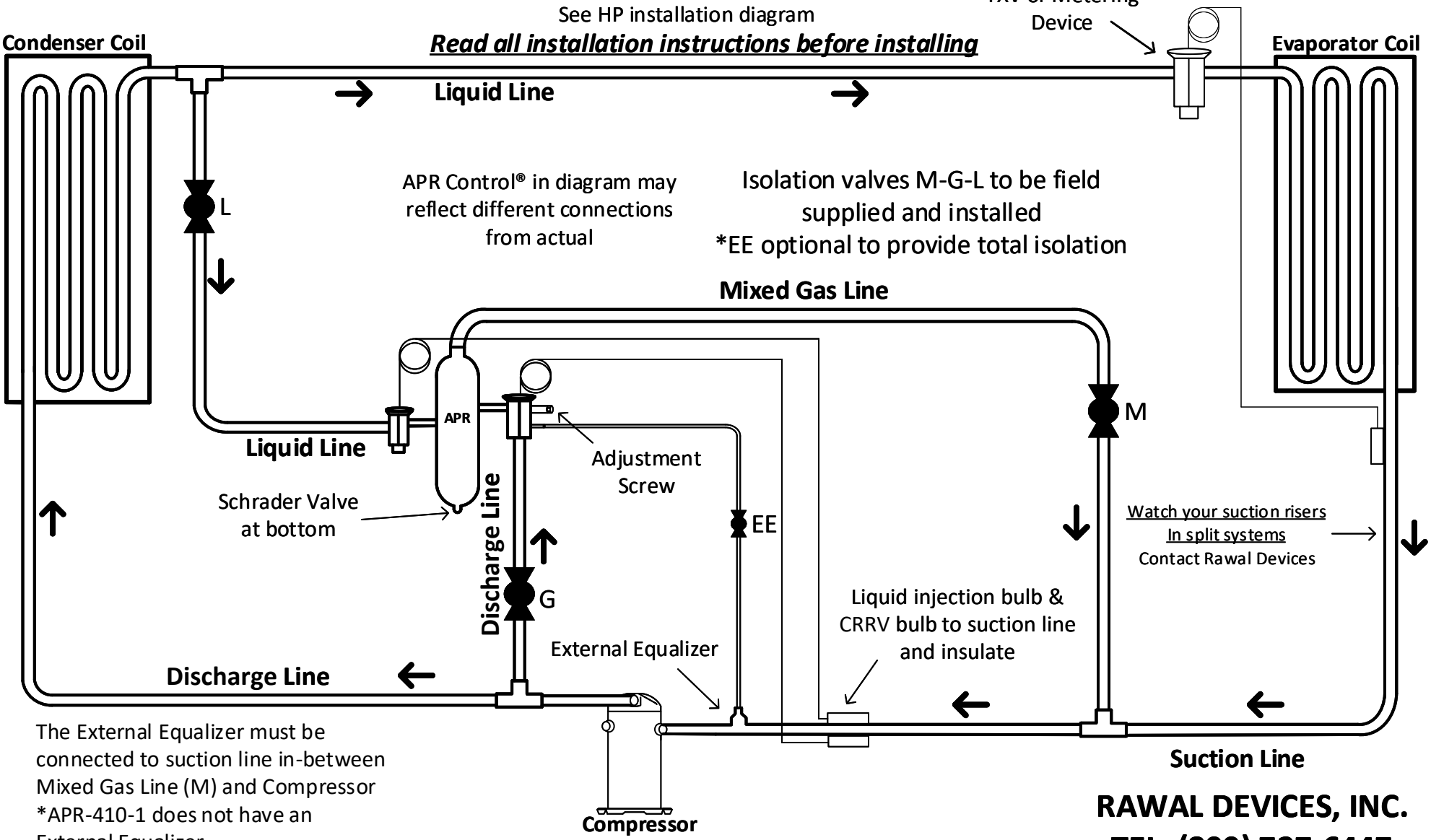
Object Identifier	Object Name	Description	When Exists	Read / Write	Arbitration Pattern	Relinquish Default	Object States	Modbus Register Type	Modbus Register 1
MV-11137	Heating Reset Type Status	Discharge air heating reset type status	System Type is Configured as VVDA	Read	NA		1 = None 2 = Outdoor air 3 = Zone 4 = Return Air	Input	32048
MV-11139	Refrigerant Leak Sensor Communication Status Sensor A	Communication status of the Modbus communicating refrigerant detection system	Refrigerant Type is R-454B	Read	NA		1 = Not Configured 2 = Not Communicating 3 = Communicating 4 = Communicating - Not Configured	Input	32052

FREE 20-MINUTE ONLINE PRE-INSTALLATION TRAINING AVAILABLE

APR CONTROL® FOR R-410A IN SINGLE EVAPORATOR MODE

Heat Pump(HP) installation will be different.
See HP installation diagram

Read all installation instructions before installing



The External Equalizer must be connected to suction line in-between Mixed Gas Line (M) and Compressor
*APR-410-1 does not have an External Equalizer

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*Drawing for illustrative purposes only
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 DOC#410A-SEM-01

APR CONTROL - R-410A - SPEC. & DIMENSION SHEET

			Unit Dimensions			Connection Dimensions (OD)				
Model #	Modulation Capacity		X	Y	Z	EE	L	M	G	Application
APR-410-1	1.5 tons		8.5"	8"	4"	N/A	3/8"	5/8"	3/8"	G - BOTTOM CONNECTION
APR-410-2	2.5 tons		8.5"	8"	4"	1/4"	3/8"	5/8"	3/8"	G - BOTTOM CONNECTION
APR-410-3	3.5 tons		8.5"	8"	4"	1/4"	3/8"	5/8"	3/8"	G - BOTTOM CONNECTION
APR-410-6	6.5 tons		9.5"	10"	4.5"	1/4"	3/8"	5/8"	5/8"	G - SIDE CONNECTION
APR-410-10	10 tons		12"	11"	5.5"	1/4"	3/8"	7/8"	7/8"	G - SIDE CONNECTION

The APR Control Compression Ratio Reduction (CRR) Valve should be set to begin opening at approximately *118 PSI* ~40°F

- SUPPLY BALL SHUT-OFF VALVES FOR ALL CONNECTIONS
- SUPPLY TEE FOR SUCTION LINE CONNECTION
- SUPPLY TEE FOR DISCHARGE LINE CONNECTION
- SUPPLY TEE FOR LIQUID LINE CONNECTION

APR Control Selection:

System or Stage size is reduced by the Modulation Capacity listed above

Oil entrainment in suction line must be addressed

Please refer to Rawal Devices Fast Selection Chart or Consult with Rawal Devices Engineers

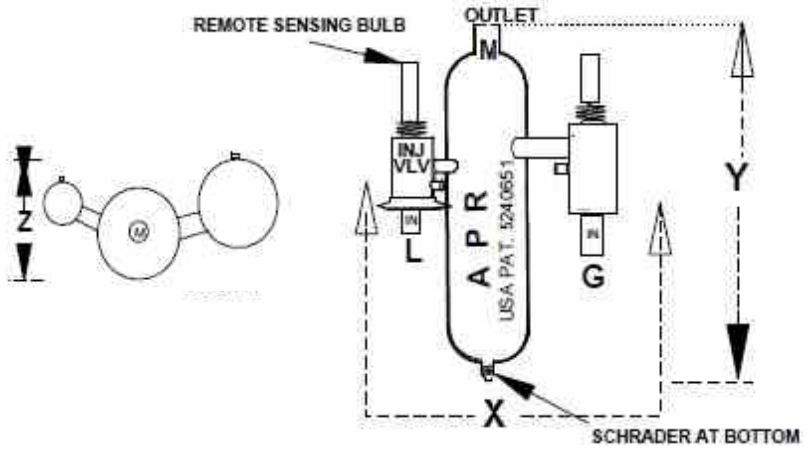
WHEN REQUIRED, SUPPLY TEE FOR EE CONNECTIONS EXTERNAL EQUILIZERS - EE - HAVE 1/4" SWEAT CONNECTION TEE EE CONNECTIONS INTO SUCTION LINE

BOTH SENSING BULBS ON LIQ INJ VALVE AND CRR VALVE MUST BE ATTACHED AND INSULATED TO SUCTION LINE BETWEEN TEE TO APR CONTROL DISCHARGE COMING FROM TOP OF THE CHAMBER AND COMPRESSOR

ONLY WHEN NECESSARY:

REMOVE CAPS FROM ADJUSTMENT STEMS PRIOR TO ADJUSTING

TO ADJUST VALVES WHEN FACING ADJUSTING STEM CLOCKWISE DECREASES PRESSURE / TEMPERATURE. COUNTER-CLOCKWISE INCREASES PRESSURE / TEMPERATURE.



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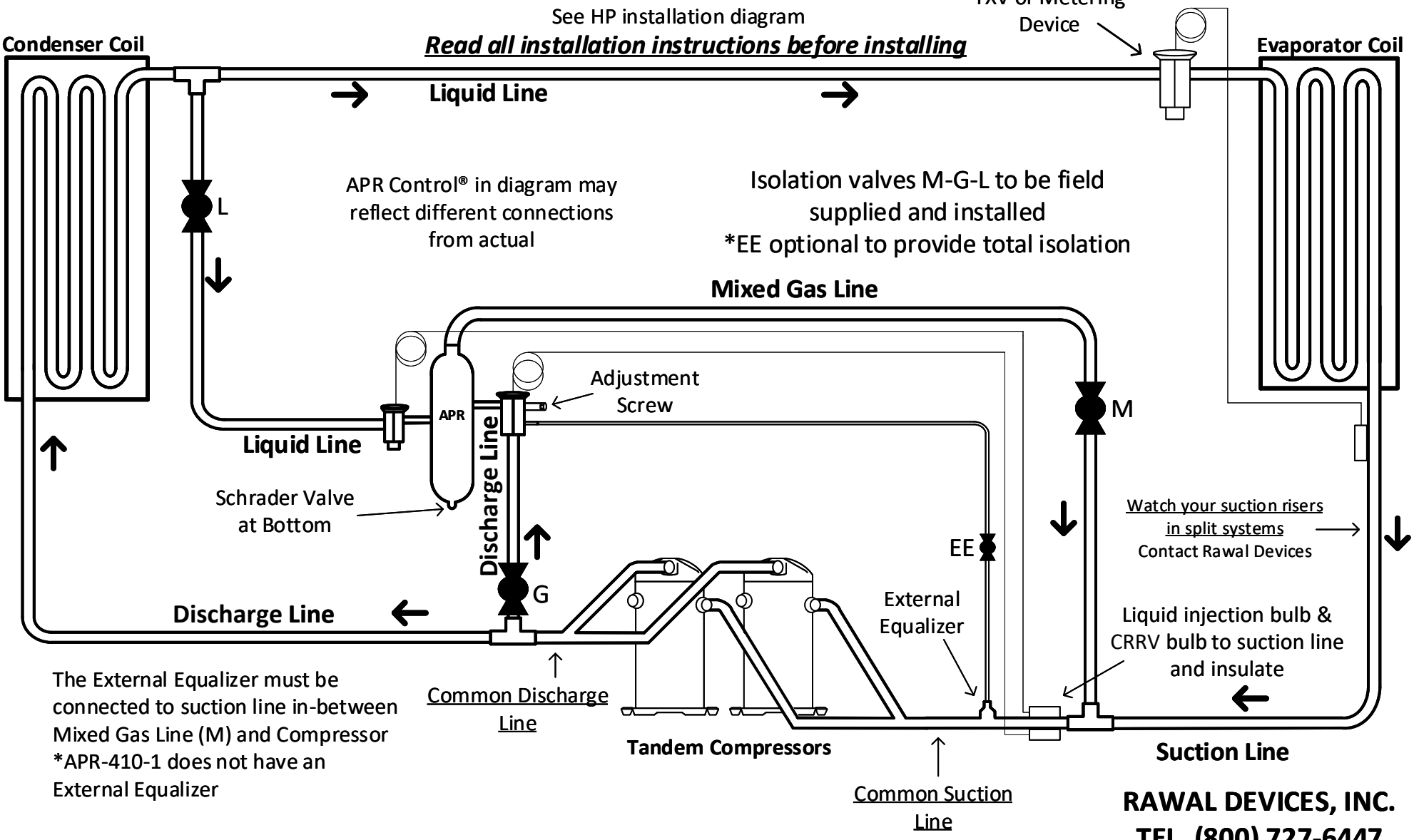
FREE 20-MINUTE ONLINE PRE-INSTALLATION TRAINING AVAILABLE

APR CONTROL® FOR R-410A IN TANDEM COMPRESSOR CONFIGURATION

Heat Pump(HP) Installation will be different.
See HP installation diagram

Read all installation instructions before installing



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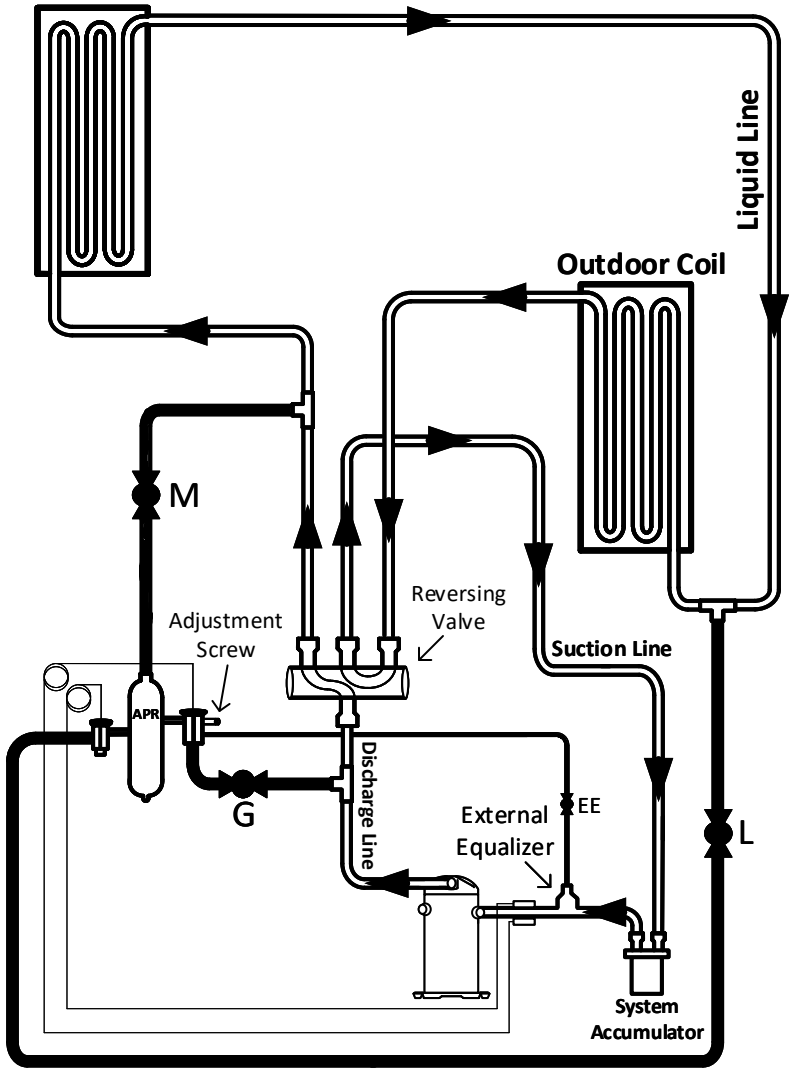
FREE 20-MINUTE ONLINE PRE-INSTALLATION TRAINING AVAILABLE

APR CONTROL® FOR R-410A IN A HEAT PUMP SYSTEM

Read all installation instructions before installing

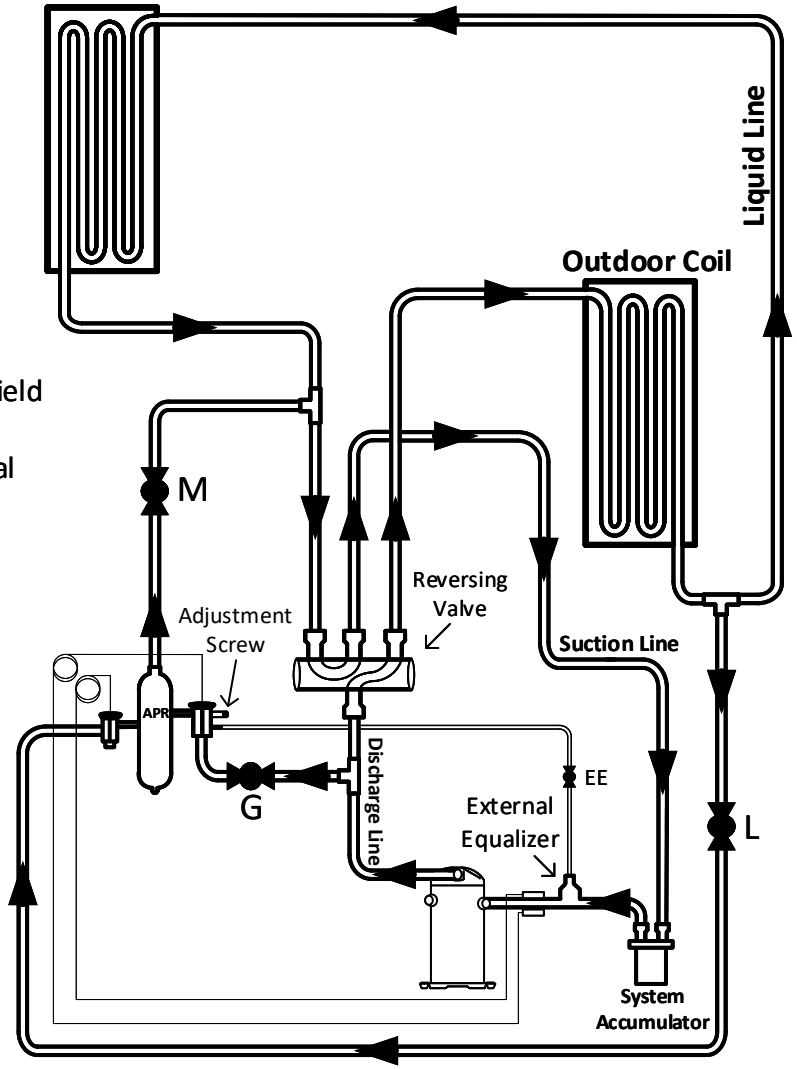
Heating Mode
APR Control® Inactive



Isolation valves M-G-L to be field supplied and installed
*EE optional to provide total isolation

APR Control® active in cooling mode only

Cooling Mode
APR Control® Active



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APR Control Installation Instructions APR-410A

If possible pump down system and lock existing refrigerant in the receiver or condenser. If you cannot secure existing system charge, use proper refrigerant recovery methods to save and store the refrigerant charge. Before installing the APR Control, make sure your system is clean –if not, or in doubt a new filter / strainer must be used to protect the APR Control to isolate and remove the system contaminants. Particles of dirt can settle on the valve seat of the Compression Ratio Reduction (CRR) Valve and prevent it from closing, leading to possible compressor overheating and system damage.

After you install the APR Control, use standard evacuation procedures and follow the directions listed below. All connections between the system and the APR Control can be made in the condensing section. The APR Control may be mounted outside the condensing unit housing if space or access are a problem. The APR Control should be mounted vertical, with discharge from the desuperheating chamber UP or an orientation so chamber discharge is above Schrader valve at bottom. Manual Shut off valves to isolate the APR Control connections to liquid, discharge and suction lines ***are to be field supplied and installed***. Functionally, isolation valves will assist in charging the systems and troubleshooting should difficulty with set-up arise.

Connections to the refrigerant circuit can be on horizontal or vertical pipes, but discharge from the APR Control desuperheating chamber to the suction line must be into the top of the suction line to prevent oil from draining into the APR Control chamber.

All connections to the APR Control should be made with Stay-Silv® 15 or equivalent Brazing Alloy. Keep in mind when brazing that the exterior of the APR Control is stainless while the interior is copper clad.

Always use plenty of wet rags or heat absorbing paste on the valves and aim your flame away from valve bodies to prevent possible damage.

1) Tee in a line shut off valve (G) at the compressor discharge line, (size to APR hot gas valve inlet) where strainer is supplied, install it in the APR hot gas inlet only.
2) Tee in a line shut off valve (M) at the suction line prior to compressor, (size to APR mixed gas discharge outlet at top of desuperheating chamber).
3) Tee in a line shut off valve (L) at the liquid line near the condenser coil or receiver outlet, size to APR injection valve inlet.
4) Mount APR Control securely in the condensing unit.
5) Connect discharge line from valve (G) to the inlet on CRR Valve connected to APR Control. CRR valve inlet marked with Red Discharge Line sticker.
6) Connect suction from the line valve (M) to the mixed gas outlet on top of APR Control desuperheating chamber.
7) Connect liquid from the line valve (L) to the liquid injection valve (TXV) inlet on APR Control.
8) External equalizers on sides of APR Control Compression Ratio Reduction valve should be connected to the suction line between mixed gas discharge connection from the APR Control and compressor inlet.
9) The injection valve bulb and CRR Valve bulb *must* be mounted, and insulated, to the suction line between compressor and mixed gas discharge connection from the APR Control.
10) Leak test system and evacuate. Before charging system close all APR Control line valves, do not leave the APR Control open when charging the system. No additional charge is required for the APR Control to operate.
11) For R-410a High Temperature Systems – **Compression Ratio Reduction Valve of the APR Control has been set to open at about 118 psig (40° F)**. See adjustment sheet if you require further instructions.
12) **APR Control Liquid Injection valve is set to open at around 65° F (or 20° superheat) to protect the compressor from overheating**.

***Please refer to the Spec. & Dimension sheet for connection sizes for specific model APR Control.**

***Adjustment settings to all APR-410A valves need to be confirmed in the field.**

DOC#410A-INST

Rawal Devices, Inc. * 800.727.6447 * 781.933.3304 * Fax: 781.933.3306 * sales@rawal.com * www.rawal.com

APR Control Operation and Adjustment (R-410A)

The APR Control® valve is a capacity modulation and dehumidification device that modulates the air conditioning system's refrigeration (circuit capacity to match the varying load conditions of the space. Often utilized to minimize the challenges of oversized air conditioning systems, the APR Control is a device that operates in response to suction pressure of an active air conditioning system. As the heat load (including occupancy, ventilation and solar loads, for example of the conditioned space drops, your suction pressure drops to the point the APR Control begins to open. A portion of discharge gets sent through the desuperheating chamber, then back to the suction line. A liquid injection valve mixes liquid with the discharge gas in the desuperheating chamber when the mixed gas temperature reaches approximately 20°superheat returning to the compressor.

The APR Control externally unloads the compressor, keeping the evaporator coil at a constant temperature below dew point, thereby dehumidifying during the extended run time achieved. Extended run time is achieved by keeping the thermostat from being satisfied too quickly (a standard cause of short cycling.

The APR Control comes factory set at approximately 120psig[1] and typically does not require adjustment. During part-load conditions, as the heat content of the return air (including the sensible temperature drops, the saturated suction temperature will drop, resulting in a drop in suction pressure. As the suction pressure falls to 120psig the APR Control will begin to open and attempt to stabilize the system suction pressure at approximately 120psig.

However, if the runtime is inadequate or low load operation fails to cause suction pressure to fall low enough (the point at which the APR Control starts to open), you may need to adjust the APR Control® Compression Ratio Reduction valve. The adjustment port can be found on the side or the bottom of the CRR valve. Remove the cap to access the set screw. A standard hex wrench can be used to turn the screw and adjust the pressure setting. The pressure setting will adjust in the range of 5 lbs per 360° turn[2]. Turning the wrench counter-clockwise (out will increase the pressure setting and turning the wrench clockwise (in will lower the pressure setting. The maximum pressure setting that most APR Controls can be adjusted to is approximately 130psig and the minimum is 95psig. As you adjust the APR Control, it will to reduce system capacity in order to match capacity to changing load conditions beginning at the new setting.

1: The factory setting for the **APR-410-5** is **105psig**, with an **adjustment range of 95 - 115psig**.
2: The pressure setting of the **APR-410-5** will **adjust 2.5 lbs per 360° turn**. Also note that turning the adjustment screw counter-clockwise (out will ***decrease*** the pressure setting while turning it ***clockwise*** (in will increase the pressure setting.

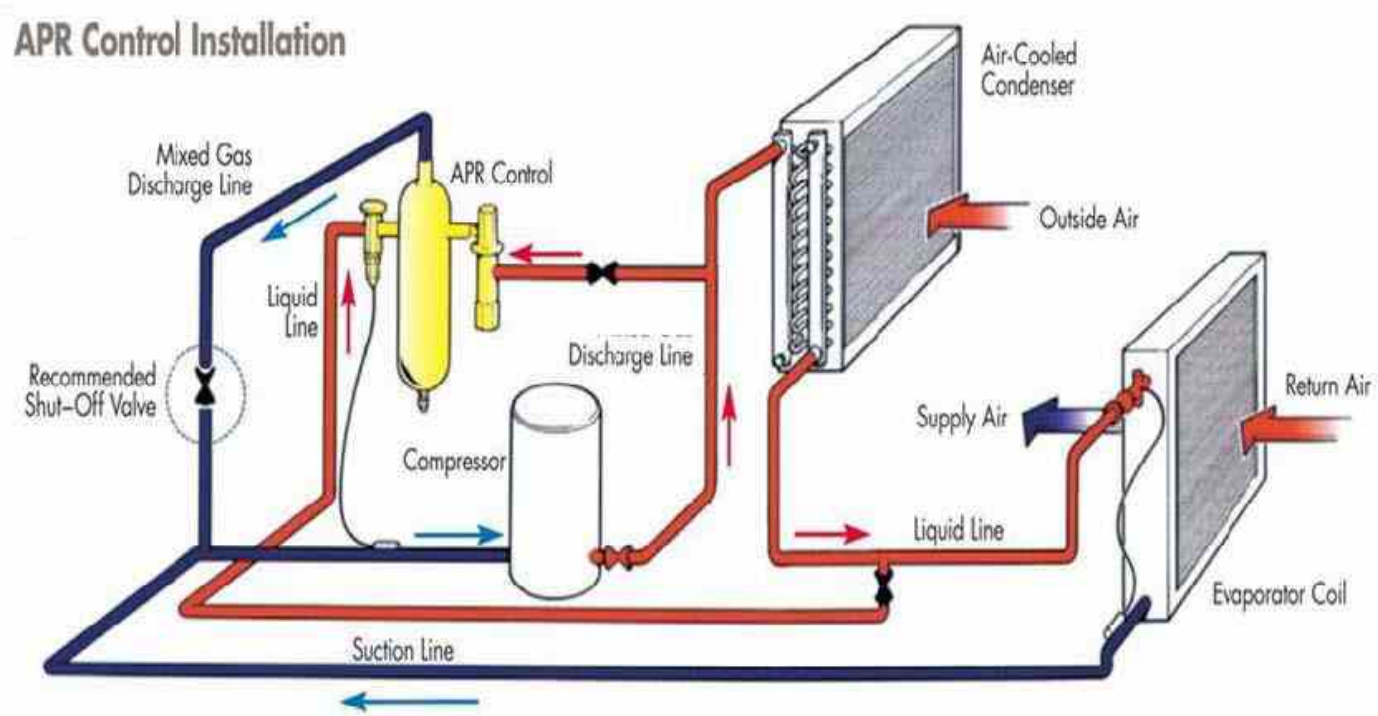

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Table 2. General data — 40 & 50 tons (60 Hz)

	40 Tons				50 Tons			
Cooling Performance[a] [b]								
Net Capacity/EER/IEER (Multi-speed)/IEER (VAV) - Std Efficiency	CLG:451000/11.2/15.1/15.2 EH:450000/11.1/15.0/15.2 GH(Low):449000/11.0/14.9/15.2 GH(High):447000/10.8/14.7/15.0				CLG:534000/10.5/14.7/14.9 EH:533000/10.3/14.6/14.8 GH(Low):531000/10.2/14.4/14.7 GH(High):528000/10.0/14.1/14.4			
Net Capacity/EER/IEER (Multi-speed)/IEER (VAV) - High Efficiency	CLG:459000/11.3/15.5/15.8 EH:458000/11.2/15.4/15.7 GH(Low):457000/11.1/15.2/15.6 GH(High):455000/10.9/15.0/15.4				CLG:538000/10.4/15.2/15.6 EH:536000/10.2/15.0/15.5 GH(Low):535000/10.1/14.8/15.2 GH(High):532000/9.9/14.5/15.0			
Natural Gas Heat[c] [d]	**Two Stage**		**Modulating**		**Two Stage**		**Modulating**	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Heating Input (BTUH)	400000	800000	400000	800000	400000	800000	400000	800000
Heating Output (BTUH)	324000	648000	324000	648000	324000	648000	324000	648000
Steady State Efficiency (%)[e]	81	81	81	81	81	81	81	81
No. Burners	1	2	1	2	1	2	1	2
No. Stages/Turn down rate	2	2	10:1	10:1	2	2	10:1	10:1
Electric Heat								
kW Range[f]	41-108				41-108			
Capacity Steps	2				2			
Compressor - Std Efficiency								
Qty/Type/Refrigerant/Circuits	3/Scroll/R-410A/1				3/Scroll/R-410A/1			
Size (Nominal)	8/13/13				10/15/15			
Unit Capacity Steps (%)	100/77/61/39/23				100/75/62/38/25			
Compressor - High Efficiency								
Qty/Type/Refrigerant/Circuits	3/Scroll/R-410A/1				3/Scroll/R-410A/1			
Size (Nominal)	8/13/13				10/15/15			
Unit Capacity Steps (%)	100/77/61/39/23				100/75/62/38/25			
Outdoor Coil - Std Efficiency								
Type	Microchannel				Microchannel			
Face Area (sq. ft.)	65.4				65.4			
Rows	2				2			
Outdoor Coil - High Efficiency								
Type	Microchannel				Microchannel			
Face Area (sq. ft.)	65.4				65.4			
Rows	2				2			
Indoor Coil - Std Efficiency								
Tube Size (in.) OD	3/8				3/8			
Face Area (sq. ft.)	36.7				36.7			
Rows/Fins Per Foot	5/180				5/180			
Refrigerant Control	TXV				TXV			
No. of Circuits	1				1			
Drain Connection No./Size (in)	1/1.25				1/1.25			
Type	PVC				PVC			
Indoor Coil - High Efficiency								
Tube Size (in.) OD	3/8				3/8			
Face Area (sq. ft.)	36.7				36.7			
Rows/Fins Per Foot	6/180				6/180			
Refrigerant Control	TXV				TXV			
No. of Circuits	1				1			
Drain Connection No./Size (in)	1/1.25				1/1.25			
Type	PVC				PVC			
Outdoor Fan Type	Propeller				Propeller			
No. Used/Diameter	4/28.00				4/28.00			
Drive Type/No. Speeds	Direct/1				Direct/1			
CFM	28,900				28,900			
No. Motors/HP/RPM	4/1.0/1140				4/1.0/1140			
Indoor Fan Type	FC				FC			
No. Used	1				1			