



Heating & Cooling Products

E-BUS Digital Room Temperature Sensor

ASM01819 ALT-REF number OE217-02

Description

The Touch Screen E-BUS Digital Room Temperature Sensor is used to sense Space Temperature only. The Space Temperature Sensor can be used with the VCCX2, VCB-X, VAV/Zone, and various other AAON Unit Controllers.

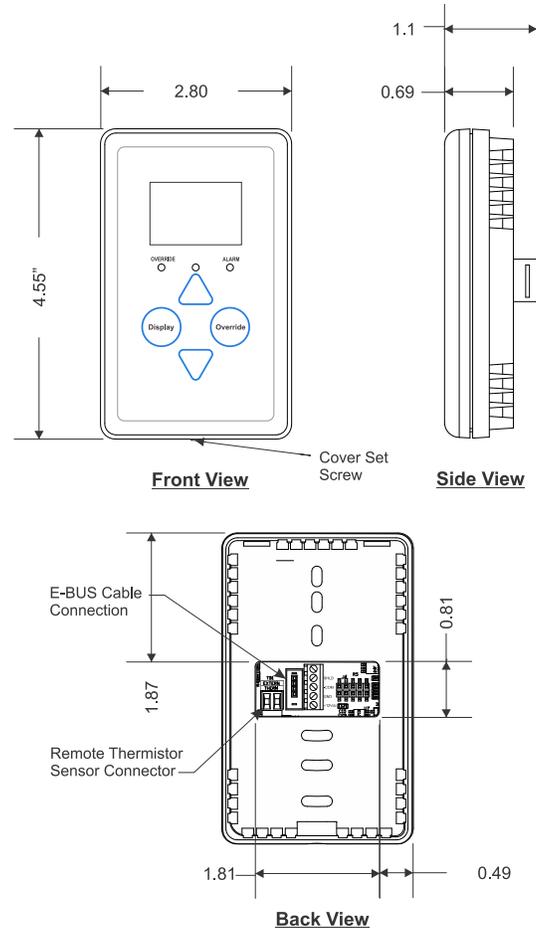
Additional Features

- User Friendly Graphical LCD Display with LED Backlight
- Display the Current Space and Outdoor Air Temperature
- Display the current Zone Setpoint Temperature
- Equipped with Push Buttons for Changing the Zone Setpoint Temperature
- Equipped with an Override Button for Forcing the Unit Controller or VAV/Zone Controller into Occupied Operation from Unoccupied Operation
- Provides graphics to indicate the mode of operation
- Provides LEDs to indicate Schedule Override, Button Push, and Alarms

The sensor connects to the controllers using E-BUS cables of multiple lengths connected between the controller and the sensor. The E-BUS cables should not run in conduit with other AC line voltage wiring or with any conductors carrying highly inductive loads.

Mounting

The E-BUS Digital Room Temperature Sensor is designed to be mounted to a vertical, 2" x 4" electrical box recessed in the wall. If the wall cannot be penetrated, a plastic surface mount box such as those made by Wiremold™, may be used to mount the sensor to the wall surface. The Sensor is mounted by removing the front cover and fastening the housing base to the electrical box using the supplied (2) 6-32" x 1" machine screws. The E-BUS cable is then plugged into the E-BUS connector located on the circuit board that is mounted on the cover. The cover is then placed onto the housing base and the Allen Screw on the bottom of the base is adjusted to hold the cover in place.



Technical Data		E-BUS Digital Room Temperature Sensor	
Sensor Element	Digital Sensing Device	Display	112 x 64 Monochrome Graphical LCD w/LED Backlight
Sensor Reading Range	40°F to 120°F	Connection	E-BUS
Ambient Temperature Limits	-40°F to 180°F	Weight	3.2 oz.
Accuracy	Temp +/- .8°F		
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Digital Room Temperature & Humidity Sensor

ASM01820 ALT-REF number OE217-03

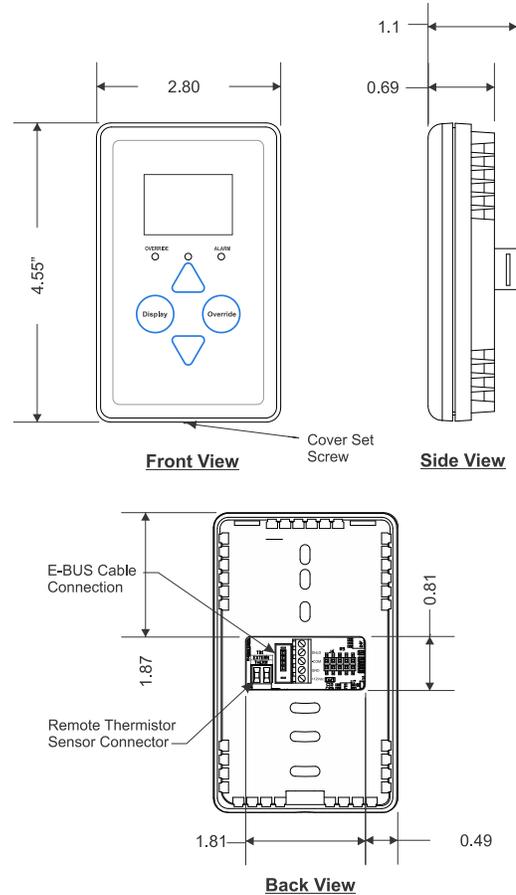
Description

The Touch Screen E-BUS Digital Room Sensor is a combination Space Temperature & Space Humidity Sensor and can be used with the VCCX2, VCB-X, and various other AAON Unit Controllers.

Additional Features

- User Friendly Graphical LCD Display with LED Backlight
- Displays the Current Space and Outdoor Air Temperature
- Displays the Current Space Humidity and Outdoor Air Relative Humidity
- Displays the current Zone Setpoint Temperature
- Equipped with Push Buttons for Changing the Zone Setpoint Temperature
- Equipped with an Override Button for Forcing the Unit Controller into Occupied Operation from Unoccupied Operation
- Provides graphics to indicate the mode of operation
- Provides LEDs to indicate Schedule Override, Button Push, and Alarms

The sensor connects to the controllers using E-BUS cables of multiple lengths connected between the controller and the sensor. The E-BUS cables should not run in conduit with other AC line voltage wiring or with any conductors carrying highly inductive loads.



Mounting

The Digital Room Sensor is designed to be mounted to a vertical, 2" x 4" electrical box recessed in the wall. If the wall cannot be penetrated, a plastic surface mount box such as those made by Wiremold™, may be used to mount the sensor to the wall surface. The Sensor is mounted by removing the front cover and fastening the housing base to the electrical box using the supplied (2) 6-32" x 1" machine screws. The E-BUS cable is then plugged into the E-BUS connector located on the circuit board that is mounted on the cover. The cover is then placed onto the housing base and the Allen Screw on the bottom of the base is adjusted to hold the cover in place. An additional cover plate is provided in case the sheet rock cut-out is too large to be covered by the regular back plate.

Technical Data		E-BUS Digital Room Temperature & Humidity Sensor	
Sensor Element	Digital Sensing Device	Display	112 x 64 Monochrome Graphical LCD w/LED Backlight
Sensor Reading Range	40°F to 120°F RH = 0-100%	Connection	E-BUS
Ambient Temperature Limits	-40°F to 180°F	Weight	3.2 oz.
Accuracy	RH +/- 3%, Temp +/- .8°F		
One Year Warranty		AAON reserves the right to change specifications without notice	

E-BUS Digital Room Temperature & Humidity Sensor (No LCD Display)

ASM02221 ALT-REF number OE217-04

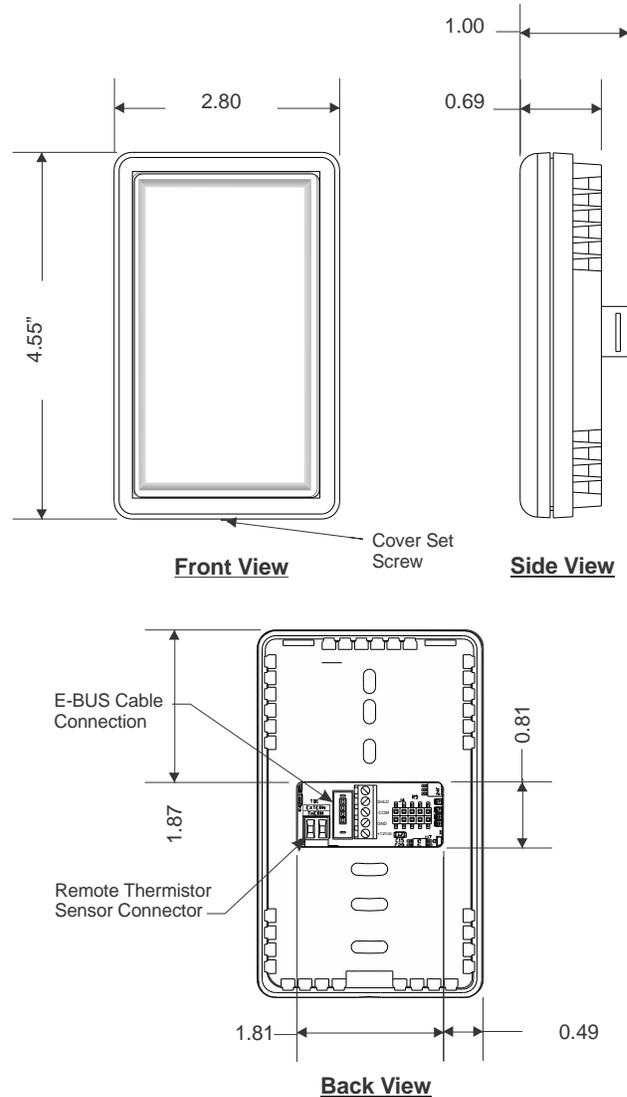
Description

The E-BUS Digital Room Space & Humidity Sensor is used to sense Space Temperature & Space Humidity. The E-BUS Digital Room Sensor can be used with the VCCX2, VCB-X, or various other AAON Unit Controllers.

The E-BUS Digital Room Sensor connects to the controller using E-BUS cables of multiple lengths connected between the controller and the sensor. The E-BUS cables should not run in conduit with other AC line voltage wiring or with any conductors carrying highly inductive loads.

Mounting

The E-BUS Digital Room Sensor is designed to be mounted to a vertical, 2" x 4" electrical box recessed in the wall. If the wall cannot be penetrated, a plastic surface mount box such as those made by Wiremold™, may be used to mount the sensor to the wall surface. The Sensor is mounted by removing the front cover and fastening the housing base to the electrical box using the supplied (2) 6-32" x 1" machine screws. The E-BUS cable is then plugged into the E-BUS connector located on the circuit board that is mounted on the cover. The cover is then placed onto the housing base and the Allen Screw on the bottom of the base is adjusted to hold the cover in place.



Technical Data		E-BUS Digital Room Temperature & Humidity Sensor (No LCD)	
Sensor Element	Digital Sensing Device	Accuracy	RH +/- 3%, Temp +/- .8°F
Sensor Reading Range	40°F to 120°F RH = 0-100%	Connection	E-BUS
Ambient Temperature Limits	-40°F to 180°F	Weight	3.2 oz.
One Year Warranty		AAON reserves the right to change specifications without notice.	



Heating & Cooling Products

Standard Room Temperature Sensors

ASM02227, ASM01638, ASM01642, ASM01643

ALT-REF numbers OE210, OE211, OE212, OE213

Description

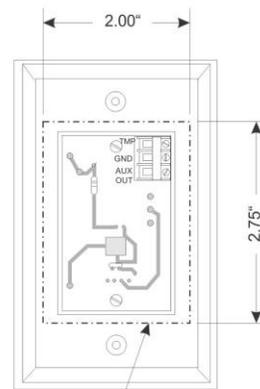
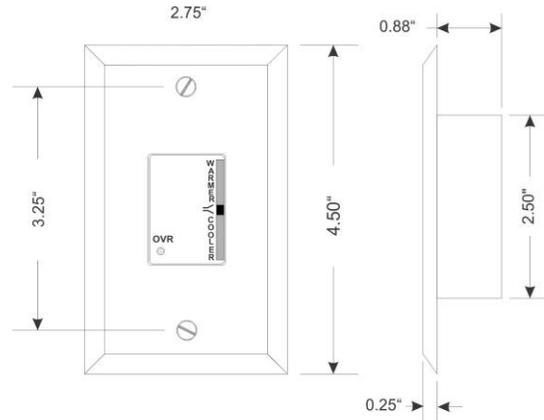
The patented design Standard Room Temperature Sensor provides accurate sensing of the room temperature. Its design allows for flush wall mounting yet rejects the influence of surface and internal wall temperatures. The Standard Room Sensor is used with the Unit Controller and VAV/Zone Controller. Wire terminals are provided on the sensor for connection to the controller.

Sensors provided with the setpoint adjustment option can be programmed to allow a temperature range adjustment of $\pm 6^{\circ}\text{F}$ from their standard setpoint. Sensors provided with the pushbutton override option can be programmed to provide a timed override duration of up to 8.0 hours.

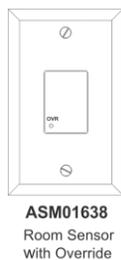
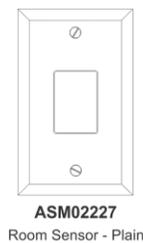
The Room Sensor's off-white casing color makes it suitable for most building decors. If interior decoration requires, the Room Sensor casing can also be painted or wall-papered without affecting the sensor's performance.

Room Sensors are available in 4 different configurations:

- ASM02227 Sensor Plain
- ASM01638 Sensor with Override
- ASM01642 Sensor with Setpoint Adjustment
- ASM01643 Sensor with Setpoint Adjustment and Override



Wall Cut-Out Dimensions When Sensor Is To Be Mounted Without Handy Box (By Others)



Mounting

The Room Sensors are designed to be mounted on a vertical, 2" x 4" electrical box recessed in the wall. If the wall cannot be penetrated, a plastic surface mount box such as those made by Wiremold™, may be used to mount the sensor to the wall surface.

Technical Data		Standard Room Sensor	
Sensor Element	Type III Thermistor 10k ohm @ 77° F	Mounting	Designed to be Flush Mounted to Wall using Vertical 2" x 4" Handy Box (by others)
Accuracy	$\pm 0.4^{\circ}\text{F}$ between 40° F to 95° F	Line Loss	0.25° F max. error, using 22 AWG wire at 1000 ft
Range	-30° F to 150° F	Weight	4 oz.
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

Duct Temperature Sensors

G051240 & G051250 ALT-REF number OE230 & OE231

Description

The Duct Temperature Sensors are 10K Ohm Type III Thermistor Sensors. The Sensors are used for sensing Supply or Return Air Temperatures. The G051240 Temperature Sensor is 6" in length and the G051250 Temperature Sensor is 12" in length.

NOTE: Location of the Sensors is very important in order to obtain accurate temperature readings.

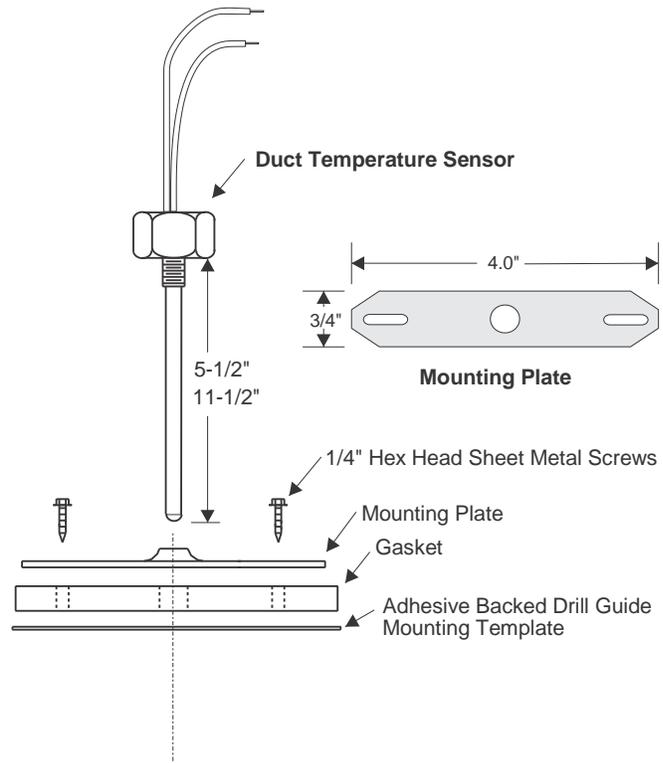
The following recommendations should be followed:

Supply Air Temperature Sensor

When used as a Supply Air Sensor, the Sensor should be mounted in the Supply Air Duct as close to the HVAC Unit as possible for best results. For best accuracy, apply insulation on the outside of the ductwork over the Sensor. This will help thermal gradients from affecting the Sensor.

Return Air Temperature Sensor

When used as a Return Air Sensor, the Sensor should be mounted in the Return Air Duct as close to the HVAC Unit as possible for best results. For best accuracy, apply insulation on the outside of the ductwork over the Sensor. This will help thermal gradients from affecting the Sensor.



Mounting

The Duct Temperature Sensor is designed to be mounted to the ductwork using the adhesive backed drill guide mounting template to drill a 5/16" hole in the ductwork for the probe. Place the gasket over the ductwork and then attach the mounting plate using the 1/4" Hex Head Sheet Metal Screws (provided). Thread together the Duct Temperature's Probe to the mounting plate.

Technical Data		Duct Temperature Sensors	
Sensor Element	Type III Thermistor 10K ohm @ 77°F	Operating Temperature Range	-10°F to 200°F
Accuracy	Temp +/- 1.26°F between 40°F and 90°F	Weight	6" - 2.3 oz. 12" - 2.9 oz.
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

Outdoor Air Temperature Sensor

G042230 ALT-REF number OE250

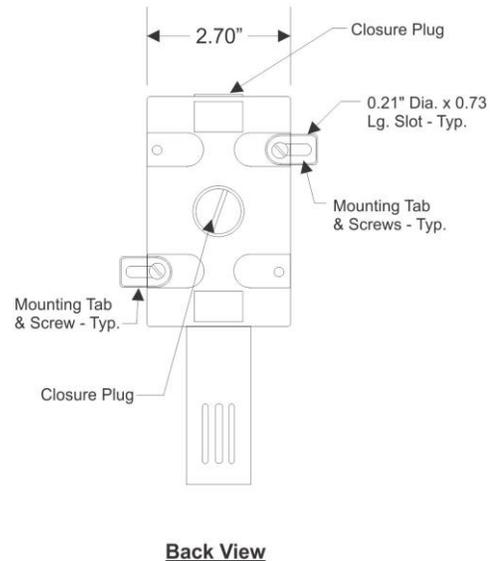
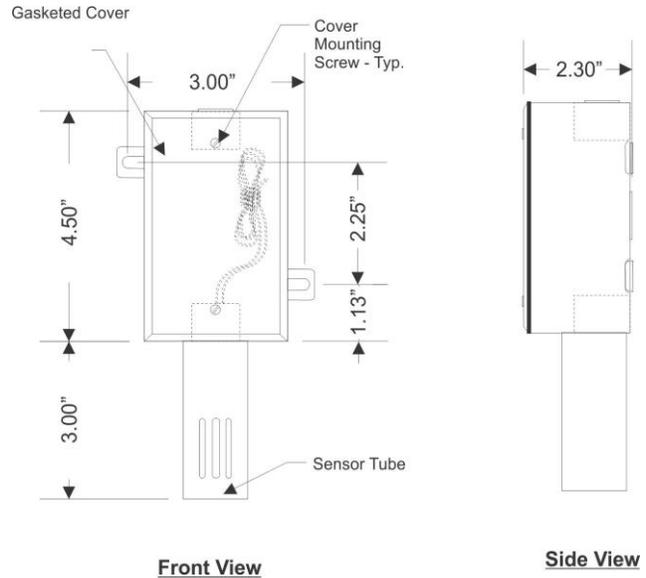
Description

The Outdoor Air Temperature Sensor uses a 10K Ohm Type III thermistor sensor. The sensor should be mounted in the upright position as shown (Sensor Tube pointing down) in an area that is protected from the elements and direct sunlight. Be sure to make the wiring splices inside of the Outdoor Air Temperature Sensor weather-tight enclosure.

Mounting

Sensor must be located in an area where it will not be affected by direct sunlight or heat producing equipment. If possible, mount in a shaded area under the HVAC unit rain hood or similar protected location. If Sensor is not located as specified, erroneous Outdoor Air Temperature readings will result.

CAUTION: Unused conduit opening(s) must have closure plugs installed and must be coated with sealing compound to provide a rain-tight seal. Gasket must be installed under cover plate to provide rain tight seal. Water can damage the sensor. **Water Must Not Be Allowed To Stand In Sensor Tube. Rain Water Will Damage Sensor.**



Technical Data		Outdoor Air Temperature Sensor	
Sensor Element	Type III Thermistor 10K Ohm @ 77°F	Outdoor Temperature Range	-40°F to 180°F
Accuracy	Temp +/- 1.26°F between 40°F and 90°F	Weight	12.2 oz.
One Year Warranty		AAON reserves the right to change specifications without notice.	



Heating & Cooling Products

E-BUS Horizontal Outdoor Air Temperature & Humidity Sensor

ASM01836 ALT-REF number OE265-15

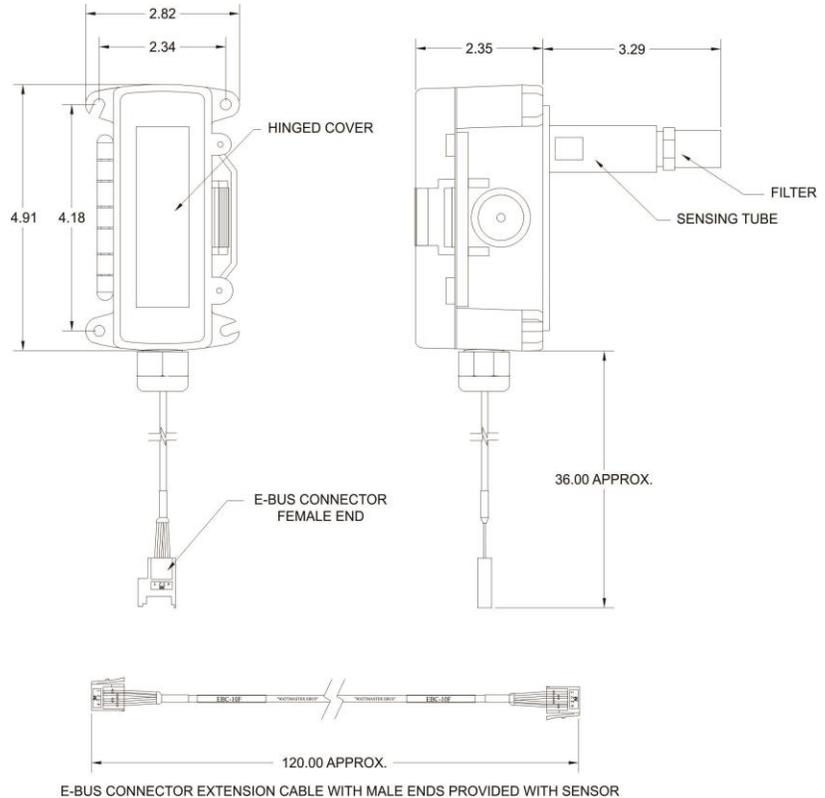
Description

The E-BUS Horizontal Outdoor Air Temperature and Humidity Sensor is a combination Outdoor Air Temperature and Outdoor Air Humidity sensor that connects to the VCCX2, VCB-X, or various other AAON Unit Controllers using an EBC E-BUS modular cable.

This sensor is used when both Outdoor Air Temperature and Humidity are needed for the Unit Controller to do Wetbulb or Dewpoint Economizer Control. It is also used if the Unit Controller is used in a Make Up Air application to initiate dehumidification based on an Outdoor Air Dewpoint Setpoint.

Mounting

A 10 foot EBC E-BUS cable (provided) plugs into the E-BUS Outdoor Air Temperature and Humidity Sensor's attached 3-foot cable and then attaches to an E-BUS Expansion port on the Unit Controller or into another available E-BUS Expansion port. The sensor should be mounted in the upright position as shown in an area that is protected from the elements and direct sunlight.



CAUTION: Be sure to mount the E-BUS Outdoor Air Temperature & Humidity Sensor in an area that is not exposed to direct sunlight. The shaded area under the HVAC unit rain hood is normally a good location. Unused conduit opening(s) must have closure plugs installed and must be coated with sealing compound to provide a rain-tight seal. Water can damage the sensor.

Technical Data		E-BUS Horizontal Outdoor Air Temperature & Humidity Sensor	
Sensor Element	Digital Capacitive Sensing Device	Accuracy	RH +/- 3%, Temp +/- .8°F
Sensor Reading Range	-40°F to 185°F RH = 0-100%	Connection	E-BUS
Ambient Temperature Limits	-40°F to 185°F	Weight	2.3 oz.
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Vertical Outdoor Air Temperature & Humidity Sensor

ASM01838 ALT-REF number OE265-16

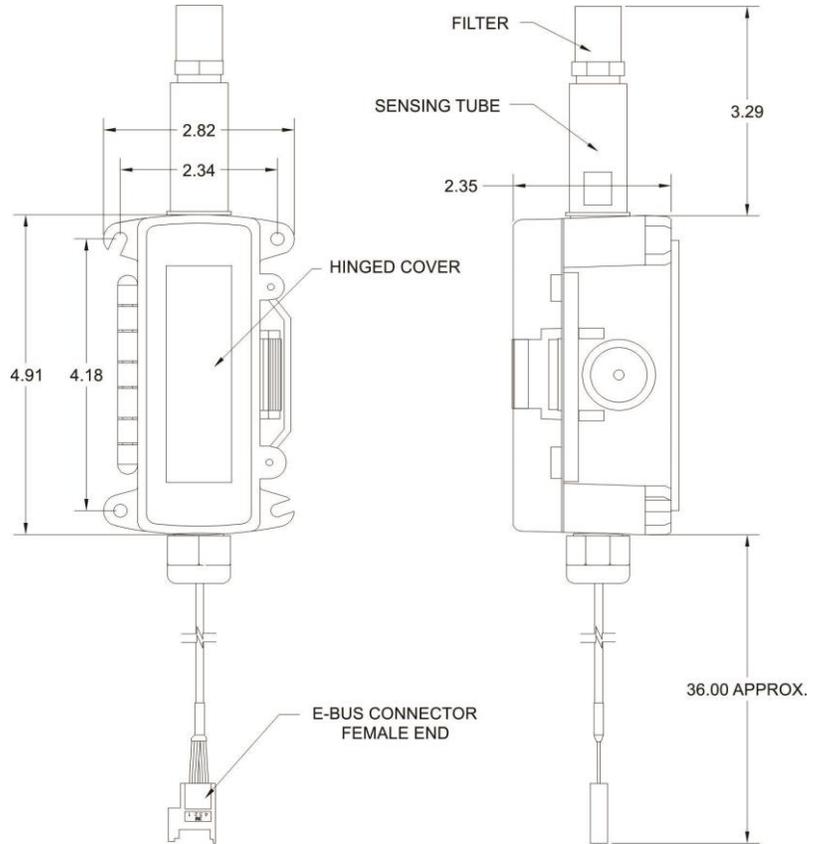
Description

The E-BUS Vertical Outdoor Air Temperature and Humidity Sensor is a combination Outdoor Air Temperature and Outdoor Air Humidity sensor that connects to the VCCX2, VCB-X, or various other AAON Unit Controllers using an EBC E-BUS modular cable.

This sensor is used when both Outdoor Air Temperature and Humidity are needed for the Unit Controller to perform Wetbulb or Dewpoint Economizer Control. It is also used if the Unit Controller is used in a Make Up Air application to initiate dehumidification based on an Outdoor Air Dewpoint Setpoint.

Mounting

A 10 foot EBC E-BUS cable (provided) plugs into the E-BUS Outdoor Air Temperature and Humidity Sensor's attached 3-foot cable and then attaches to an E-BUS Expansion port on the Unit Controller or into another available E-BUS Expansion port. The sensor should be mounted in the upright position as shown in an area that is protected from the elements and direct sunlight.



CAUTION: Be sure to mount the E-BUS Outdoor Air Temperature & Humidity Sensor in an area that is not exposed to direct sunlight. The shaded area under the HVAC unit rain hood is normally a good location. Unused conduit opening(s) must have closure plugs installed and must be coated with sealing compound to provide a rain-tight seal. Water can damage the sensor.

Technical Data		E-BUS Vertical Outdoor Air Temperature & Humidity Sensor	
Sensor Element	Digital Capacitive Sensing Device	Accuracy	RH +/-3%, Temp +/- .8°F
Sensor Reading Range	-40°F to 185°F RH = 0-100%	Connection	E-BUS
Ambient Temperature Limits	-40°F to 185°F	Weight	2.3 oz.
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Return Air Temperature & Humidity Sensor

ASM01840 ALT-REF number OE265-17

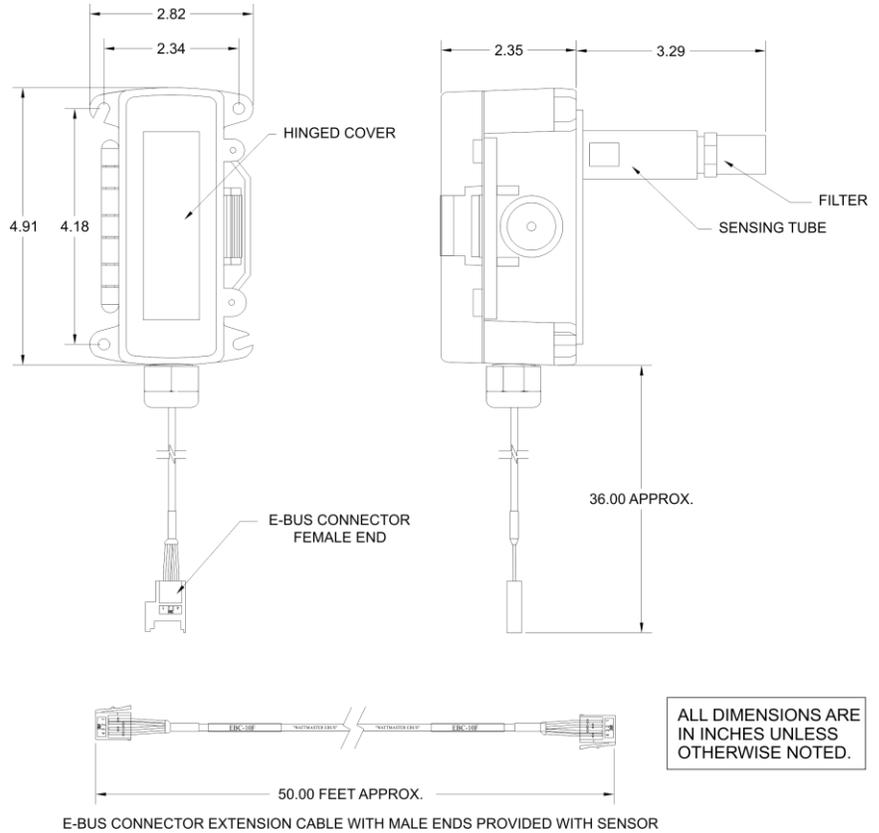
Description

The E-BUS Return Air Temperature and Humidity Sensor is a combination Return Air Temperature and Return Air Humidity sensor that connects to the VCCX2, VCB-X, and various other AAON Unit Controllers using an EBC E-BUS modular cable.

This sensor is used when both Return Air Temperature and Return Air Humidity are needed for the Unit Controller. The Return Air Humidity Sensor can be used to initiate dehumidification based on an Indoor Humidity Setpoint.

Mounting

A 50 foot EBC E-BUS cable (provided) plugs into the E-BUS Return Air Temperature and Humidity Sensor's attached 3-foot cable and then attaches to an E-BUS Expansion port on the Unit Controller or into another available E-BUS Expansion port.



Technical Data		E-BUS Return Air Temperature & Humidity Sensor	
Sensor Element	Digital Capacitive Sensing Device	Accuracy	RH +/- 3%, Temp +/- .8°F
Sensor Reading Range	-40°F to 185°F RH = 0-100%	Connection	E-BUS
Ambient Temperature Limits	-40°F to 185°F	Weight	2.3 oz.
One Year Warranty		AAON reserves the right to change specifications without notice	

Heating & Cooling Products

Suction Pressure Transducer

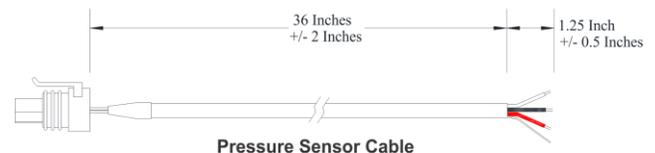
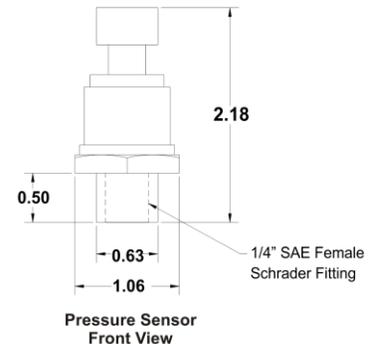
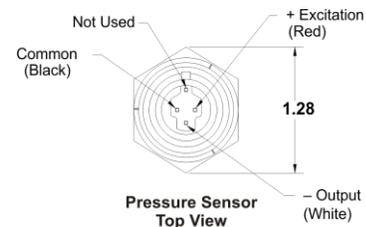
ASM02222 ALT-REF number OE275-01

Description

The Suction Pressure Transducer is used to monitor the suction line pressure of a DX coil when the HVAC unit is equipped with a digital compressor. The Suction Pressure Transducer is used in applications requiring tight control of the suction pressure in order to maintain coil efficiency during varying coil load conditions. The Suction Pressure Transducer monitors the suction pressure at the coil and this information is used to load/unload or stage compressors to maintain the suction pressure at the DX coil within a predetermined optimum operating range.

The Suction Pressure Transducer metal wetted parts are made from stainless steel and Haynes 214 alloy. The Suction Pressure Transducer is weather resistant. Connection to the pressure source is accomplished by screwing the 1/4" SAE female Schrader fitting on the Suction Pressure Transducer onto a 1/4" Schrader male valve fitting (by others) that is welded into the suction line. The Suction Line Transducer provides a 0.5 to 4.5 VDC output in response to a 0 to 250 PSIG pressure. Transducer accuracy is $\pm 0.25\%$ of the full scale of the transducer.

For easy wiring the Suction Pressure Transducer has a 3 pin Packard connector that connects to a 3 foot long prefabricated cable. The cable is supplied with a 3 pin Packard Metripak 150 mating connector for attachment to the sensor on one end and has 3 color coded stripped wires on the other end for attachment to the digital compressor's control board. The stripped wire ends can be spliced to other wires to extend the wiring length when required.



Technical Data		Suction Pressure Transducer	
Operating Pressure Range	-0 to 250 PSI Gauge	Power Input	5 VDC
Operating Temp	-40°F to 257°F	Signal Output	Radio Metric 0.5 to 4.5 VDC
Wetted Parts Construction	304L Stainless Steel	Electrical Cable Connection	3 Pin Packard Metric Pack Connector
Sensor Construction	Haynes 214 Alloy Diaphragm	Electrical Cable Length	3 Feet
Pressure Fitting Construction	304L Stainless Steel	Accuracy	$\pm 0.25\%$ of Full Scale
Pressure Fitting Size	1/4" SAE Female Schrader Fitting	Hysteresis	$\pm 0.1\%$ of Full Scale
Weight	2.3 Ounces	Non-repeatability	$\pm 0.05\%$ of Full Scale
		Response Time	$\pm 0.05\%$ of Full Scale
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

Suction Pressure Sensor Kit with E-BUS Adapter Board

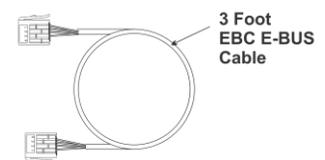
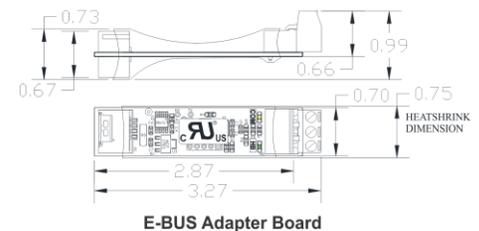
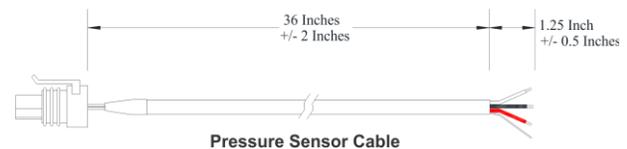
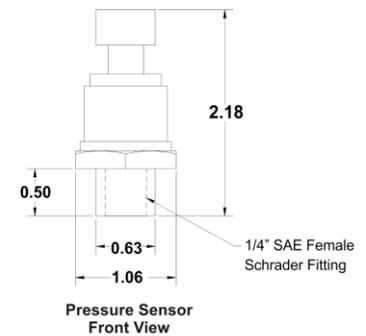
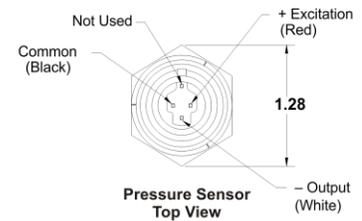
ASM01845 ALT-REF number OE275-03

Description

The Suction Pressure Sensor Kit with E-BUS Adapter is comprised of the Suction Pressure Transducer, an E-BUS Adapter Board, and a 3 foot EBC E-BUS cable. It is required for any VCB-X application with DX Cooling that requires Dehumidification. The Suction Pressure Transducer is used to measure suction pressure at the HVAC unit's DX evaporator coil suction line. This suction line pressure is converted to saturated refrigerant temperature by the VCB-X Controller. This temperature is used by the VCB-X Controller to accurately control the compressors to provide optimum performance from the system during Dehumidification operation.

The Suction Pressure Transducer connects to the E-BUS Adapter Board's V, SIG, and GND terminals through a cable. The cable is supplied with a 3-pin Packard mating connector for attachment to the sensor on one end and has 3 color-coded stripped wires on the other end. The stripped wire ends can be spliced to other wires to extend the wiring length when required. The EBC E-BUS Cable connects to one of (2) EBC ports on the other end of the E-BUS Adapter Board. This cable must then connect to the VCB-X Controller directly or to a VCB-X Expansion Board connected to the VCB-X Controller.

The Suction Pressure Transducer's metal wetted parts are made from stainless steel and Haynes 214 alloy. The Suction Pressure Transducer is weather resistant. Connection to the pressure source is accomplished by screwing the 1/4" SAE female Schrader fitting on the Suction Pressure Transducer onto a 1/4" Schrader male valve fitting (by others) that is welded into the suction line. The Suction Line Transducer provides a 0.5 to 4.5 VDC output in response to a 0 to 250 PSIG pressure. Transducer accuracy is $\pm 0.25\%$ of the full scale of the transducer.



Technical Data		Suction Pressure Sensor Kit with E-BUS Adapter Board	
Operating Pressure	-0 to 250 PSI Gauge	Power Input	5 VDC
Operating Temp	-40°F to 257°F	Signal Output	Radio Metric 0.5 to 4.5 VDC
Wetted Parts Construction	304L Stainless Steel	Electrical Cable Connections	3 Pin Packard Metric Pack Connector EBC E-BUS Connector
Sensor Construction	Haynes 214 Alloy Diaphragm	Electrical Cable Lengths	3 Feet
Pressure Fitting Construction	304L Stainless Steel	Accuracy	$\pm 0.25\%$ of Full Scale
Pressure Fitting Size	1/4" SAE Female Schrader Fitting	Hysteresis	$\pm 0.1\%$ of Full Scale
Weight	2.3 Ounces	Non-repeatability	$\pm 0.05\%$ of Full Scale
		Response Time	$\pm 0.05\%$ of Full Scale
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

Wall-Mounted E-BUS CO₂ Sensor

ASM01829 ALT-REF number OE256-05

Description

The Wall Mounted E-BUS CO₂ Sensor is used in conjunction with the VCCX2, VCB-X, and various other AAON Unit Controllers to monitor and control CO₂ levels in the building environment.

Some typical applications are:

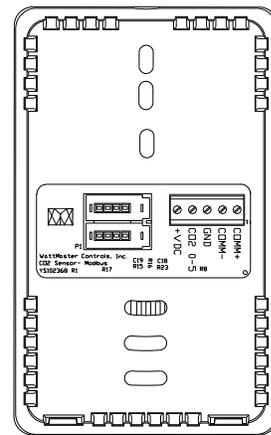
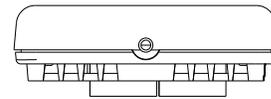
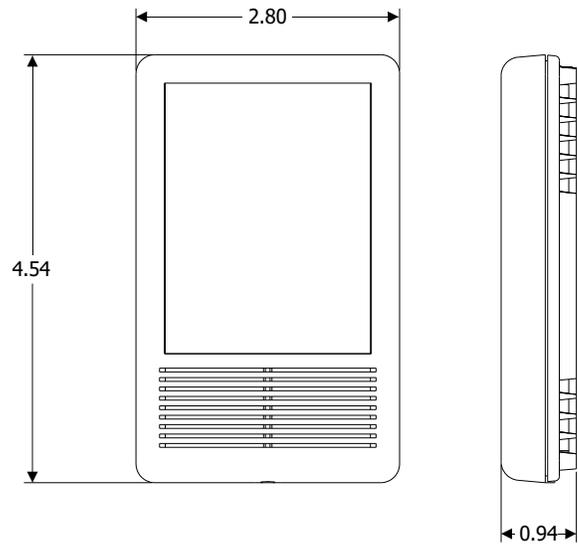
- Demand Ventilation Control
- Controlling ventilation in a building where the occupancy varies frequently
- Controlling ventilation based on CO₂ levels to ensure excess outside air is not causing energy waste
- To ensure good air distribution throughout building zones

The CO₂ Sensor is used for monitoring duct CO₂ levels and is designed for permanent mounting in the conditioned space. It connects to the Unit Controller by using an E-BUS cable with E-BUS connectors. It can be daisy chained with the ASM01819 E-BUS Digital Room Temperature Sensor for applications requiring both a room CO₂ sensor and room temperature sensor.

The CO₂ Sensor uses non-dispersive infrared (NDIR) technology and has a measurement range of 0-2000 ppm. The CO₂ Sensor's accuracy is ± 50 ppm @ 1000 ppm or 2% of the measured value and has a measurement range of 0-2000 ppm.

Mounting

The OE256-05 CO₂ Sensor utilizes a sub-base mounting plate with either terminal blocks or E-BUS connection, providing for quick and easy mounting and wiring. The wall-mounted sensor's sub-base is compatible with standard junction boxes. A locking screw secures the assembly to the wall.



Technical Data		Wall-Mounted E-BUS CO ₂ Sensor	
Input Power	12-34 VDC	Power Consumption	30 mW Maximum Average 1.25 W Peak Power
Operating Temperature	14° to 122°F	Operating Humidity	0-95% RH Non-Condensing
Sample Method	Diffusion or Flow-Through 50-100 ml/min	Measurement Range	0 to 2000 ppm
Sensitivity	<±20 ppm	Resolution	±1 ppm
Accuracy	±50 ppm @ 1000 ppm or 2% measured value	Communications	E-BUS
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

Duct-Mounted E-BUS CO₂ Sensor

ASM01831 ALT-REF number OE256-07

Description

The Duct Mounted E-BUS CO₂ Sensor with Remote Pickup is used in conjunction with the VCCX2, VCB-X or various other AAON Unit Controllers to monitor and control Return Air CO₂ levels in the building environment.

Some typical applications are:

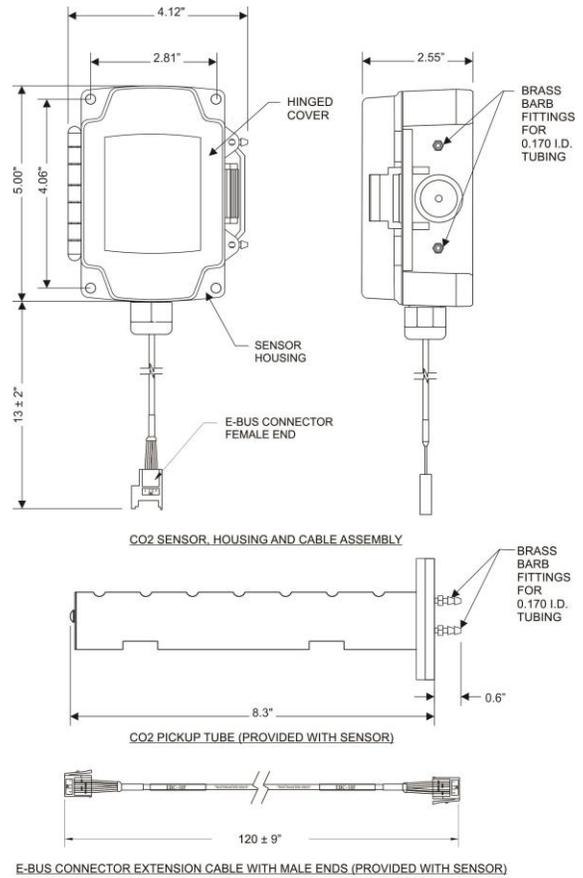
- IAQ ventilation control in a building where the occupancy varies frequently
- Controlling ventilation based on CO₂ levels to ensure excess outdoor air is not causing energy waste
- To ensure good air distribution throughout building zones

The CO₂ Sensor is used for monitoring duct CO₂ levels and is designed for permanent mounting in the Return Air duct. It utilizes an aspiration box to accurately capture CO₂ levels in the duct. It connects to the Unit Controller by using an E-BUS cable with E-BUS connectors.

The CO₂ Sensor uses non-dispersive infrared (NDIR) technology and has a measurement range of 0-2000 ppm.

Mounting

The CO₂ Sensor is housed in an aspiration box. A conduit clamp is provided to help seal the opening where the sensor cabling penetrates the aspiration box housing. The sensor has a Jack E-BUS connector for connecting it to the provided EBC E-BUS cable. The EBC E-BUS Cable connects to the Unit Controller or E-BUS Hub or Adapter Board and then to the VCCX2 or VCB-X Controller. The sensor and aspiration box assembly is mounted and secured to the ductwork with the (2) supplied sheet metal screws. The remote pickup tube assembly is mounted separately to the ductwork by first cutting a 1 1/4" diameter hole in the ductwork wall. The remote pickup tube is then inserted into the hole. The remote pickup tube is then secured to the ductwork by inserting (2) supplied sheet metal screws through the (2) mounting holes in the remote pickup tube mounting plate and securing the remote pickup tube assembly by screwing it to the ductwork using a manual or powered screw driver to tighten the screws. Using the supplied 10 ft. long tubing, connect the remote pickup tube to the aspiration box assembly, cutting the tubing to fit.



Technical Data		Duct-Mounted E-BUS CO ₂ Sensor	
Input Power	12-34 VDC	Power Consumption	30 mW Maximum Average 1.25 W Peak Power
Operating Temperature	14° to 122°F	Operating Humidity	0-95% RH Non-Condensing
Sample Method	Flow-Through 50-100 ml/min	Measurement Range	0 to 2000 ppm
Sensitivity	<±20 ppm	Resolution	±1 ppm
Accuracy	±50 ppm @ 1000 ppm or 2% measured value	Communications	E-BUS
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

Duct Static Pressure Pick Up Tube

ASM02242 ALT-REF number OE290

Description

The Duct Static Pressure Pickup Tube is supplied with a 14" long FRP tubing for connection to the Duct Static Pressure Sensor. It also includes gasketed mounting bracket and screws for securing to the ductwork.

Mounting

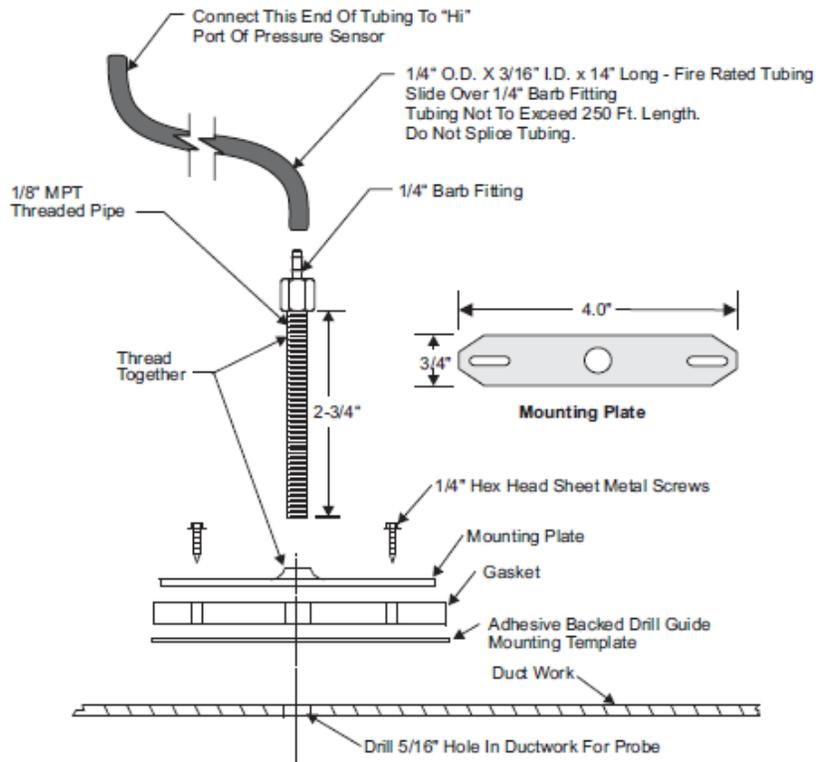
The Static Pressure Sensor is designed to be mounted Adjacent to the location where the Static Pickup Tube Is mounted and wired back to the controller board.

The Static Pressure Sensor can also be mounted close to the controller board and tubing (By Others) routed from the sensor to the Static Pickup Probe. Be sure not to kink the tubing between the Static Pickup Probe and the Static Pressure Sensor.

In order to obtain accurate Static Pressure readings, the Static Pressure Pickup Probe should be mounted per the following recommendations:

- The probe should be mounted in a straight section of ductwork approximately 2/3 the length of the supply duct, downstream of the HVAC unit.
- The probe should not be mounted less than 3 duct diameters downstream or not less than 2 duct diameters upstream of any elbow or takeoff.

NOTE: Tubing is not to exceed 250 feet in length. Do not splice tubing.



Technical Data		Duct Static Pressure Sensor Pick-Up Tube	
Hose Barb Fitting	1/4" O.D.	Tubing Dimensions	1/4" O.D. x 3/16" I.D. x 14" Long
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Adapter Board

ASM01878 ALT-REF number OE365-15-EBA

Description

The E-BUS Adapter Board is used to provide a connection point for multiple E-BUS Sensors or Modules.

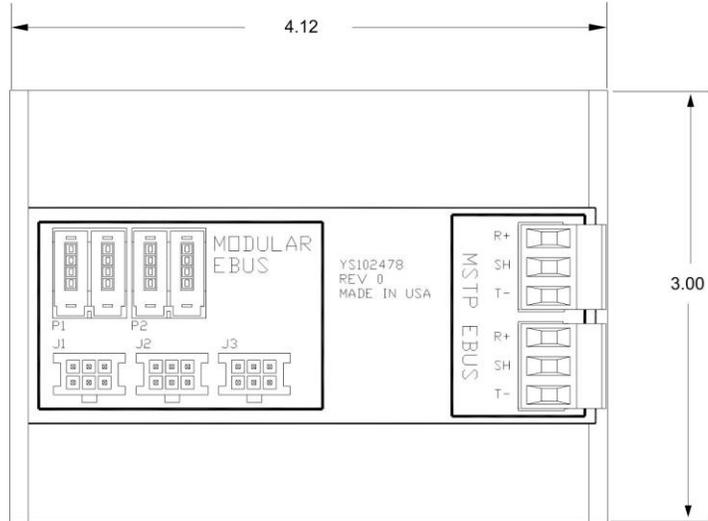
The E-BUS Adapter Board is also used for connecting an EBTRON® GTC116 or HTN104 Airflow Measurement Digital Transmitter, a GreenTrol™ GA-200-N Transmitter Module with GF Series Airflow Monitoring Station, or Paragon MicroTrans^{EQ} series MODBUS RTU Transmitter to the VCCX2, VCB-X, VCM-X E-BUS, or various other AAON Unit Controllers.

You must wire the EBTRON®, GreenTrol™, or Paragon* Airflow Measurement Digital Transmitter to this Adapter Board.

The E-BUS Adapter Board has (4) Modular E-BUS ports, (3) HSSC E-BUS Connections, and (2) MSTP E-BUS Connections.

Mounting

The E-BUS Adapter Board is provided with a plastic snap track modular mounting base. The snap track is designed to be mounted with the provided sheet metal screws to a flat surface. There is (1) pre-punched mounting slot provided. The other screw may be drilled into the snap track to prevent rotation. The E-BUS Adapter Board is then snapped into place on the snap track to provide for easy field mounting and servicing.



**ASM01878
E-BUS Adapter Board**

Technical Data		E-BUS Adapter Board
Terminations	(4) EBC Connections (2) MSTP E-BUS Connections (3) HSSC Connections	
One Year Warranty	AAON reserves the right to change specifications without notice	

EBTRON® is a registered trademark of Ebtron, Inc., Loris, SC.
 GreenTrol™ is a registered trademark of GreenTrol Automation, Inc. Loris, SC.
 Paragon® is a registered trademark of Paragon Controls, Inc. Santa Rosa, CA.



Heating & Cooling Products

E-BUS Adapter Hub

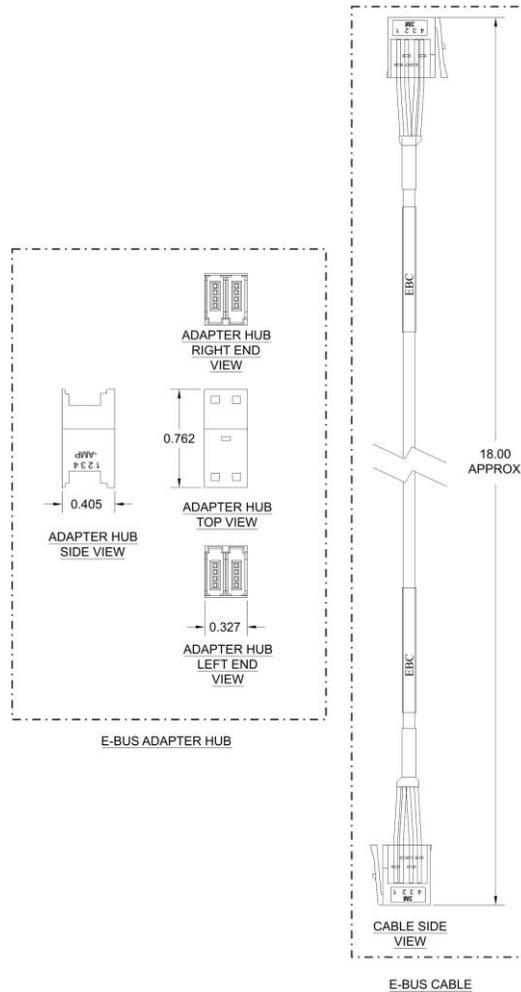
ASM01635 ALT-REF number HZ-EBC-248

Description

The E-BUS Adapter Hub is comprised of the Adapter Hub and a 1.5-Foot EBC Cable.

The E-BUS Adapter Hub is used to provide a connection point for multiple E-BUS Sensors or Modules. This E-BUS Adapter Hub has four ports. One port is used to connect the Hub to an E-BUS Expansion Port on VCCX2, VCB-X, and various other AAON Unit Controllers using the supplied EBC cable. This leaves three ports available for E-BUS Sensors and other Modules.

The EBC Cable is a plenum-rated high flex cable with EBC Connectors on each end of the cable for connection between the Sensors, Modules, and the VCCX2 or VCB-X Controller.



Technical Data		E-BUS Adapter Hub with 1.5 Ft. EBC Cable	
EBC E-BUS Cable Available Length and Part Number	G029440 (1.5 Foot)	Current Rating of Cable Wire	300 Vrms Min = 10.15 Ohms per 1000 feet @ 20 Deg Celsius, Nominal
Cable Type	Plenum-rated High Flex Wire	Wire Colors	Red/Black First Pair; White/Blue Second Pair
Wire Size	19 Strands of 32 Gage Wire, 4 Conductor	UL Listing No.	CMP/CL3P/FPLP
Terminations	Hub - (4) EBC Connectors Cable - 2 EBC Connectors	Cable Sheath Color	White, Plenum Rated CL3P/CMP
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

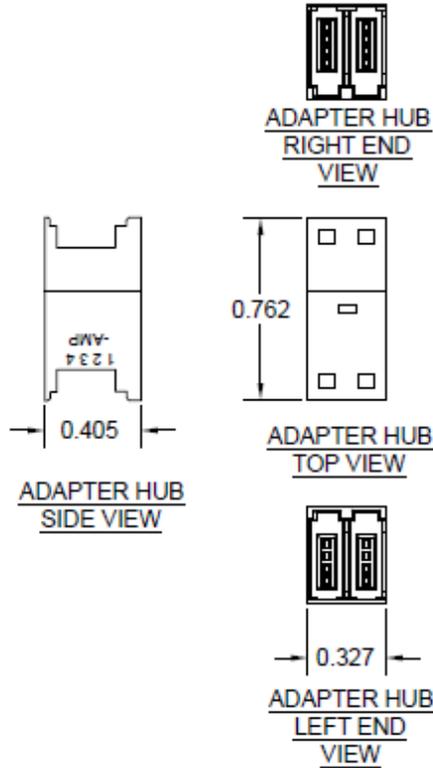
E-BUS Adapter Hub

G033970 ALT-REF number MS000248

Description

The E-BUS Adapter Hub is used to provide a connection point for multiple E-BUS Sensors or Modules. This E-BUS Adapter Hub has four ports. One port is used to connect the Hub to an E-BUS Expansion Port on the VCCX2, VCB-X, various other AAON Unit Controllers, Expansion Modules, and E-BUS Modules using EBC E-BUS cables. This leaves three ports available for E-BUS Sensors and other Modules.

The EBC Cables are plenum-rated high flex wire cables with an EBC Connector on each end of the cable for connection between the Sensors, Modules, and the Unit Controllers.



Technical Data		E-BUS Adapter Hub
Terminations	Hub - (4) EBC Connectors	
One Year Warranty		AAON reserves the right to change specifications without notice



Heating & Cooling Products

EBC E-BUS Cables

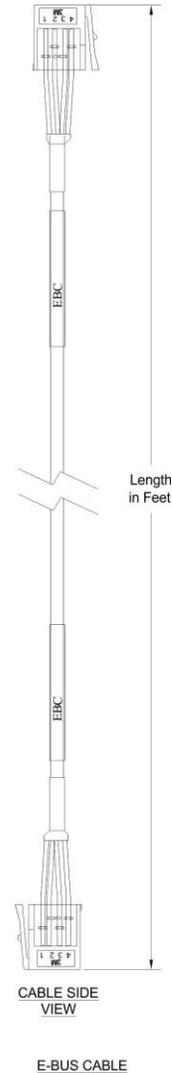
P/N: VARIES ALT-REF number EBC-XXF

Description

The EBC E-BUS Cables are used to connect power and communications between the VCCX2, VCB-X, various other AAON Unit Controllers, E-BUS Modules, and E-BUS Sensors.

The EBC E-BUS Cables are plenum-rated high flex wire cables with an EBC Connector on each end of the cable. The EBC E-BUS Cables are available in 1.5, 3, 10, 25, 50, 75, 100, 150, and 250 foot lengths and additionally a 1000-foot-long spool. These lengths should satisfy most job requirements. For length requirements other than those listed, the E-BUS Adapter Hub can be used to connect EBC E-BUS Cables together to provide for your specific-length requirements.

The plug-in design of the EBC E-BUS Cables eliminates costly wiring errors and makes system installation easy. The cable components are all UL approved.



Technical Data		EBC E-BUS Cables	
EBC E-BUS Cable Available Lengths and Part Numbers	G029440 (1.5 Foot) G012870 (3 Foot) G029460 (10 Foot) G045270 (25 Foot) G029510 (50 Foot) G029530 (75 Foot) G029450 (100 Foot) G029470 (150 Foot) V36590 (250 Foot) G018870 (1000 Foot)	Current Rating of Cable Wire	300 Vrms Min = 10.15 Ohms per 1000 feet @ 20 Deg Celsius, Nominal
Cable Type	Plenum-rated High Flex Wire	Wire Colors	Red/Black First Pair; White/Blue Second Pair
Wire Size	19 Strands of 32 Gage Wire, 4 Conductor	UL Listing No.	CMP/CL3P/FPLP
Terminations	Cable – 2 EBC Connectors	Cable Sheath Color	White, Plenum Rated CL3P/CMP
One Year Warranty	AAON reserves the right to change specifications without notice		



Heating & Cooling Products

E-BUS Space Temperature/Humidity Sensor Emulator Board

ASM01696 ALT-REF number OE365-03-EBSE

Description

The EBSE E-BUS Space Temperature and Humidity Sensor Emulator Board allows the use of separate 3rd party space temperature and humidity sensors to emulate the E-BUS combination Space Temperature and Humidity Sensor.

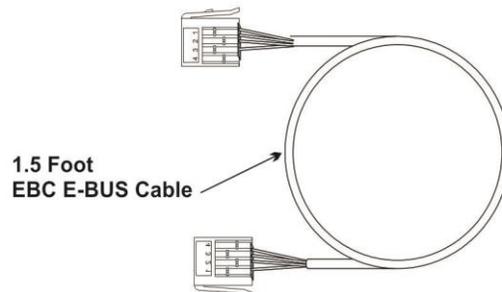
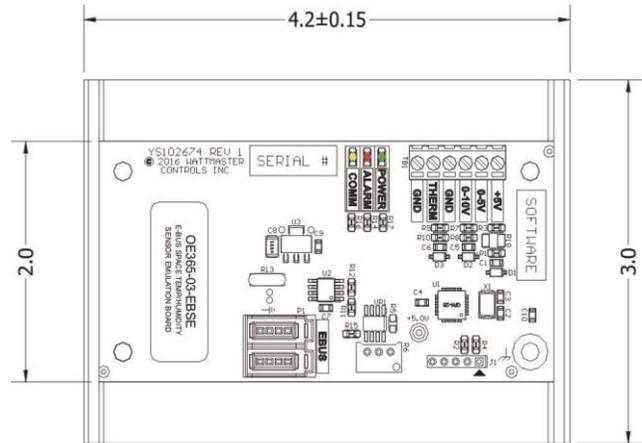
The E-BUS Emulator Board works with the VCCX2, VCB-X, and various other AAON Unit Controllers. The board provides E-BUS-out communication to these unit controllers or to their attached E-BUS modules using the supplied 1.5 foot EBC E-BUS cable.

Both the temperature and humidity sensors must be wired into this Emulator Board. The Emulator Board converts the analog signals to E-BUS.

The normal Space sensor override and slide adjust functions are not available when using the Emulator Board.

The Emulator Board has 2 EBC E-BUS connectors, allowing it to also act as an adapter board. One port can be used to connect the Emulator Board to the controller. The other port can be used to connect to another sensor or controller.

The E-BUS Sensor Emulator Board has 3 LEDs – COMM LED to indicate sensor communication to the board, POWER LED to indicate that the board is powered up, and ALARM to indicate an alarm condition.



Technical Data		E-BUS Space Temperature & Humidity Sensor Emulator Board	
Maximum Power Consumption	250 mA	Operating Temperature	-20°F to 150°F
Idle Current*	<5 mA	Humidity Sensor Input Terminations	0-5 VDC 0-10 VDC
Transmit Current*	~100 mA	Temperature Sensor Input Termination	10K Ohm Type III Thermistor
Module Weight without Cable	1.92 oz.	Output Terminations	(2) EBC E-BUS Connections +5VDC
Module Weight with EBC-1.5F Cable	2.64 oz.	*NOTE: Currents may vary depending on the attached sensing elements.	
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Return Air Temperature & Humidity Sensor Emulator Board

ASM01621 ALT-REF number OE365-04-EBSE

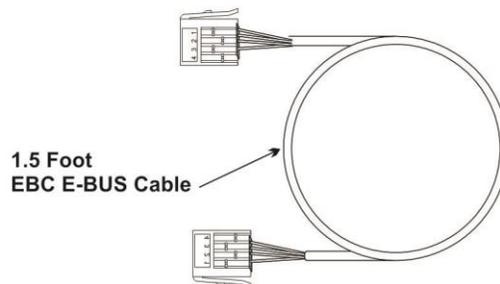
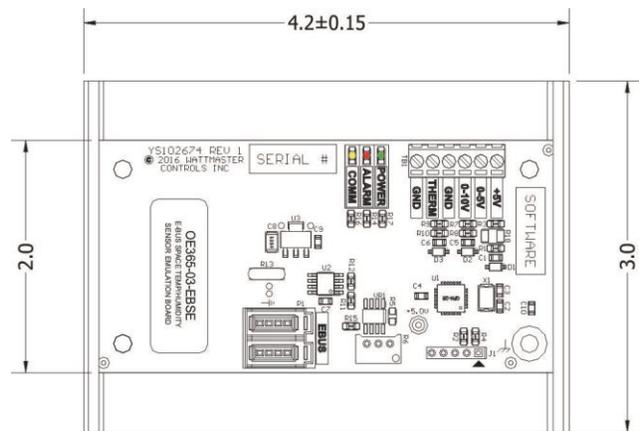
Description

The E-BUS Return Air Temperature and Humidity Sensor Emulator Board allows the use of 3rd party analog return air temperature and humidity sensors to emulate the E-BUS combination Return Air Temperature and Humidity Sensor.

The E-BUS Emulator Board works with the VCCX2, VCB-X, and various other AAON Controllers. The board provides E-BUS-out communication to these unit controllers or to their attached E-BUS modules using the supplied 1.5 foot EBC E-BUS cable. Both the temperature and humidity sensors must be wired into this Emulator Board. The Emulator Board converts the analog signals to E-BUS.

The Emulator Board has 2 EBC E-BUS connectors, allowing it to also act as an adapter board. One port can be used to connect the Emulator Board to the controller. The other port can be used to connect to another sensor or controller.

The E-BUS Sensor Emulator Board has 3 LEDs – COMM LED to indicate sensor communication to the board, POWER LED to indicate that the board is powered up, and ALARM to indicate an alarm condition.



Technical Data		E-BUS Return Air Temperature & Humidity Sensor Emulator Board	
Maximum Power Consumption	250 mA	Operating Temperature	-20°F to 150°F
Idle Current*	<5 mA	Humidity Sensor Input Terminations	0-5 VDC 0-10 VDC
Transmit Current*	~100 mA	Temperature Sensor Input Termination	10K Ohm Type III Thermistor
Module Weight without Cable	1.92 oz.	Output Terminations	(2) EBC E-BUS Connections +5VDC
Module Weight with EBC-1.5F Cable	2.64 oz.	*NOTE: Currents may vary depending on the attached sensing elements.	
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Outdoor Air Temperature/Humidity Sensor Emulator

ASM01697 ALT-REF number OE365-05-EBSE

Description

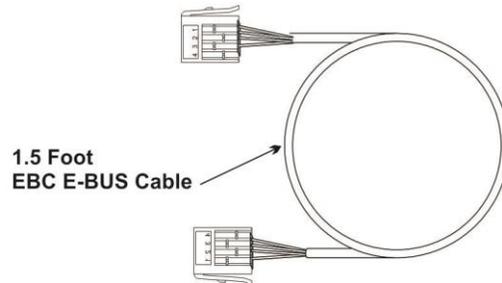
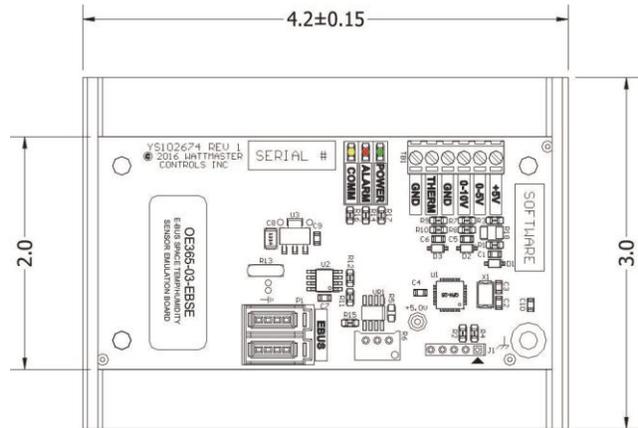
The EBSE E-BUS Outdoor Air Temperature and Humidity Sensor Emulator Board allows the use of 3rd party analog outdoor air temperature and humidity sensors to emulate the E-BUS combination Outdoor Air Temperature and Humidity Sensor.

The E-BUS Emulator Board works with the VCCX2, VCB-X, and various other AAON Unit Controllers. The board provides E-BUS-out communication to these unit controllers or to their attached E-BUS modules using the supplied 1.5 foot EBC E-BUS cable.

Both the temperature and humidity sensors must be wired into this Emulator Board. The Emulator Board converts the analog signals to E-BUS.

The Emulator Board has 2 EBC E-BUS connectors, allowing it to also act as an adapter board. One port can be used to connect the Emulator Board to the controller. The other port can be used to connect to another sensor or controller.

The E-BUS Sensor Emulator Board has 3 LEDs – COMM LED to indicate sensor communication to the board, POWER LED to indicate that the board is powered up, and ALARM to indicate an alarm condition.



Technical Data		E-BUS Outdoor Air Temperature/Humidity Sensor Emulator	
Maximum Power Consumption	250 mA	Operating Temperature	-20°F to 150°F
Idle Current*	<5 mA	Humidity Sensor Input Terminations	0-5 VDC 0-10 VDC
Transmit Current*	~100 mA	Temperature Sensor Input Termination	10K Ohm Type III Thermistor
Module Weight without Cable	1.92 oz.	Output Terminations	(2) EBC E-BUS Connections +5VDC
Module Weight with EBC-1.5F Cable	2.64 oz.	*NOTE: Currents may vary depending on the attached sensing elements.	
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Space CO₂ Sensor Emulator Board

ASM01622 ALT-REF number OE365-06-EBSE

Description

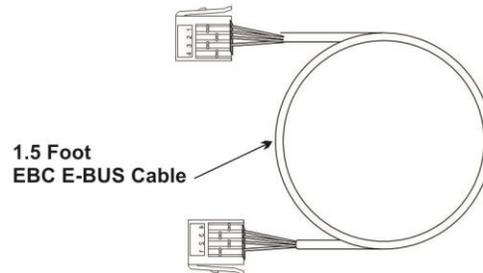
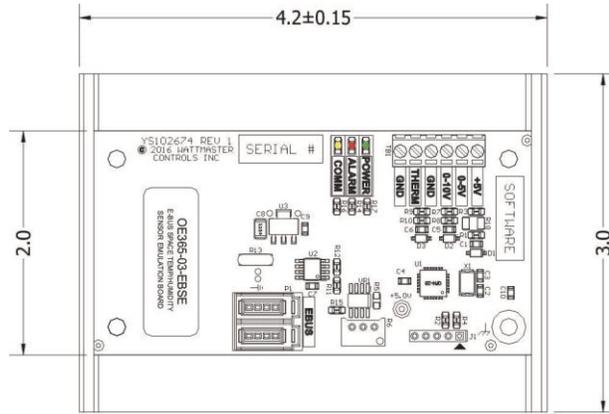
The E-BUS Space CO₂ Sensor Emulator Board allows the use of a third-party analog CO₂ sensor to emulate the E-BUS Wall-Mounted Space CO₂ Sensor.

The E-BUS Emulator Board works with VCCX2 and VCB-X Controllers. The board provides E-BUS-out communication to these unit controllers or to their attached E-BUS modules using the supplied 1.5 foot EBC E-BUS cable.

The CO₂ sensor must be wired into this Emulator Board. The Emulator Board converts the analog signal to E-BUS.

The Emulator Board has 2 EBC EBUS connectors, allowing it to also act as an adapter board. One port can be used to connect the Emulator Board to the controller. The other port can be used to connect to another sensor or controller.

The E-BUS Sensor Emulator Board has 3 LEDs – COMM LED to indicate sensor communication to the board, POWER LED to indicate that the board is powered up, and ALARM to indicate an alarm condition.



Technical Data		E-BUS Space CO ₂ Sensor Emulator Board	
Maximum Power Consumption	250 mA	Operating Temperature	-20°F to 150°F
Idle Current*	<5 mA	Input Terminations	0-5V or 0-10V
Transmit Current*	~100 mA	Output Terminations	(2) EBC E-BUS Connections +5VDC
Module Weight without Cable	1.92 oz.	*NOTE: Currents may vary depending on the attached sensing elements.	
Module Weight with EBC-1.5F Cable	2.64 oz.		
One Year Warranty		AAON reserves the right to change specifications without notice	



Heating & Cooling Products

E-BUS Return Air CO₂ Sensor Emulator Board

ASM01623 ALT-REF number OE365-07-EBSE

Description

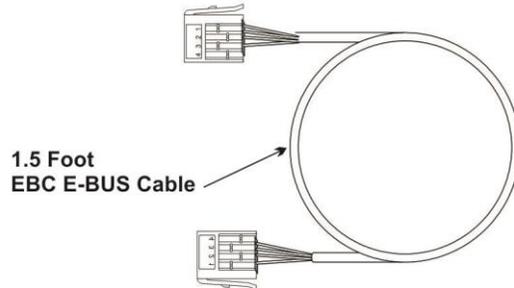
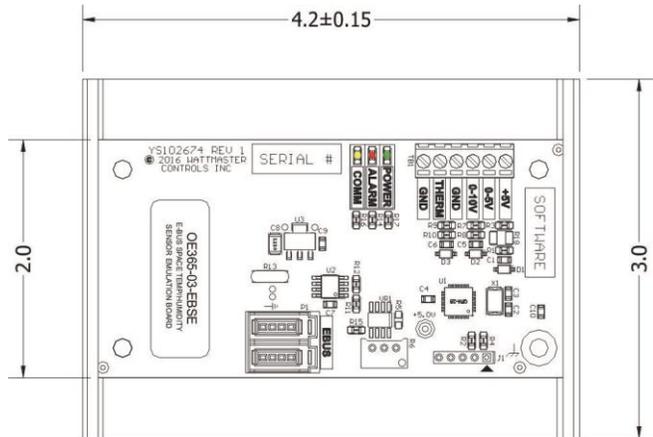
The E-BUS Return Air CO₂ Sensor Emulator Board allows the use of a 3rd party analog CO₂ sensor to emulate the E-BUS Duct-Mounted CO₂ Sensor.

The E-BUS Emulator Board works with VCCX2, VCB-X, and various other AAON Unit Controllers. The board provides E-BUS-out communication to these unit controllers or to their attached E-BUS modules using the supplied 1.5 foot EBC E-BUS cable.

The CO₂ sensor must be wired into this Emulator Board. The Emulator Board converts the analog signal to E-BUS.

The Emulator Board has 2 EBC E-BUS connectors, allowing it to also act as an adapter board. One port can be used to connect the Emulator Board to the controller. The other port can be used to connect to another sensor or controller.

The E-BUS Sensor Emulator Board has 3 LEDs – COMM LED to indicate sensor communication to the board, POWER LED to indicate that the board is powered up, and ALARM to indicate an alarm condition.



Technical Data		E-BUS Return Air CO ₂ Sensor Emulator Board	
Maximum Power Consumption	250 mA	Operating Temperature	-20°F to 150°F
Idle Current*	<5 mA	Input Terminations	0-5V or 0-10V
Transmit Current*	~100 mA	Output Terminations	(2) EBC E-BUS Connections +5VDC
Module Weight without Cable	1.92 oz.	*NOTE: Currents may vary depending on the attached sensing elements.	
Module Weight with EBC-1.5F Cable	2.64 oz.		
One Year Warranty		AAON reserves the right to change specifications without notice	