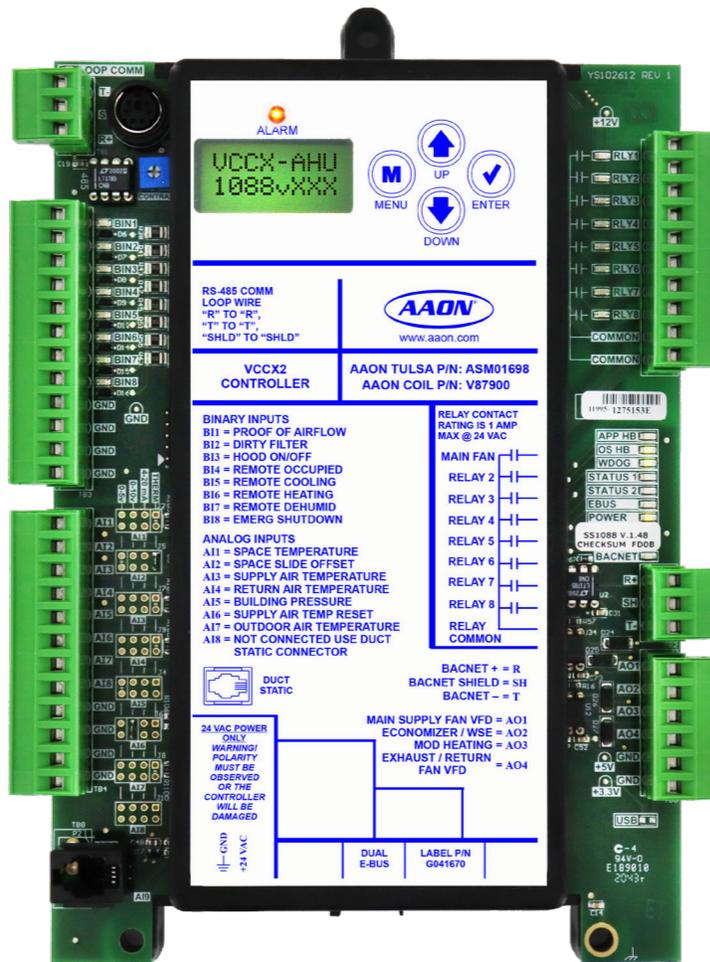




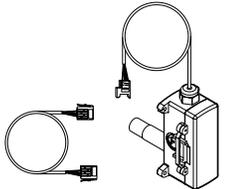
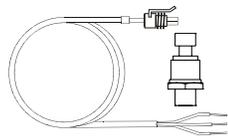
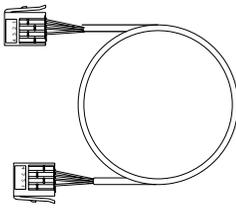
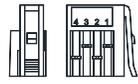
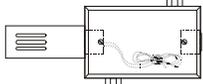
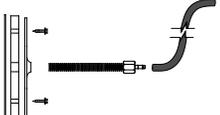
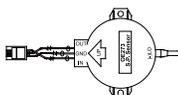
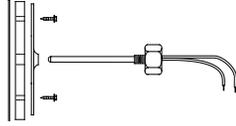
VCCX2 Controller Technical Guide

VCCX2 Controller Code: DT003800-001/SS1088 Version 1.02 and up
 Service Tool SD Code: DT001240-001/SS1063 Version 1.11 and up
 System Manager SD Code: DT002150-001/SS1068 Version 1.11 and up
 System Manager Touch Screen (Limited Access): DT004254-001/SS7013



Part Number Cross Reference

PART DESCRIPTION	ORION	AAON
VCCX2 Controller	OE338-26B-VCCX2	ASM01698
VCC-X EM1 Expansion Module	OE336-23-VCCXEM1	ASM01691
Refrigerant System Module for VFD Compressors	OE370-26-RSMV	ASM01686
Refrigerant System Module VFD Compressors - Heat Pump	OE370-26-RSMV-HP	ASM01693
Refrigerant System Module for Digital Compressors	OE370-26-RSMD	ASM02201
Refrigerant System Module for VFD Compressors (RSMZ)	N/A	ASM02351
Subcool Monitor Module	N/A	ASM02350
12 Relay E-BUS Expansion Module	OE358-23E-12R	ASM01873
Building Static Pressure Transducer	OE258-01	ASM01832
CommLink 5 Communications Interface	OE361-13	ASM01874
Duct Static Pressure Transducer and Pickup Tube	OE271 and OE290	ASM01640 and ASM02242
Duct Temperature Sensor - 6" or 12"	OE230 / OE231	G051240 / G051250
E-BUS Cable Assembly E-BUS Power and Comm 1.5 ft., 3 ft., 10 ft., 25 ft., 50 ft., 75 ft., 100 ft., 150 ft., 250 ft., and 1000 ft. Spool	EBC-1.5F, EBC-3F, EBC-10F, EBC-25F, EBC-50F, EBC-75F, EBC-100F, EBC-150F, EBC-250F, EBC-SPOOL	G029440 (1.5 ft.), G012870 (3 ft.), G029460 (10 ft.), G045270 (25 ft.), G029510 (50 ft.), G029530 (75 ft.), G029450 (100 ft.), G029470 (150 ft.), V36590 (250 ft.), G018870 (SPOOL)
E-BUS Adapter Hub	MS000248	G033970
E-BUS Adapter Hub with 1.5 ft. EBC Cable	HZ-EBC-248	ASM01635
E-BUS Adapter Board	OE365-15-EBA	ASM01878
E-BUS CO ₂ Space Sensor (wall or duct mounted)	OE256-05 / OE256-07	ASM01829 / ASM01831
E-BUS Digital Room Sensor - LCD - Temp. or Temp and RH	OE217-02 / OE217-03	ASM01819 / ASM01820
E-BUS Digital Room Sensor - No LCD - Temp and RH	OE217-04	ASM02221
E-BUS Horizontal Outdoor Air Temperature and RH Sensor	OE265-15	ASM01836
E-BUS Vertical Outdoor Air Temperature and RH Sensor	OE265-16	ASM01838
E-BUS Return Air Temperature and RH Sensor	OE265-17	ASM01840
E-BUS CO ₂ Return Air Sensor Emulator Board	OE365-07-EBSE	ASM01623
E-BUS CO ₂ Space Sensor Emulator Board	OE365-06-EBSE	ASM01622
E-BUS Outdoor Air Temp/RH Sensor Emulator Board	OE365-05-EBSE	ASM01697
E-BUS Return Air Temp/RH Sensor Emulator Board	OE365-04-EBSE	ASM01621
E-BUS Space Temp/RH Sensor Emulator Board	OE365-03-EBSE	ASM01696
GPC-XP Controller	OE338-23-GPCXP	ASM01868
IP Module Kit	OE415-02	ASM01902
MHGRV-X Module / Reheat Expansion Module	OE377-26-00059 / OE377-01-00059	ASM01670 / ASM01687
MiniLink Polling Device 5	OE364-23-OR	ASM01626
MODGAS-X Module	OE377-26-00058	ASM01668
MODGAS-XWR2 Module	OE377-26-00060-1	ASM01695
Modular Service Tool SD - Operator Interface	OE391-12	ASM01895
Modular System Manager SD - Operator Interface	OE392-12	ASM01901
Outdoor Air Temperature Sensor	OE250	G042230
PREHEAT-X Module / PREHEAT-X-EXT Module	OE377-26-00061 / OE377-26-00061-1	ASM01688 / ASM01689
Standard Room Sensor - Plain or W/ Override	OE210 / OE211	ASM02227 / ASM01638
Standard Room Sensor - with Setpoint Adjust or Setpoint Adjust and Override	OE212 / OE213	ASM01642 / ASM01643
Strap-On Temperature Sensor Kit	OE233	ASM01624
Suction Pressure Transducer	OE275-01	ASM02222
System Manager TS-L (Touch Screen - Limited Access)	OE392-11	ASM01900
USB-Link 2 Kit	OE366	ASM02244

PART NO.	PART DESCRIPTION	ILLUSTRATION	PAGE NO.
ASM01840	<p>E-BUS Return Air Temperature and Humidity Sensor</p> <p>Used for return air temperature and humidity sensing applications. Connects to VCCX2 Controller or E-BUS Adapter Hub using E-BUS cable. Includes: E-BUS Return Air Temperature and Humidity Sensor, mounted in a weatherproof handy box attached with a 3 ft. E-BUS cable with jack. A 50 ft. E-BUS cable is included to connect to the VCCX2 Controller. If a longer E-BUS cable is required, it must be ordered separately.</p>		Page 37
ASM02222	<p>Suction Pressure Transducer</p> <p>Used for suction pressure sensing applications. Connects to the Refrigerant System Modules. Includes: Suction Pressure Transducer and modular cable with a modular connector on one end and bare stripped wires on the other end.</p>		Pages 52, 53, 55
<p>G029440 (1.5F) G012870 (3F) G029460 (10F) G045270 (25F) G029510 (50F) G029530 (75F) G029450 (100F) G029470 (150F) V36590 (250F) G018870 (SPOOL)</p>	<p>E-BUS Cables</p> <p>The E-BUS cables connect to the VCCX2 Controller, VCC-X Expansion Modules, and E-BUS Sensors. Different lengths can be joined together using an E-BUS Adapter Hub, if necessary. The E-BUS cables are available in 1.5 ft., 3 ft., 10 ft., 25 ft., 50 ft., 75 ft., 100 ft., 150 ft., and 250 ft. lengths. Includes: E-BUS Cable Assembly.</p> <p>The E-BUS CABLE SPOOL is bulk E-BUS cable that can be used with the E-BUS Bulk Connectors.</p>		Pages 25-63
G018890	<p>E-BUS Bulk Connectors</p> <p>Attaches to E-BUS Spool Cable. Must be crimped using either the G034180 E-BUS Crimp Tool or one matching the requirements listed in the pricing list. Includes: E-BUS Bulk Connector.</p>		N/A
G034180	<p>E-BUS Crimp Tool</p> <p>Crimps the E-BUS Connectors for use with the E-BUS Spool Cable. Includes: E-BUS Crimp Tool.</p>		N/A
G042230	<p>Outdoor Air Temperature Sensor</p> <p>Used for temperature sensing applications. Includes: 10K ohm Outdoor Air Temperature Sensor, two wire, mounted in a weatherproof handy box only.</p>		Page 35
ASM02242	<p>Duct Static Pressure Pick-up Tube</p> <p>Used with the Duct Static Pressure Transducer for static pressure sensing applications. Includes: static pressure pick-up tube with 1 ft. length of FRP tubing, gasketed mounting bracket, and screws.</p>		Page 38
ASM01640	<p>Duct Static Pressure Sensor</p> <p>Used for duct static pressure sensing applications. Includes: 0-5" W.C., 0-5 VDC, Static Pressure Sensor only.</p>		Page 38
ASM01832	<p>Building Static Pressure Sensor</p> <p>Used for building pressure sensing. Includes: -0.25 to +0.25" W.C., 0-5 VDC, and 24 VAC/VDC supply power Building Pressure Sensor only.</p>		Page 33
<p>G051240 (6") G051250 (12")</p>	<p>Duct Temperature Sensor - 6" Probe Duct Temperature Sensor - 12" Probe</p> <p>G051240 = 6" probe length. G051250 = 12" probe length. Used for return or supply air temperature sensing applications. Includes: 10K ohm Duct Temperature Sensor, two-wire only.</p>		Pages 31 and 32

Duct Static Pressure Transducer

Duct Static Pressure Transducer

The ASM01640 Duct Static Pressure Transducer plugs directly into the VCCX2 Controller's static pressure port. The Duct Static Pressure Sensor reading is used to determine current duct static pressure. This static pressure reading is used to control the output signal supplied to the supply fan VFD, zone damper actuator or bypass damper actuator. If the HVAC unit is configured for CAV operation, this sensor is optional. If it is installed on a CAV unit, it will not affect operation, but rather will be used as a status-only reading. See **Figure 19, this page**, for detailed wiring.

CAUTION: AAON strongly recommends using pneumatic tubing instead of relocating the sensor. Extending the wires could cause voltage drop problems.

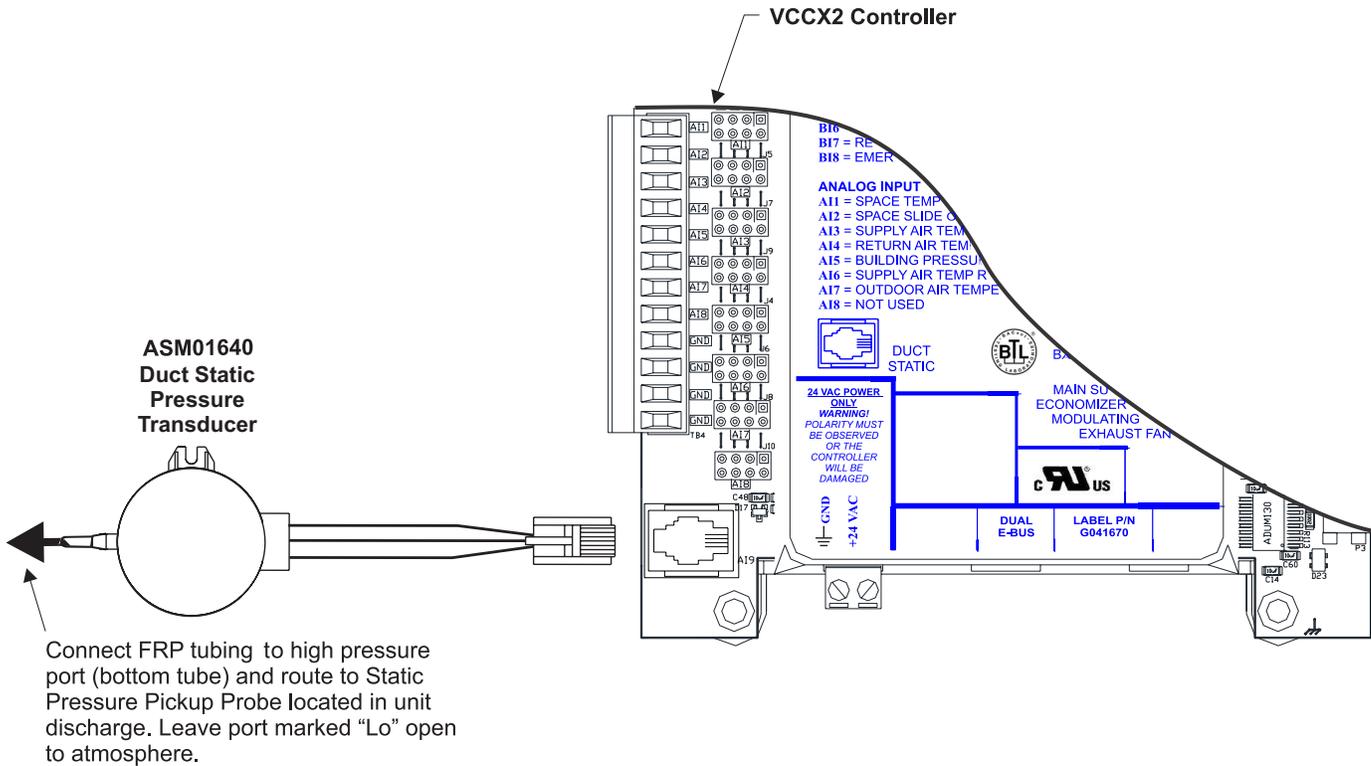


Figure 19: Static Pressure Transducer Wiring

VCC-X EM1 Expansion Module Inputs

Exhaust Duct Static Pressure Sensor

The ASM01640 Exhaust Duct Static Pressure Sensor plugs directly into the EM1's static pressure port. The Duct Static Pressure Sensor reading is used to determine current exhaust duct static pressure. This static pressure reading is used to control the output signal (AO4 on the VCCX2 Controller) supplied to the exhaust fan VFD. See **Figure 26, this page**, for wiring.

Title 24 Economizer Actuator Feedback

If the controller has been configured for Title 24 economizer operation, the economizer actuator feedback signal will be wired to the VCC-X EM1's SIG3 input. The jumper should be set to 0-10 VDC. See **Figure 26, this page**, for wiring.

WARNING: Observe polarity! All boards must be wired with GND-to-GND and 24 VAC-to-24 VAC. Failure to observe polarity will result in damage to one or more of the boards. Expansion modules must be wired in such a way that the expansion modules and the controller are always powered together. Loss of power to the expansion module will cause the controller to become inoperative until power is restored to the expansion module.

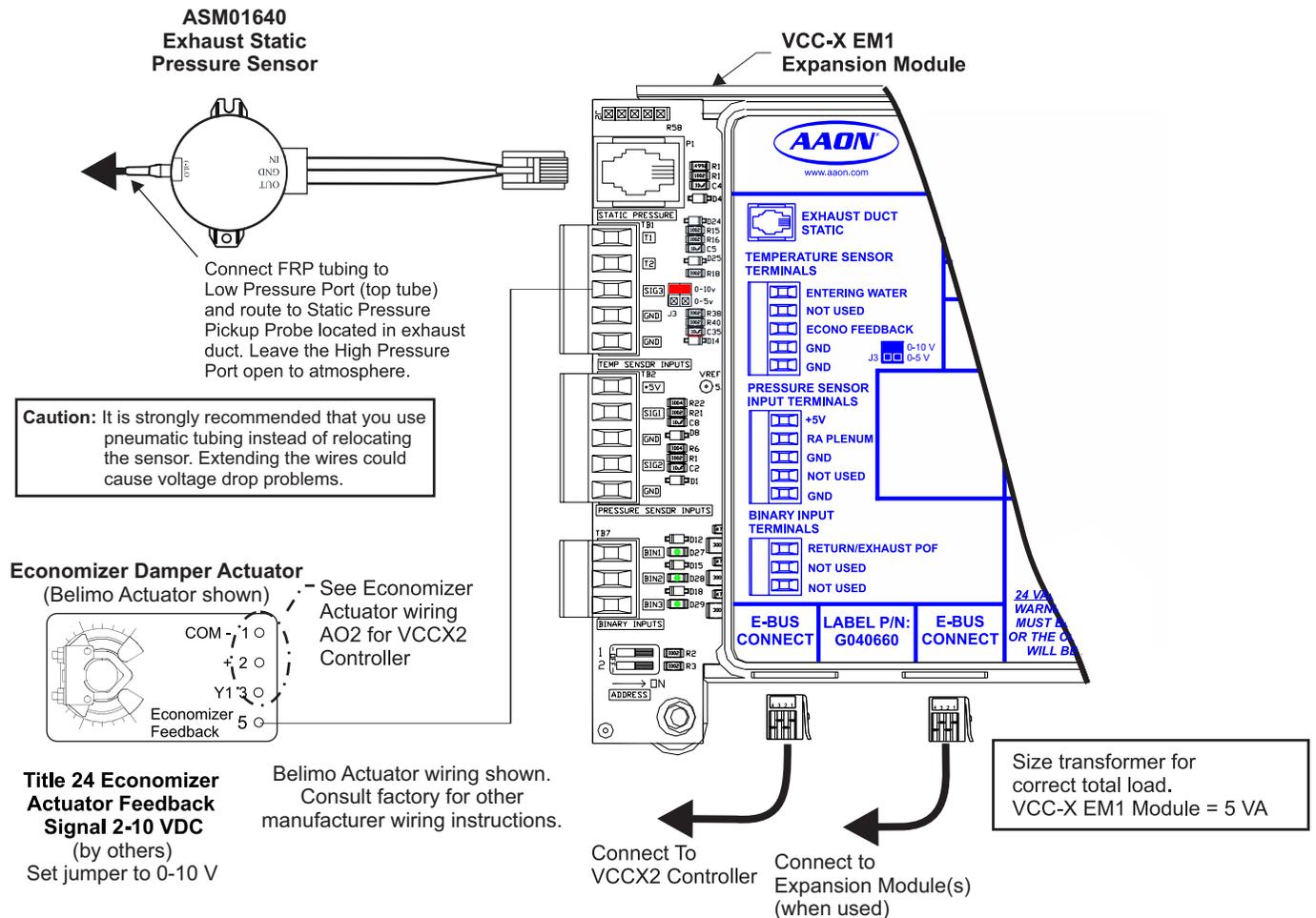


Figure 26: VCC-X EM1 Exhaust Duct Static Pressure and Economizer Actuator Feedback Wiring