MSA DESIGN

TRANSMITTAL

Date: June 4, 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	06/04/24	233600-1.1_Air Terminal Units_Product Data_240604msa klh	Reviewed; No Exceptions

Remarks:

Copies to: file

By: Sean Bostater

VAV MODEL PAGE 6
SPECS PAGE 10

☑ 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 6/4/2024
Signature Date

MSA DESIGN

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:**	233600.00-PD-03	**REV:** 00
Document Set:	Bid/Construction			
KLH Project #:	25019.01-Bid	**Received Date:**	06/03/2024	
Section Name:	Air Terminal Units			
Section Number:	233600.00			
Submitted By:	MSA Design			
Authored By:	Pepper Construction			
Client Name:	MSA Design			

SUBMITTAL REVIEW

[X] **No Exceptions**

By: Christine E. Shea **Date:** 06/04/2024

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 No exceptions noted.

End of Submittal Review

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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:	5/31/2024

Number: 230000-001

To: Sean Bostater

From: Dan Bonacci

Decription:	VAV Single Duct Terminal Units	**Date Due:**	
Revision:	0001	**Date Required On Site**	
Type:	Product Data	**Required By Date:**	06/14/2024
Status:	For Approval	**Date Returned To Sub:**	
CSI:	23 36 00	**Copies:**	0

Notes:

23 36 00 'REVISION' Variable Air Volume Single Duct Terminal Units

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 **BY:** Brian Frey **DATE:** 5/31/2024

SUBMITTAL# 230000-001 **Rev #** 1

Submittal

Prepared For:
Dave Simpson
Mechanical Optimizers

Date: May 30, 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
29	Variable Air Volume Single Duct Terminal Units

Christian Melson, Systems Sales
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.

Table of Contents

Tag Data - Variable Air Volume Single Duct Terminal Units (Qty: 29)

Item	Tag(s)	Qty	Description	Model Number
A1	V1-01	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F2W0B05017**005
A2	V1-02	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B04517**005
A3	V1-03	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F1W0K01017**005
A4	V1-04	1	Variable Air Volume Single Duct Terminal	VCEF04-- *M0SY75D**0*0F1W0K01017**005
A5	V1-05	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B03517**005
A6	V1-06	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F1W0K01017**005
A7	V1-07	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B03017**005
A8	V1-08	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F2W0B02517**005
A9	V1-09	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F2W0B05017**005
A10	V1-10	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F1W0K01017**005
A11	V1-11	1	Variable Air Volume Single Duct Terminal	VCEF04-- *M0SY75D**0*0F1W0K01017**005
A12	V1-12	1	Variable Air Volume Single Duct Terminal	VCEF04-- *M0SY75D**0*0F1W0K01017**005
A13	V1-13	1	Variable Air Volume Single Duct Terminal	VCEF06-- *M0SY75D**0*0F2W0B03017**005
A14	V1-14	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F2W0B02517**005
A15	V1-15	1	Variable Air Volume Single Duct Terminal	VCEF04-- *M0SY75D**0*0F1W0K01017**005
A16	V1-17	1	Variable Air Volume Single Duct Terminal	VCEF06-- *M0SY75D**0*0F2W0B04017**005
A17	V1-18	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F2W0B02517**005
A18	V1-19	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F1W0K02017**005
A19	V1-20	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F1W0K01517**005
A20	V1-21	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F2W0B03017**005
A21	V1-22	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F1W0K01017**005
A22	V1-23	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B06017**005
A23	V1-24	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F2W0B04517**005
A24	V1-25	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B06517**005
A25	V1-26	1	Variable Air Volume Single Duct Terminal	VCEF08-- *M0SY75D**0*0F2W0B03017**005
A26	V1-27	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B04517**005
A27	V1-28	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F1W0K01517**005
A28	V1-30	1	Variable Air Volume Single Duct Terminal	VCEF05-- *M0SY75D**0*0F2W0B02517**005
A29	V1-29	1	Variable Air Volume Single Duct Terminal	VCEF10-- *M0SY75D**0*0F2W0B08017**005

Product Data - Variable Air Volume Single Duct Terminal Units
All Units

Space Temperature Modulating Reheat
United States
Single duct with electric heat
Foil faced insulation - 1" (25 mm)
SY210 DDC-Basic (Electric heat- PWM)
MSTP Connection
Standard actuator
Duct temperature sensor -factory mounted
Standard Air Leakage
No water valve
No piping package
None
Disconnect switch
Stage -1
Solid State Relay (SSR)
1 Digital display zone sensor (Field Installed)
1st year labor warranty whole unit

Item: A1, A9 Qty: 2 Tag(s): V1-01, V1-09

8" inlet size, 900 cfm (203mm inlet, 425 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 5.0

Item: A2, A26 Qty: 2 Tag(s): V1-02, V1-27

10" inlet size, 1400 cfm (254mm inlet, 661 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 4.5

Item: A3, A6, A10 Qty: 3 Tag(s): V1-03, V1-06, V1-10

5" inlet size, 350 cfm (127mm inlet, 165 l/s)
120/24 volt transformer
120 volt, 1 phase
Electric heater kW - 1.0

Item: A4, A11, A12, A15 Qty: 4 Tag(s): V1-04, V1-11, V1-12, V1-15

4" inlet size, 225 cfm (102mm inlet, 106 l/s)
120/24 volt transformer
120 volt, 1 phase
Electric heater kW - 1.0

Item: A5 Qty: 1 Tag(s): V1-05

10" inlet size, 1400 cfm (254mm inlet, 661 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 3.5

Item: A7 Qty: 1 Tag(s): V1-07

10" inlet size, 1400 cfm (254mm inlet, 661 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 3.0

Item: A8 Qty: 1 Tag(s): V1-08

8" inlet size, 900 cfm (203mm inlet, 425 l/s)
208/24 volt transformer
208 volt, 3 phase

Electric heater kW - 2.5

Item: A13 Qty: 1 Tag(s): V1-13
6" inlet size, 500 cfm (152mm inlet, 236 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 3.0

Item: A14, A17, A28 Qty: 3 Tag(s): V1-14, V1-18, V1-30
5" inlet size, 350 cfm (127mm inlet, 165 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 2.5

Item: A16 Qty: 1 Tag(s): V1-17
6" inlet size, 500 cfm (152mm inlet, 236 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 4.0

Item: A18 Qty: 1 Tag(s): V1-19
5" inlet size, 350 cfm (127mm inlet, 165 l/s)
120/24 volt transformer
120 volt, 1 phase
Electric heater kW - 2.0

Item: A19 Qty: 1 Tag(s): V1-20
8" inlet size, 900 cfm (203mm inlet, 425 l/s)
120/24 volt transformer
120 volt, 1 phase
Electric heater kW - 1.5

Item: A20, A25 Qty: 2 Tag(s): V1-21, V1-26
8" inlet size, 900 cfm (203mm inlet, 425 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 3.0

Item: A21 Qty: 1 Tag(s): V1-22
8" inlet size, 900 cfm (203mm inlet, 425 l/s)
120/24 volt transformer
120 volt, 1 phase
Electric heater kW - 1.0

Item: A22 Qty: 1 Tag(s): V1-23
10" inlet size, 1400 cfm (254mm inlet, 661 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 6.0

Item: A23 Qty: 1 Tag(s): V1-24
8" inlet size, 900 cfm (203mm inlet, 425 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 4.5

Item: A24 Qty: 1 Tag(s): V1-25
10" inlet size, 1400 cfm (254mm inlet, 661 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 6.5

Item: A27 Qty: 1 Tag(s): V1-28

5" inlet size, 350 cfm (127mm inlet, 165 l/s)
120/24 volt transformer
120 volt, 1 phase
Electric heater kW - 1.5

Item: A29 Qty: 1 Tag(s): V1-29

10" inlet size, 1400 cfm (254mm inlet, 661 l/s)
208/24 volt transformer
208 volt, 3 phase
Electric heater kW - 8.0

Performance Data - Variable Air Volume Single Duct Terminal Units

Tags	V1-01	V1-02	V1-03	V1-04	V1-05	V1-06
Design cooling airflow (cfm)	790	940	270	170	1000	300
Min cooling airflow (cfm)	395	470	135	85	500	150
Valve heating airflow (cfm)	429	375	83	83	301	83
Cooling inlet diameter	8"	10"	5"	4"	10"	5"
Cooling inlet velocity (ft/min)	2263	1723	1980	1948	1833	2200
APD @ cooling airflow (in H2O)	0.080	0.030	0.020	0.010	0.030	0.020
Elevation (ft)	0.00	0.00	0.00	0.00	0.00	0.00
Full load amps (A)	13.88	12.49	8.33	8.33	9.72	8.33
Min circuit ampacity (A)	17.35	15.61	10.42	10.42	12.14	10.42
Max fuse size (A)	20.00	20.00	15.00	15.00	15.00	15.00
Operating weight (lb)	67.0	81.0	67.0	67.0	81.0	67.0
Run acoustics?	No	No	No	No	No	No
Hot water valves?	None	None	None	None	None	None
Main Unit Weight (lb)	22.0	30.0	21.0	21.0	30.0	21.0
Plenum Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Attenuator Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
FIPP Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Dual-Wall Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Weight 6 (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Coil Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
EH Weight (lb)	45.0	51.0	46.0	46.0	51.0	46.0
Replication Run	283	282	282	283	283	283
Trane Select Assist Version Number	283	-	-	283	283	283
Coil heating capacity (MBh)	17.08	15.37	3.42	3.42	11.95	3.42
Room heat loss (MBh)	10.09	9.26	2.06	2.06	7.05	2.06
Room heating setpoint (F)	70.00	70.00	70.00	70.00	70.00	70.00
Primary EDB (F)	55.00	55.00	55.00	55.00	55.00	55.00
Unit LAT (F)	91.68	92.77	92.92	92.92	91.60	92.92
Min heating capacity (MBh)	-	14.00	2.00	-	-	-
Electric heater kW (kW)	5.00	4.50	1.00	1.00	3.50	1.00

Tags	V1-07	V1-08	V1-09	V1-10	V1-11	V1-12
Design cooling airflow (cfm)	1050	560	510	255	120	85
Min cooling airflow (cfm)	525	280	255	128	60	43
Valve heating airflow (cfm)	210	219	423	84	86	83
Cooling inlet diameter	10"	8"	8"	5"	4"	4"
Cooling inlet velocity (ft/min)	1925	1604	1461	1870	1375	974
APD @ cooling airflow (in H2O)	0.030	0.050	0.040	0.020	0.010	0.010
Elevation (ft)	0.00	0.00	0.00	0.00	0.00	0.00
Full load amps (A)	8.33	6.94	13.88	8.33	8.33	8.33
Min circuit ampacity (A)	10.41	8.67	17.35	10.42	10.42	10.42
Max fuse size (A)	15.00	15.00	20.00	15.00	15.00	15.00
Operating weight (lb)	81.0	67.0	67.0	67.0	67.0	67.0
Run acoustics?	No	No	No	No	No	No
Hot water valves?	None	None	None	None	None	None
Main Unit Weight (lb)	30.0	22.0	22.0	21.0	21.0	21.0
Plenum Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Attenuator Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
FIPP Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Dual-Wall Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Weight 6 (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Coil Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
EH Weight (lb)	51.0	45.0	45.0	46.0	46.0	46.0
Replication Run	282	283	282	282	282	282
Trane Select Assist Version Number	-	283	-	-	-	-

Tags	V1-07	V1-08	V1-09	V1-10	V1-11	V1-12
Coil heating capacity (MBh)	10.25	8.54	17.08	3.42	3.42	3.42
Room heat loss (MBh)	6.83	4.97	10.19	2.05	2.02	2.06
Room heating setpoint (F)	70.00	70.00	70.00	70.00	70.00	70.00
Primary EDB (F)	55.00	55.00	55.00	55.00	55.00	55.00
Unit LAT (F)	99.96	90.93	92.20	92.47	91.60	92.92
Min heating capacity (MBh)	7.00	-	16.00	3.00	3.00	2.00
Electric heater kW (kW)	3.00	2.50	5.00	1.00	1.00	1.00

Tags	V1-13	V1-14	V1-15	V1-17	V1-18	V1-19
Design cooling airflow (cfm)	350	320	160	290	310	140
Min cooling airflow (cfm)	175	160	80	145	155	70
Valve heating airflow (cfm)	256	224	83	290	202	166
Cooling inlet diameter	6"	5"	4"	6"	5"	5"
Cooling inlet velocity (ft/min)	1783	2347	1833	1477	2273	1027
APD @ cooling airflow (in H2O)	0.110	0.020	0.010	0.080	0.020	0.010
Elevation (ft)	0.00	0.00	0.00	0.00	0.00	0.00
Full load amps (A)	8.33	6.94	8.33	11.10	6.94	16.67
Min circuit ampacity (A)	10.41	8.67	10.42	13.88	8.67	20.83
Max fuse size (A)	15.00	15.00	15.00	15.00	15.00	25.00
Operating weight (lb)	67.0	67.0	67.0	67.0	67.0	67.0
Run acoustics?	No	No	No	No	No	No
Hot water valves?	None	None	None	None	None	None
Main Unit Weight (lb)	21.0	21.0	21.0	21.0	21.0	21.0
Plenum Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Attenuator Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
FIPP Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Dual-Wall Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Weight 6 (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Coil Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
EH Weight (lb)	46.0	46.0	46.0	46.0	46.0	46.0
Replication Run	282	282	283	282	283	282
Trane Select Assist Version Number	-	-	283	-	283	-
Coil heating capacity (MBh)	10.25	8.54	3.42	13.66	8.54	6.83
Room heat loss (MBh)	6.08	4.89	2.06	8.94	5.25	4.13
Room heating setpoint (F)	70.00	70.00	70.00	70.00	70.00	70.00
Primary EDB (F)	55.00	55.00	55.00	55.00	55.00	55.00
Unit LAT (F)	91.88	90.13	92.92	98.41	93.95	92.92
Min heating capacity (MBh)	10.00	8.00	-	13.00	-	-
Electric heater kW (kW)	3.00	2.50	1.00	4.00	2.50	2.00

Tags	V1-20	V1-21	V1-22	V1-23	V1-24	V1-25
Design cooling airflow (cfm)	650	510	560	1065	700	1075
Min cooling airflow (cfm)	325	255	280	533	350	538
Valve heating airflow (cfm)	157	266	121	536	398	554
Cooling inlet diameter	8"	8"	8"	10"	8"	10"
Cooling inlet velocity (ft/min)	1862	1461	1604	1953	2005	1971
APD @ cooling airflow (in H2O)	0.060	0.040	0.050	0.030	0.060	0.030
Elevation (ft)	0.00	0.00	0.00	0.00	0.00	0.00
Full load amps (A)	12.50	8.33	8.33	16.65	12.49	18.04
Min circuit ampacity (A)	15.63	10.41	10.42	20.82	15.61	22.55
Max fuse size (A)	20.00	15.00	15.00	25.00	20.00	25.00
Operating weight (lb)	67.0	67.0	67.0	81.0	67.0	81.0
Run acoustics?	No	No	No	No	No	No
Hot water valves?	None	None	None	None	None	None
Main Unit Weight (lb)	22.0	22.0	22.0	30.0	22.0	30.0
Plenum Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0

Tags	V1-20	V1-21	V1-22	V1-23	V1-24	V1-25
Attenuator Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
FIPP Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Dual-Wall Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Weight 6 (lb)	0.0	0.0	0.0	0.0	0.0	0.0
Coil Weight (lb)	0.0	0.0	0.0	0.0	0.0	0.0
EH Weight (lb)	45.0	45.0	45.0	51.0	45.0	51.0
Replication Run	283	282	283	282	282	282
Trane Select Assist Version Number	283	-	283	-	-	-
Coil heating capacity (MBh)	5.12	10.25	3.42	20.49	15.37	22.20
Room heat loss (MBh)	2.57	5.92	1.45	11.77	8.89	13.18
Room heating setpoint (F)	70.00	70.00	70.00	70.00	70.00	70.00
Primary EDB (F)	55.00	55.00	55.00	55.00	55.00	55.00
Unit LAT (F)	85.07	90.50	81.01	90.23	90.59	91.93
Min heating capacity (MBh)	-	10.00	-	20.00	15.00	21.00
Electric heater kW (kW)	1.50	3.00	1.00	6.00	4.50	6.50

Tags	V1-26	V1-27	V1-28	V1-30	V1-29
Design cooling airflow (cfm)	515	865	160	280	1230
Min cooling airflow (cfm)	258	433	80	140	615
Valve heating airflow (cfm)	250	559	124	217	707
Cooling inlet diameter	8"	10"	5"	5"	10"
Cooling inlet velocity (ft/min)	1475	1586	1173	2053	2255
APD @ cooling airflow (in H2O)	0.040	0.020	0.010	0.020	0.040
Elevation (ft)	0.00	0.00	0.00	0.00	0.00
Full load amps (A)	8.33	12.49	12.50	6.94	22.21
Min circuit ampacity (A)	10.41	15.61	15.63	8.67	27.76
Max fuse size (A)	15.00	20.00	20.00	15.00	30.00
Operating weight (lb)	67.0	81.0	67.0	67.0	81.0
Run acoustics?	No	No	No	No	No
Hot water valves?	None	None	None	None	None
Main Unit Weight (lb)	22.0	30.0	21.0	21.0	30.0
Plenum Weight (lb)	0.0	0.0	0.0	0.0	0.0
Attenuator Weight (lb)	0.0	0.0	0.0	0.0	0.0
FIPP Weight (lb)	0.0	0.0	0.0	0.0	0.0
Dual-Wall Weight (lb)	0.0	0.0	0.0	0.0	0.0
Weight 6 (lb)	0.0	0.0	0.0	0.0	0.0
Coil Weight (lb)	0.0	0.0	0.0	0.0	0.0
EH Weight (lb)	45.0	51.0	46.0	46.0	51.0
Replication Run	282	283	283	282	282
Trane Select Assist Version Number	-	283	283	-	-
Coil heating capacity (MBh)	10.25	15.37	5.12	8.54	27.32
Room heat loss (MBh)	6.18	6.27	3.10	5.01	15.81
Room heating setpoint (F)	70.00	70.00	70.00	70.00	70.00
Primary EDB (F)	55.00	55.00	55.00	55.00	55.00
Unit LAT (F)	92.77	80.34	93.07	91.26	90.61
Min heating capacity (MBh)	9.00	-	-	8.00	27.00
Electric heater kW (kW)	3.00	4.50	1.50	2.50	8.00

Factory Controls Addressing - Variable Air Volume Single Duct Terminal Units (Qty: 29)

Item	Tag	Design cooling airflow (cfm)	Min cooling airflow (cfm)	Valve heating airflow (cfm)
A1	V1-01	790	395	429
A2	V1-02	940	470	375

A3	V1-03	270	135	83
A4	V1-04	170	85	83
A5	V1-05	1000	500	301
A6	V1-06	300	150	83
A7	V1-07	1050	525	210
A8	V1-08	560	280	219
A9	V1-09	510	255	423
A10	V1-10	255	128	84
A11	V1-11	120	60	86
A12	V1-12	85	43	83
A13	V1-13	350	175	256
A14	V1-14	320	160	224
A15	V1-15	160	80	83
A16	V1-17	290	145	290
A17	V1-18	310	155	202
A18	V1-19	140	70	166
A19	V1-20	650	325	157
A20	V1-21	510	255	266
A21	V1-22	560	280	121
A22	V1-23	1065	533	536
A23	V1-24	700	350	398
A24	V1-25	1075	538	554
A25	V1-26	515	258	250
A26	V1-27	865	433	559
A27	V1-28	160	80	124
A28	V1-30	280	140	217
A29	V1-29	1230	615	707

Please confirm each unit selected with Factory Addressing has the correct controller and WCI address.

Mechanical Specifications - Variable Air Volume Single Duct Terminal Units
Item: A1 - A29 Qty: 29 Tag(s): V1-01, V1-02, V1-03, V1-04, V1-05, V1-06, V1-07, V1-08, V1-09, V1-10, V1-11, V1-12, V1-13, V1-14, V1-15, V1-17, V1-18, V1-19, V1-20, V1-21, V1-22, V1-23, V1-24, V1-25, V1-26, V1-27, V1-28, V1-30, V1-29

General Unit Information
The unit casing is comprised of 22 gauge galvanized steel. Outlet connection is slip and drive.
Agency Listing - The unit is UL and Canadian UL listed as a room air terminal unit. UL Control # 9N65. All Trane terminal units are AHRI 880 - 98 certified.

General Unit Clearance
Allow adequate clearance on control box side of unit to meet NEC. A minimum of one and one half duct diameters of straight duct work, upstream of the air inlet connection, must be present for optimum airflow measurement performance. Upstream duct work should be the same diameter as the primary inlet connection. Allow access to the bottom of unit if Optional Bottom Access Door is selected.

1"Foil - Faced Insulation
The interior surface of the unit casing is acoustically and thermally lined with 1", 1.8 lb/cu. ft density glass fiber with foil facing. The insulation is UL listed and meets NFPA-90A, UL 181 standards, and bacteriological standard ASTM C 665. The insulation R-value is 4.2. All cut edges of insulation are completely encapsulated in metal to prevent erosion.

Air Valve Size - 04
Air Valve is 225.0 cfm 4"inlet.

Air Valve Size - 05
Air Valve is 350.0 cfm 5" inlet.

Air Valve Size - 06
Air Valve is 500.0 cfm 6"inlet.

Air Valve Size - 08
Air Valve is 900.0 cfm 8" inlet.

Air Valve Size - 10
Air Valve is 1400.0 cfm 10" inlet.

Air Valve Round
The air inlet connection is an 18 gauge galvanized steel cylinder sized to fit standard round duct. A multiple point, averaging flow sensing ring is provided with balancing taps for measuring within +/- 5% of unit cataloged airflow. An airflow versus pressure differential calibration chart is provided. The damper blade is constructed of a closed cell foam seal mechanically locked between two 22 gauge galvanized steel disks. The damper blade assembly is connected through a cast zinc stub axle and shaft supported by self lubricating bearings. The shaft is cast with a damper position indicator. The valve assembly includes a mechanical stop to prevent over stroking. At 4.0" w.g. air valve leakage does not exceed 1% of cataloged airflow.

Power Disconnect Switch (for VCEF)
A factory provided interlocking door disconnect switch located on the electric heater control panel.

Slip & Drive Connection
A slip and drive connection has two straight flanges on the top and bottom, and two drive connections on the left and right sides. This is a standard option on all VAV single duct terminal units.

Electric Heat Coil
Factory provided and mounted resistance open-coil type heater with airflow switch, a disc-type automatic pilot duty thermal primary cutoff, and manually resettable pilot-duty thermal secondary cutoff with associated backup contactor. Heater element material is type C nickel-chromium alloy. The heater terminal box is provided with 7/8" knockouts for customer power supply. Terminal connections are plated steel with ceramic insulators. Unit is Flippable for both Left and Right hand control access, except with mercury contactor option.

Electric Heat Transformer

A 50VA or 75VA class 2 transformer will be an integral component of the heater control panel dependent on unit load requirements to provide 24 VAC for controls.

Solid State Relay (SSR) Contactor
An SSR electric control device for use with DDC and Analog unit controllers. The SSR serves both as a substitute for magnetic contactors and a RoHS compliant alternative to mercury switches. The SSR allows silent on/off control of each stage of electric heat when heat is needed for zone temperature control.

D.D.C. Floating Point Actuator
Trane 3 wire, (open, close, common) 26GA when 6-pos amp connector is used for Tracer UC210, VV550, or VAV UCM, otherwise 18GA wires are used. 3.4 VA, 1.7W, 24 VAC, 50/60 Hz. Quarter turn control actuator with linkage release button. Actuator has a constant drive rate independent of load, a rated torque of 35 in-lb, a 90-second drive time and is non-spring return. Travel is terminated by end stops at fully opened and closed positions. An integral magnetic clutch eliminates motor stall. An integral 3 screw terminal block is provided for field wiring. Operating temperature 32.0 F to 125.0 F.

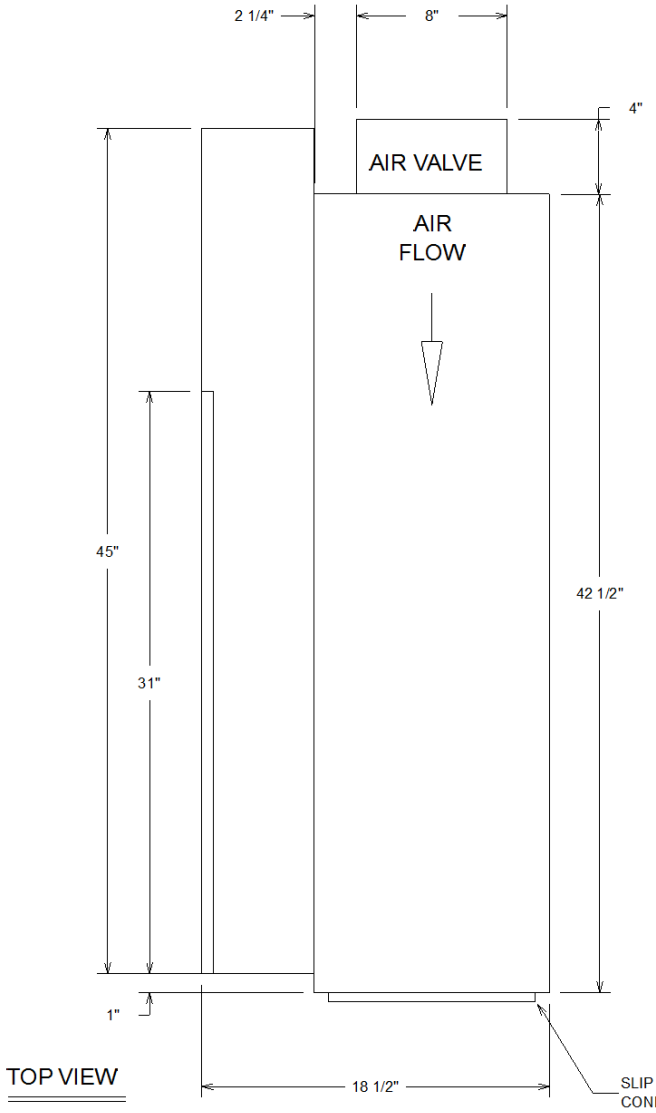
Digital Display Zone Sensor
The Digital Display Zone Sensor contains a sensing element, which sends a signal to the U.C.M. A Liquid Crystal Display (LCD) displays set point, or space temperature. Sensor buttons allow the user to adjust set points, and allow space temperature readings to be turned on or off. The Digital Display Zone Sensor also includes a communication jack, for use with a portable edit device, and an override button to change the U.C.M. from unoccupied to occupied. The override button has a cancel feature, which returns the system to unoccupied mode.

Sensor Enclosure
The sensor enclosure consists of back plate, cover, security screw and mounting hardware. It provides openings for ventilation. A security screw is located at the bottom of the enclosure and anchors the cover to the back plate to help prevent tampering.

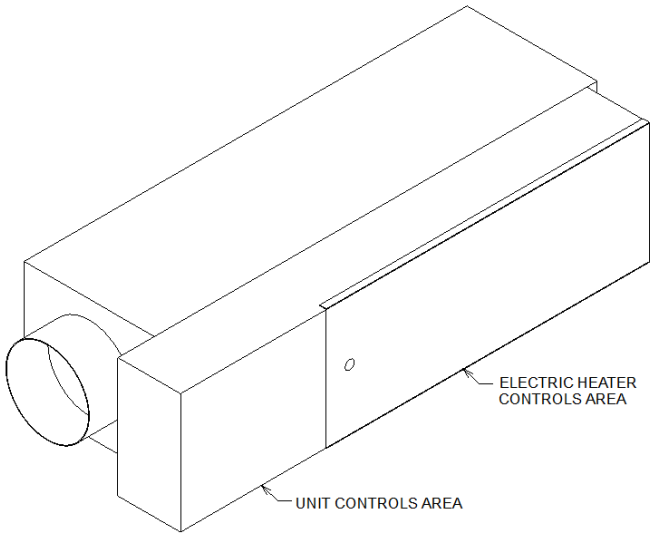
Zone Temperature Sensor
The wired display sensor monitors the temperature of the specific building space where it is installed. The sensor displays zone temperature or setpoint occupancy (timed override) system control. A controller in the HVAC system uses the sensor input to maintain the zone at a selected temperature.

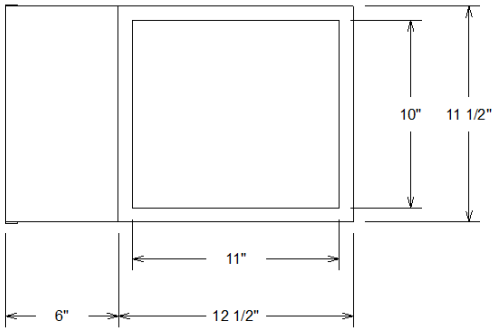
Occupancy (timed override)
This optional function allows temporary control of the heating and cooling for the zone monitored by the temperature sensor which has reverted to unoccupied mode. Not all systems support this capability.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A1, A8, A9, A19 - A21, A23, A25 Qty: 8 Tag(s): V1-01, V1-08, V1-09, V1-20, V1-21, V1-22, V1-24, V1-26



TOP VIEW



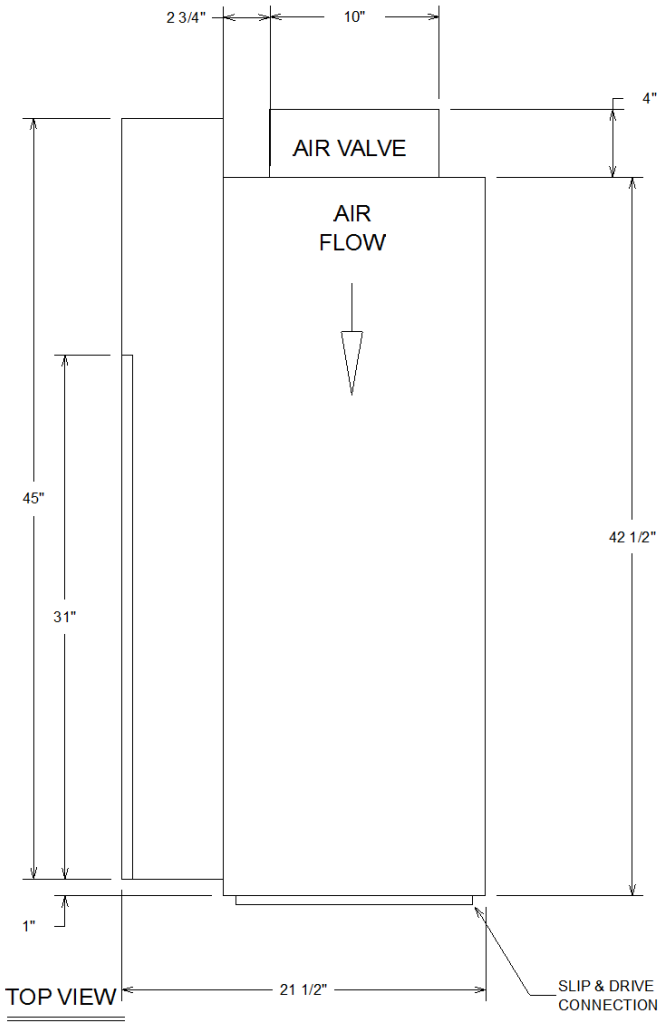


BACK VIEW

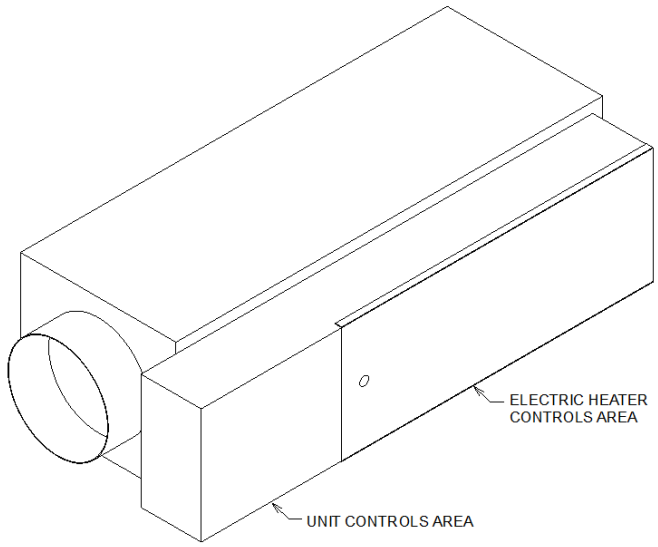
Approximate Dry Weight	67.0 lb

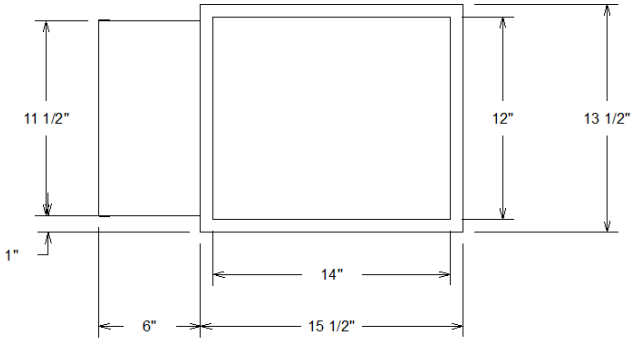
Weights reflected may vary ±5.0 lb based upon options selected.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A2, A5, A7, A22, A24, A26, A29 Qty: 7 Tag(s): V1-02, V1-05, V1-07, V1-23, V1-25, V1-27, V1-29



TOP VIEW



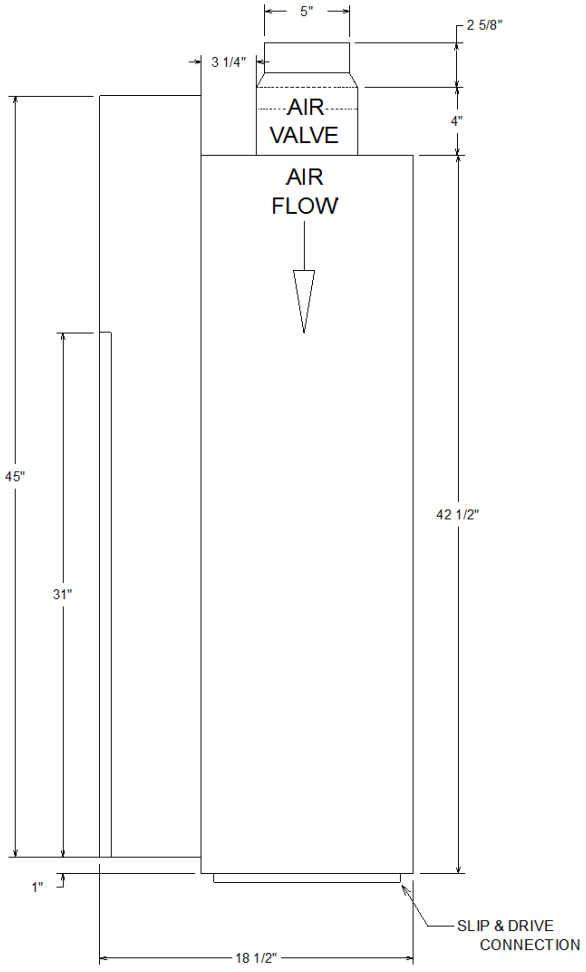


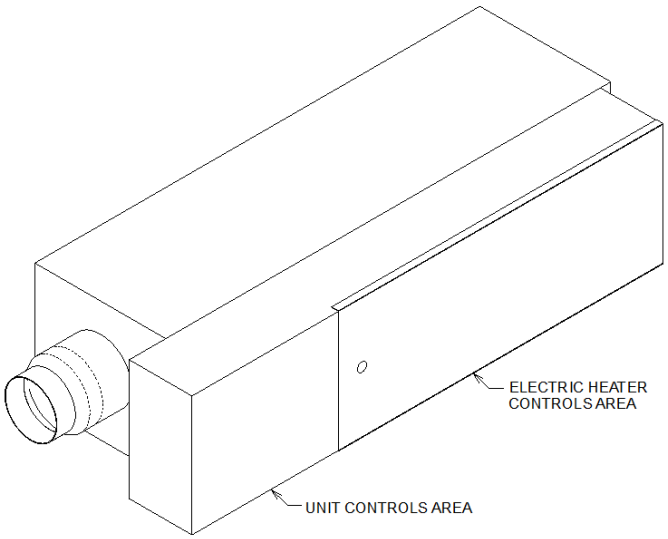
BACK VIEW

Approximate Dry Weight	81.0 lb

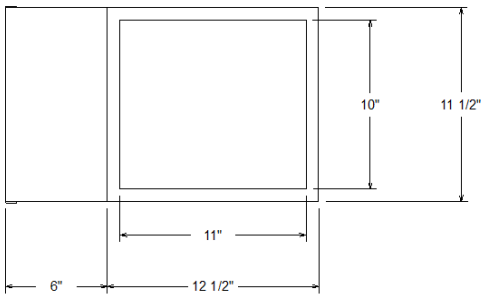
Weights reflected may vary ±5.0 lb based upon options selected.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A3, A6, A10, A14, A17, A18, A27, A28 Qty: 8 Tag(s): V1-03, V1-06, V1-10, V1-14, V1-18, V1-19, V1-28, V1-30





TOP VIEW

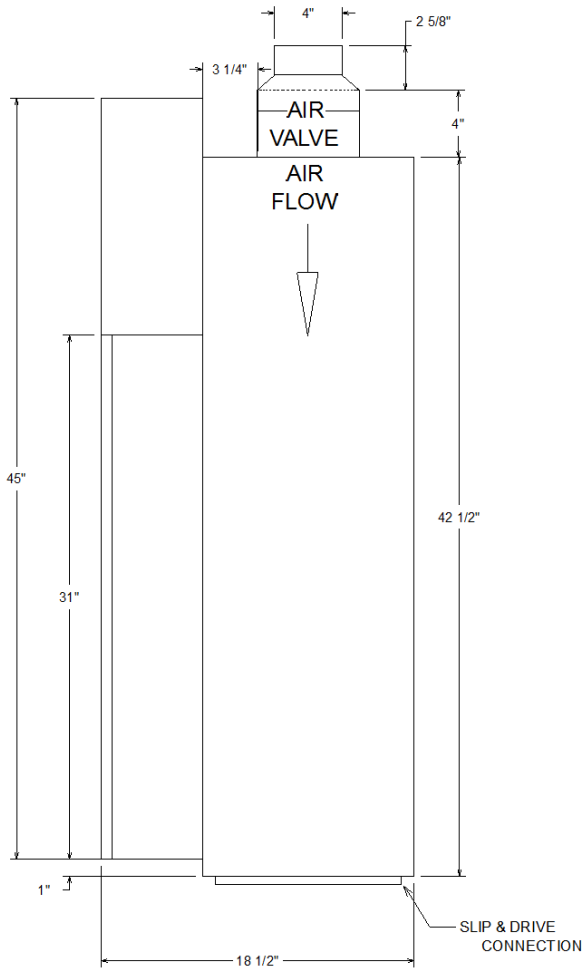


BACK VIEW

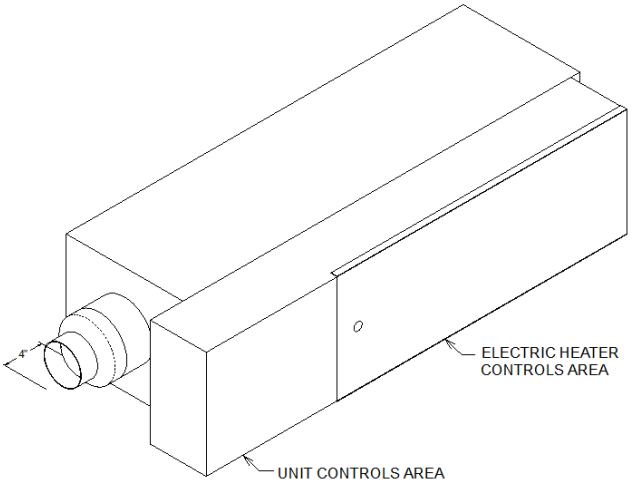
Approximate Dry Weight	67.0 lb

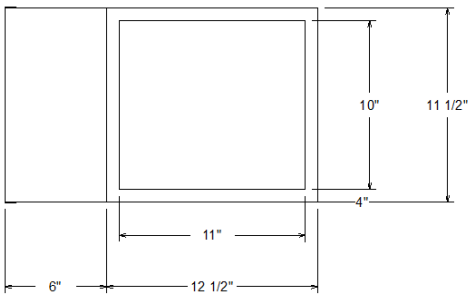
Weight reflected may vary 5 lbs(2.27kgs) based upon options selected.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A4, A11, A12, A15 Qty: 4 Tag(s): V1-04, V1-11, V1-12, V1-15



TOP VIEW



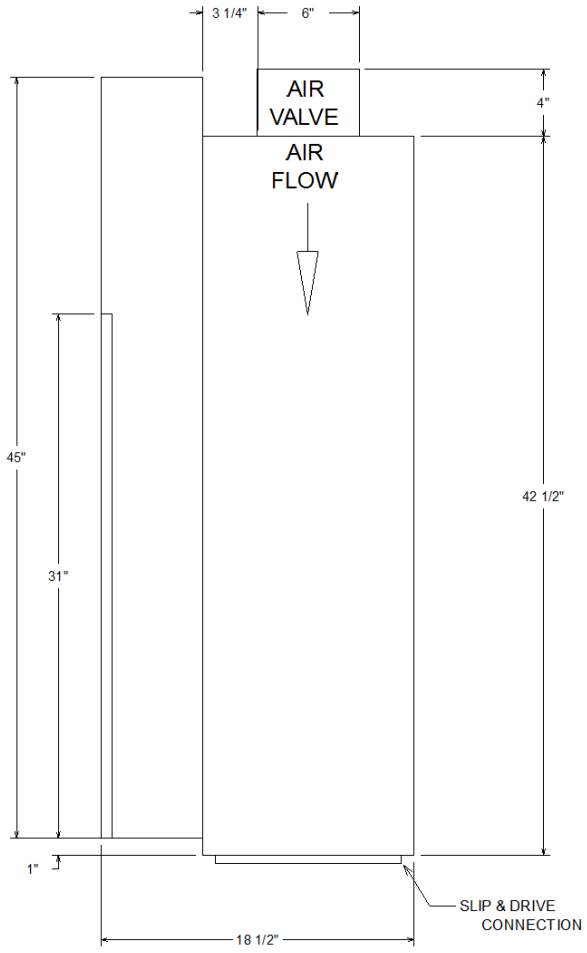


BACK VIEW

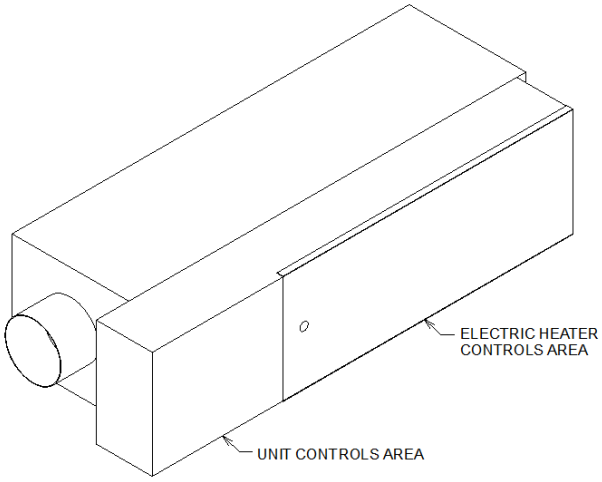
Approximate Dry Weight	67.0 lb

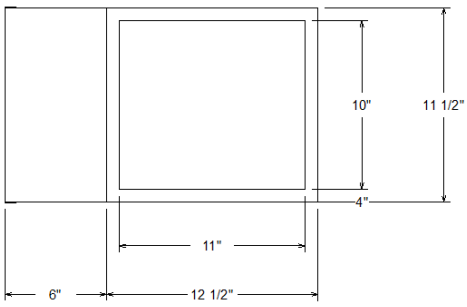
Weight reflected may vary 5 lbs(2.27kgs) based upon options selected.

Dimensional Drawings - Variable Air Volume Single Duct Terminal Units
Item: A13, A16 Qty: 2 Tag(s): V1-13, V1-17



TOP VIEW



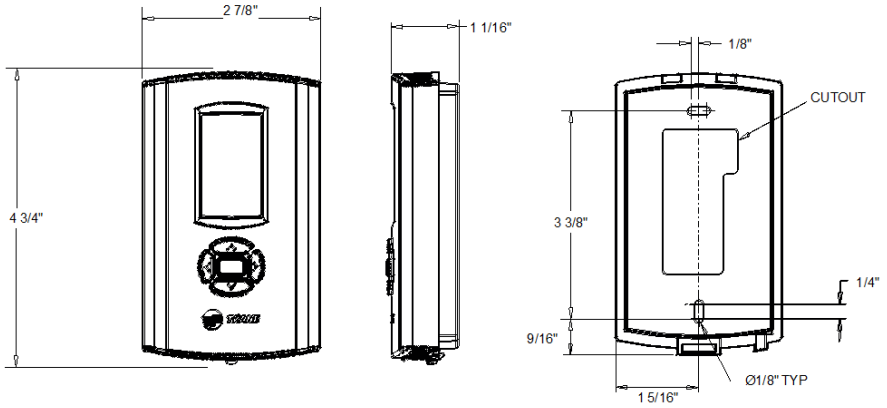


BACK VIEW

Approximate Dry Weight	67.0 lb

Weight reflected may vary 5 lbs(2.27kgs) based upon options selected.

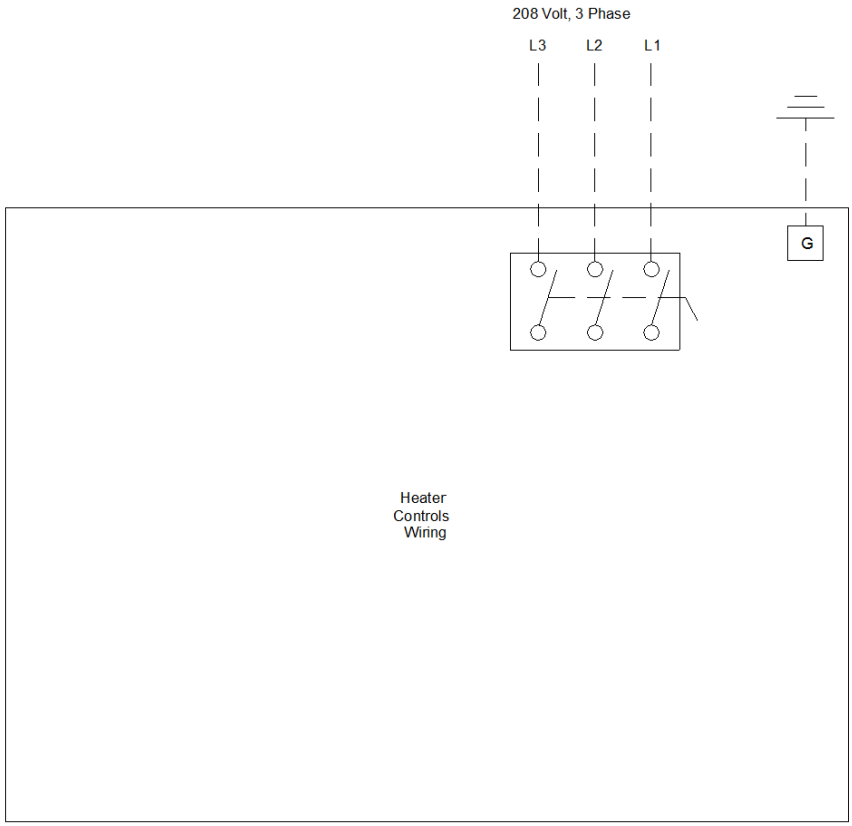
Accessory - Variable Air Volume Single Duct Terminal Units
Item: A1 - A29 Qty: 29 Tag(s): V1-01, V1-02, V1-03, V1-04, V1-05, V1-06, V1-07, V1-08, V1-09, V1-10, V1-11, V1-12, V1-13, V1-14, V1-15, V1-17, V1-18, V1-19, V1-20, V1-21, V1-22, V1-23, V1-24, V1-25, V1-26, V1-27, V1-28, V1-30, V1-29



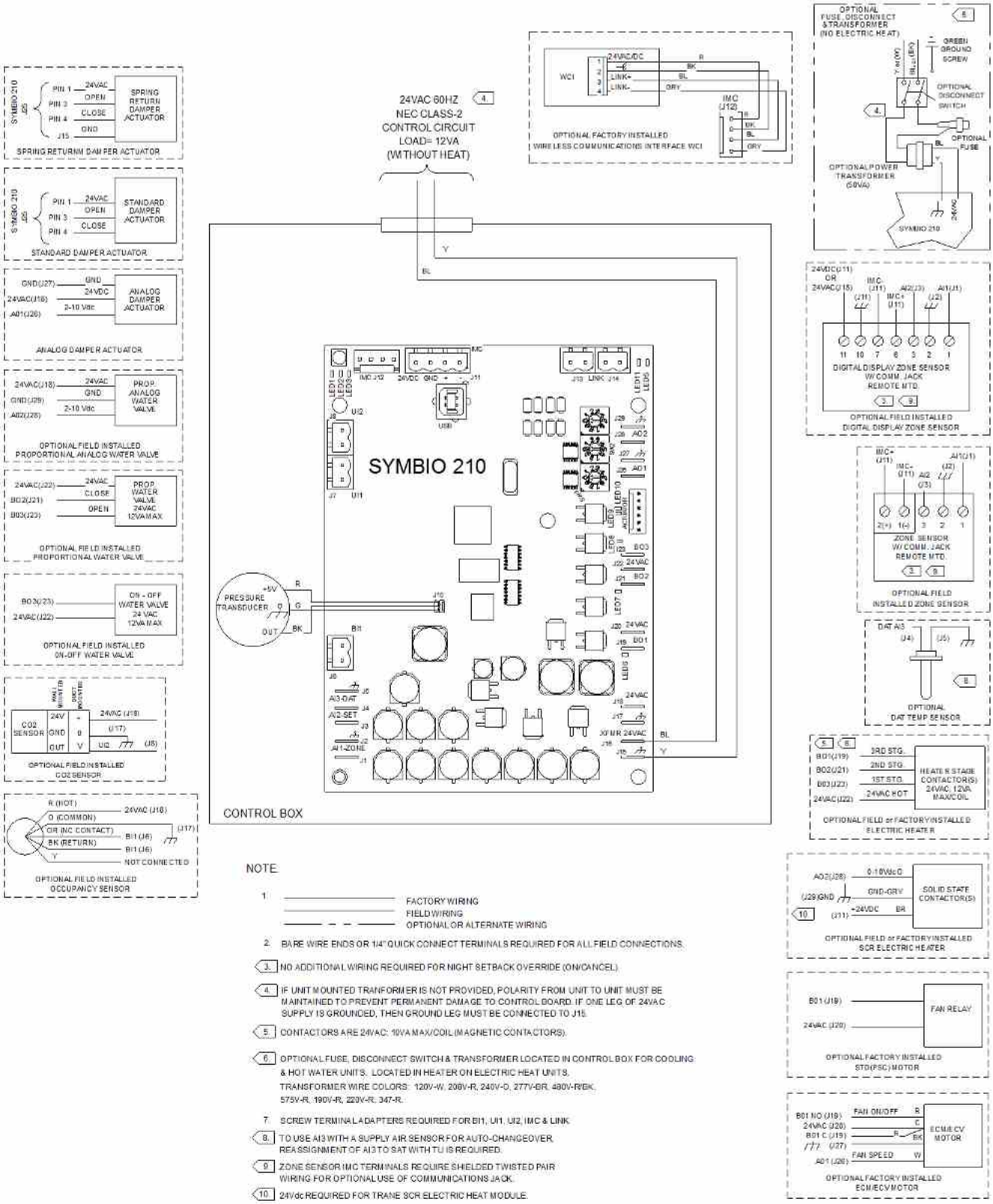
SPECIFICATIONS DIGITAL ZONE SENSOR

Sensor operating temperature	32 to 122ºF (0 to 50ºC)
Setpoint functional range	50 to 89.6 ºF (0 to 32 ºC)
Storage and operating humidity range	5% to 95%, non-condensing
Storage Temperature	-40 to 185 ºF (-40 to 85 ºC)
Accuracy	0.5 ºF over a range of 55 to 85 ºF (12.8 to 29.4 ºC)
Mounting	3.24 in (82.55 mm) for 2 mounting screws (supplied)
Housing	Polycarbonate/ABS blend UV protected, UL 94-5 VA flammability rating
Agency Listing	
United States	UL listed: UP94, 5 VA flammability rating and UL916, energy management equipemtn FCC Part 15, Subpart B
Canada	CUL-C22.2 N. 205-M1983 Signal Equipment Industry Canada (Certificate No.: IC6178A-13651127)
Europe	EMC Directive 89/336/EEC (EMC emissions and susceptibility) EN61326-Commercial Application Emissions EN55011: 2007 Class B limit Immunity EN61000-4-2 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-11

Field Wiring - Variable Air Volume Single Duct Terminal Units
Item: A1, A2, A5, A7 - A9, A13, A14, A16, A17, A20, A22 - A26, A28, A29 Qty: 18 Tag(s): V1-01, V1-02, V1-05, V1-07, V1-08, V1-09, V1-13, V1-14, V1-17, V1-18, V1-21, V1-23, V1-24, V1-25, V1-26, V1-27, V1-30, V1-29



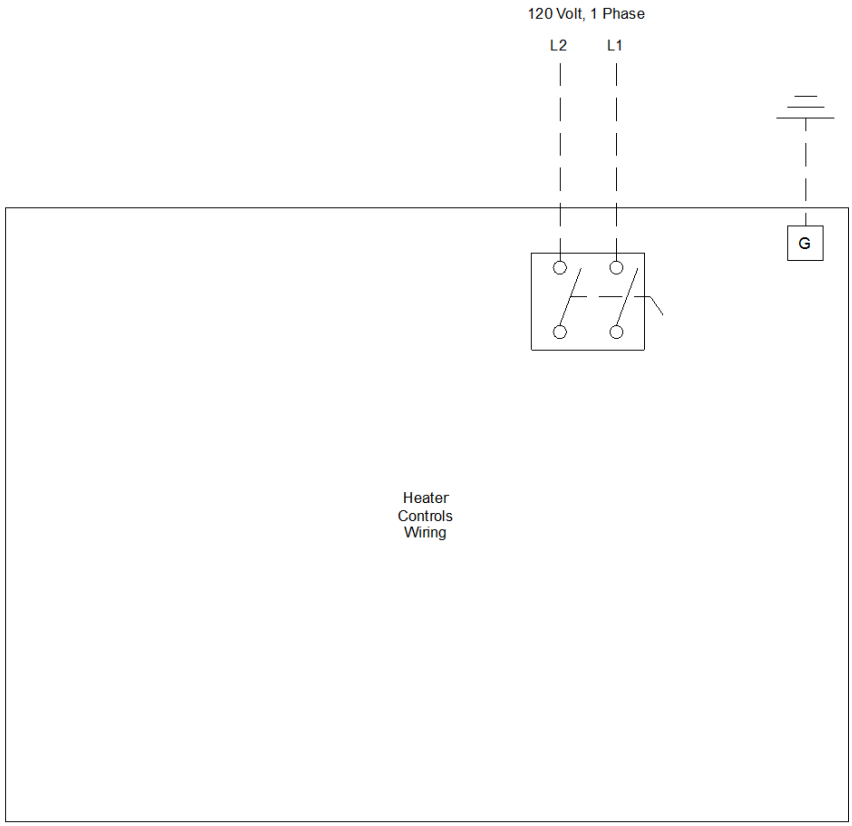
Field Wiring - Variable Air Volume Single Duct Terminal Units
Item: A1 - A29 Qty: 29 Tag(s): V1-01, V1-02, V1-03, V1-04, V1-05, V1-06, V1-07, V1-08, V1-09, V1-10, V1-11, V1-12, V1-13, V1-14, V1-15, V1-17, V1-18, V1-19, V1-20, V1-21, V1-22, V1-23, V1-24, V1-25, V1-26, V1-27, V1-28, V1-30, V1-29



NOTE:

1. FACTORY WIRING
   FIELD WIRING
   OPTIONAL OR ALTERNATE WIRING
2. BARE WIRE ENDS OR 1/4" QUICK CONNECT TERMINALS REQUIRED FOR ALL FIELD CONNECTIONS.
3. NO ADDITIONAL WIRING REQUIRED FOR NIGHT SETBACK OVERRIDE (ON/CANCEL).
4. IF UNIT MOUNTED TRANFORMER IS NOT PROVIDED, POLARITY FROM UNIT TO UNIT MUST BE MAINTAINED TO PREVENT PERMANENT DAMAGE TO CONTROL BOARD. IF ONE LEG OF 24VAC SUPPLY IS GROUNDED, THEN GROUND LEG MUST BE CONNECTED TO J15.
5. CONTACTORS ARE 24VAC: 10VA MAX/COIL (MAGNETIC CONTACTORS).
6. OPTIONAL FUSE, DISCONNECT SWITCH & TRANSFORMER LOCATED IN CONTROL BOX FOR COOLING & HOT WATER UNITS. LOCATED IN HEATER ON ELECTRIC HEAT UNITS.
   TRANSFORMER WIRE COLORS: 120V-W, 208V-R, 240V-O, 277V-BR, 480V-R/BK, 575V-R, 190V-R, 220V-R, 347-R.
7. SCREW TERMINAL ADAPTERS REQUIRED FOR BI1, UI1, UI2, IMC & LINK.
8. TO USE AI3 WITH A SUPPLY AIR SENSOR FOR AUTO-CHANGEOVER, REASSIGNMENT OF AI3 TO SAT WITH TU IS REQUIRED.
9. ZONE SENSOR IMC TERMINALS REQUIRE SHIELDED TWISTED PAIR WIRING FOR OPTIONAL USE OF COMMUNICATIONS JACK.
10. 24Vdc REQUIRED FOR TRANE SCR ELECTRIC HEAT MODULE.

Field Wiring - Variable Air Volume Single Duct Terminal Units
Item: A3, A4, A6, A10 - A12, A15, A18, A19, A21, A27 Qty: 11 Tag(s): V1-03, V1-04, V1-06, V1-10, V1-11, V1-12, V1-15, V1-19, V1-20, V1-22, V1-28



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 - Variable Air Volume Single Duct Terminal Units

Item	Tag(s)	Qty	Description	Model Number
A1	V1-01	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F2W0B05017**005
A2	V1-02	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B04517**005
A3	V1-03	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F1W0K01017**005
A4	V1-04	1	Variable Air Volume Single Duct Terminal	VCEF04--*M0SY75D**0*0F1W0K01017**005
A5	V1-05	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B03517**005
A6	V1-06	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F1W0K01017**005
A7	V1-07	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B03017**005
A8	V1-08	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F2W0B02517**005
A9	V1-09	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F2W0B05017**005
A10	V1-10	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F1W0K01017**005
A11	V1-11	1	Variable Air Volume Single Duct Terminal	VCEF04--*M0SY75D**0*0F1W0K01017**005
A12	V1-12	1	Variable Air Volume Single Duct Terminal	VCEF04--*M0SY75D**0*0F1W0K01017**005
A13	V1-13	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY75D**0*0F2W0B03017**005
A14	V1-14	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F2W0B02517**005
A15	V1-15	1	Variable Air Volume Single Duct Terminal	VCEF04--*M0SY75D**0*0F1W0K01017**005
A16	V1-17	1	Variable Air Volume Single Duct Terminal	VCEF06--*M0SY75D**0*0F2W0B04017**005
A17	V1-18	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F2W0B02517**005

A18	V1-19	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F1W0K02017**005
A19	V1-20	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F1W0K01517**005
A20	V1-21	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F2W0B03017**005
A21	V1-22	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F1W0K01017**005
A22	V1-23	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B06017**005
A23	V1-24	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F2W0B04517**005
A24	V1-25	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B06517**005
A25	V1-26	1	Variable Air Volume Single Duct Terminal	VCEF08--*M0SY75D**0*0F2W0B03017**005
A26	V1-27	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B04517**005
A27	V1-28	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F1W0K01517**005
A28	V1-30	1	Variable Air Volume Single Duct Terminal	VCEF05--*M0SY75D**0*0F2W0B02517**005
A29	V1-29	1	Variable Air Volume Single Duct Terminal	VCEF10--*M0SY75D**0*0F2W0B08017**005

Field Installed Option Description	**Part/Ordering Number**
Digital display zone sensor	X13790886010