

# Symbio™ 210 Programmable VAV Controller

The Symbio 210 programmable VAV controller can be used for such applications as:

- Space temperature control
- Flow tracking
- Ventilation flow control

## Packaged Contents

- One (1) Symbio 210 Programmable VAV controller

**Important:** Visually inspect contents for obvious defects or damage. All components have been thoroughly inspected before leaving the factory. Any claims for damage incurred during shipment should be filed immediately with the carrier.

**SAFETY WARNING**

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

## Ordering Numbers

Table 1. Ordering numbers

Order Number	Description
BMSY210AAA0100011	Symbio 210 MS/TP Programmable VAV Controller with no actuator
BMSY210AAA0100021	Symbio 210 MS/TP Programmable VAV Controller with no actuator, UL-864/UUKL <sup>(a)</sup>
BMSY210AAA0T00011 <sup>(b)</sup>	Symbio 210 MS/TP Programmable VAV Controller with Trane actuator
BMSY210AAA0B00011 <sup>(b)</sup>	Symbio 210 MS/TP Programmable VAV Controller with Belimo actuator
BMSY210ACA0T00011 <sup>(b)</sup>	Symbio 210 MS/TP Programmable Bypass Controller with Trane actuator
BMSY210ACA0T10011 <sup>(b)</sup>	Symbio 210 MS/TP Programmable Bypass Controller with Trane actuator and duct temperature sensor
BMSY210VTA0T01011 <sup>(b)</sup>	Symbio 210 MS/TP Programmable Zone Damper Controller with Trane actuator and no pressure sensor
BMSY210VTA0T101011	Symbio 210 MS/TP Programmable Zone Damper Controller with no actuator and no pressure sensor
BMSY210AAA0T00111 <sup>(b)</sup>	Symbio 210e IP Programmable VAV Controller with Trane actuator
BMSY210AAA0B00111 <sup>(b)</sup>	Symbio 210e IP Programmable VAV Controller with Belimo actuator
BMSY210AAA0100111	Symbio 210e IP Programmable VAV Controller with no actuator
BMSY210AAA0100121	Symbio 210e IP Programmable VAV Controller with no actuator, UL-864/UUKL <sup>(a)</sup>
501897940100	VAV controls metal enclosure

(a) When installed and programmed in accordance with the *Engineered Smoke Control System Application Guide* (BAS-APG040\*-EN).  
 (b) These controllers must be installed in a metal enclosure to meet UL2043 plenum rating.

## Warnings, Cautions, and Notices

Read this manual thoroughly before operating or servicing this unit. Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

- WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

## Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

## Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

## Agency Compliance

- UL916 PAZX- Open Energy Management Equipment
- UL94-5V Flammability
- Only Applicable for specific part numbers listed in previous section: UL864/UUKL Smoke Control (when installed and programmed in accordance with the *Engineered Smoke Control System - Application Guide* (BAS-APG040\*-EN))
- CE Marked
- FCC Part 15, Subpart B, Class B Limit
- VCCI-CSPR 32:2016
- CAN ICES-003(B)/NMB-003(B)
- Communications BACnet MS/TP, BACnet IP, or BACnet Zigbee (Air-Fi). The Symbio 210 is BACnet Testing Laboratory (BTL) certified to revision 15 of the ASHRAE BACnet-135 standard as an Advanced Application Controller (AAC) profile device.
- The European Union (EU) Declaration of Conformity is available from your local Trane® office.

## Additional Resources

For more detailed information about configuration, sequence of operation, and programming, see the *Symbio™ 210 Programmable Variable-Air-Volume (VAV) Box Controller - Installation, Operation, and Maintenance manual* (BAS-SVX084\*-EN).

## Storage and Operating Specifications

Table 2. Storage and operating specifications

Storage	
Temperature:	-67°F to 203°F (-55°C to 95°C)
Humidity:	5% to 95% (non-condensing)
Operating	
Temperature:	-40°F to 122°F (-40°C to 50°C)
Humidity:	5% to 95% (non-condensing)

## WARNING

**Proper Field Wiring and Grounding Required!**  
 Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

## WARNING

**Personal Protective Equipment (PPE) Required!**  
 Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

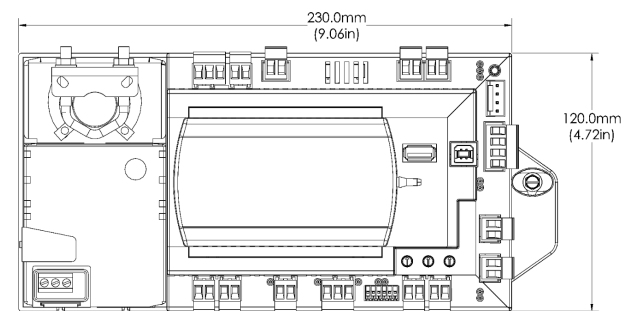
- Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.

## Mounting weight:

Mounting weight:	(without actuator) 0.88 lbs. (0.40kg.) (with actuator) 1.60 lbs (0.73 kg.)
Power:	20.4 – 27.6 Vac, (24 Vac +/- 15% nominal, 50 to 60 Hz) For specifics on transformer sizing, see Symbio™ 210 Programmable Variable-Air-Volume (VAV) Box Controller - Installation, Operation, and Maintenance manual (BAS-SVX084*-EN).
Environmental Rating (Enclosure):	NEMA 1
Pollution:	U.L. 840: Degree 2

## Dimensions

Figure 1. Symbio™ 210 controller with actuator



## WARNING

**Follow EHS Policies!**  
 Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

## WARNING

**Cancer and Reproductive Harm!**  
 This product can expose you to chemicals including lead and bisphenol A (BPA), which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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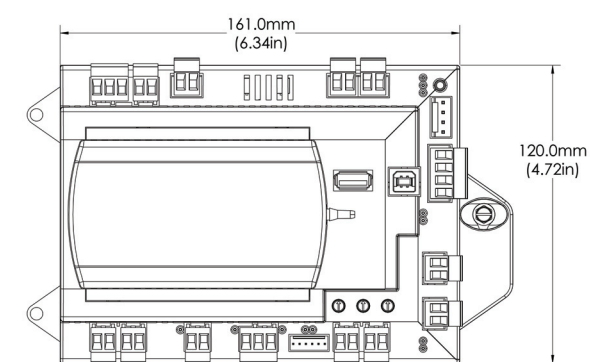
## Trademarks

All trademarks referenced in this document are the trademarks of their respective owners.

## Revision History

- Updated Ordering Numbers table.
- Added new bullet point in Agency Compliance topic.

Figure 2. Symbio 210 controller without actuator



Note: Symbio 210e is the same dimensions as the Symbio 210.

## Mounting the Controller

Note: Mounting inside an enclosure is recommended. Sheet metal screws for mounting the enclosure are not supplied.

1. If using a metal enclosure, mount the enclosure to the VAV box using self-tapping sheet metal screws. The mounting holes are provided on the controller base.

**Important:** If the kit includes a damper control actuator, insert the actuator shaft through the hole in the base and through the actuator shaft coupling. If the kit does not include a damper control actuator, secure a locally-supplied actuator to the damper shaft and the VAV box.

2. Secure the controller to the enclosure or VAV box with the provided mounting screw, ensuring that the damper position and actuator position are aligned.
3. Tighten the damper actuator coupling against the damper shaft.

