

Installation Guide

Split System Air Conditioners

Odyssey™ with Symbio® Controls

Wiring and Startup

⚠ 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.

August 2021

SS-SVN016A-EN

Warnings, Cautions, and Notices

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:



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



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.



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-including industry replacements for CFCs and HCFCs such as saturated or unsaturated HFCs and HCFCs.

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.

⚠ 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 Labelling 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.**

⚠ 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.

Copyright

This document and the information in it are the property of Trane, and may not be used or reproduced in whole or in part without written permission. Trane reserves the right to revise this publication at any time, and to make changes to its content without obligation to notify any person of such revision or change.

Trademarks

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

Table of Contents

Wiring Requirements	6
Thermostat Control Wire	6
Zone Sensor Wire	6
Shielded Twisted Pair Cable	6
Condenser and Air Handler Pairings	7
Thermostat and Zone Sensor Wiring	9
Condenser and Air Handler Pair Wiring Information	10
Pairing C or 3	10
Thermostat Connections	10
Air Handler to Condenser Connections	11
Evaporator Defrost Control	11
Pairing D	12
Thermostat Connections	12
Air Handler to Condenser Connections	13
Air Handler Connections	13
Pairing 4	14
Air Handler to Condenser Connections	14
Pairing E or F	16
Air Handler to Condenser Connections	17
Air Handler Connections	17
Pairing A or B	18
Zone Sensor or Thermostat Connections	18
Air Handler to Condenser Connections	19
Pairing H	20
Thermostat or Sensor Connections	20
Air Handler to Condenser Connections	21
Symbio 700 Configuration and Settings	21
Pairing 1 or 2	22
Zone Sensor or Thermostat Connections	22
Air Handler to Condenser Connections	23
Symbio 700 Configuration and Settings	23
Pairing G (preferred)	24
Thermostat Connections	24
Air Handler to Condenser Connections	25
Air Handler Changes	25
Symbio 700 Configuration and Settings	26
Pairing G (optional)	27
Thermostat Connections	27
Air Handler to Condenser Connections	28
Air Handler Connections	28
Symbio 700 Configuration and Settings	28
Pairing Y	29
Pairing Z	30
Symbio Service and Installation Mobile Application	31
Download Mobile App	31
Connecting to the Symbio 700	31

Required Tools..... 31

Connecting to the Symbio 700 Controller..... 31

Troubleshooting 34

Navigation 34

Editing Equipment Configuration..... 36

Viewing Alarms..... 38

Service Test Mode 39

Symbio 700 User Interface..... 40

Editing Equipment Configuration..... 42

Viewing Alarms..... 42

Service Test Mode 42

More Help and Information 43

Wiring Requirements

Thermostat Control Wire

Table 1. Recommended thermostat control wire size

Wire Gauge	Maximum Wire Length
22	30 feet
20	50 feet
18	75 feet
16	125 feet
14	200 feet

Zone Sensor Wire

Table 2. Zone sensor module wiring

Distance from Unit to Control	Recommended Wire Size
0–150 feet (0–45.7 meters)	22 gauge (0.33 mm ²)
151–240 feet (46–73.1 meters)	20 gauge (0.5 mm ²)

Shielded Twisted Pair Cable

A shielded twisted pair cable is required for Symbio condenser installations where the indoor air handler is variable speed supply fan (VFD) and/or electric heat. See Air Handler and Condenser pairing information for more details regarding shield twisted pair cable installation requirements.

Trane Purple Wire is recommended when shielded twist pair cable is required (see the following table).

Part Number	Description
CAB01568	Cable, comlink cable with PVC jacket, 18/1 pr, stranded shield, 25PF plenum, 100 foot length
CAB01569	Cable, comlink cable with PVC jacket, 18/1 pr, stranded shield, 25PF plenum, 1,000 foot length

Alternate shield twisted pair cable can be used if it conforms to the following physical characteristics:

- Twisted pair (two-conductor) plus shield
- Characteristic impedance: 100 and 130 ohms
- Distributed capacitance between conductors: < 100 pF/m
- Distributed capacitance between conductor and shield: < 200 pF/m
- Foil or braided shield is acceptable
- Wire diameter: 22 to 18 AWG

Condenser and Air Handler Pairings

Table 3. Model number descriptions

TWE Air Handler with Symbio
Digit 15 — Controls 1 = Constant Volume C = 2 Stage Airflow (Electromechanical Condenser Only) D = 2 Stage Airflow/Single Zone VAV (Symbio Condenser Only)
TWE Air Handler (pre-Symbio)
Digit 15 — Controls 0 = Constant Volume A = 2 Stage Airflow (Electromechanical Condenser Only) B = Single Zone VAV (ReliaTel Condenser Only)

Table 4. Condenser and air handler pairing instructions

Condenser (model # digit)	Air Handler		Wiring Reference	Instructions
	Type	Supply Fan Type (model # digit)		
Odyssey Electromechanical (Digit 15 = E)	Odyssey Symbio	Constant Volume (Digit 15 = 1)	"Pairing C or 3," p. 10	
		2-Speed Airflow (Digit 15 = C)		
		Single Zone VAV (Digit 15 = D)	"Pairing D," p. 12	Pairing F, D or G require wire harness kit WIR010190 (required) and WIR010185 (optional) to connect Air Handler Relay Board to VFD.
Odyssey ReliaTel (Digit 15 = R)	Odyssey Symbio	Constant Volume (Digit 15 = 1)	"Pairing 4," p. 14	
		2-Speed Airflow (Digit 15 = C)	"Pairing E," p. 16	
		Single Zone VAV (Digit 15 = D)	"Pairing F," p. 16	Pairing F, D or G require wire harness kit WIR010190 (required) and WIR010185 (optional) to connect Air Handler Relay Board to VFD.

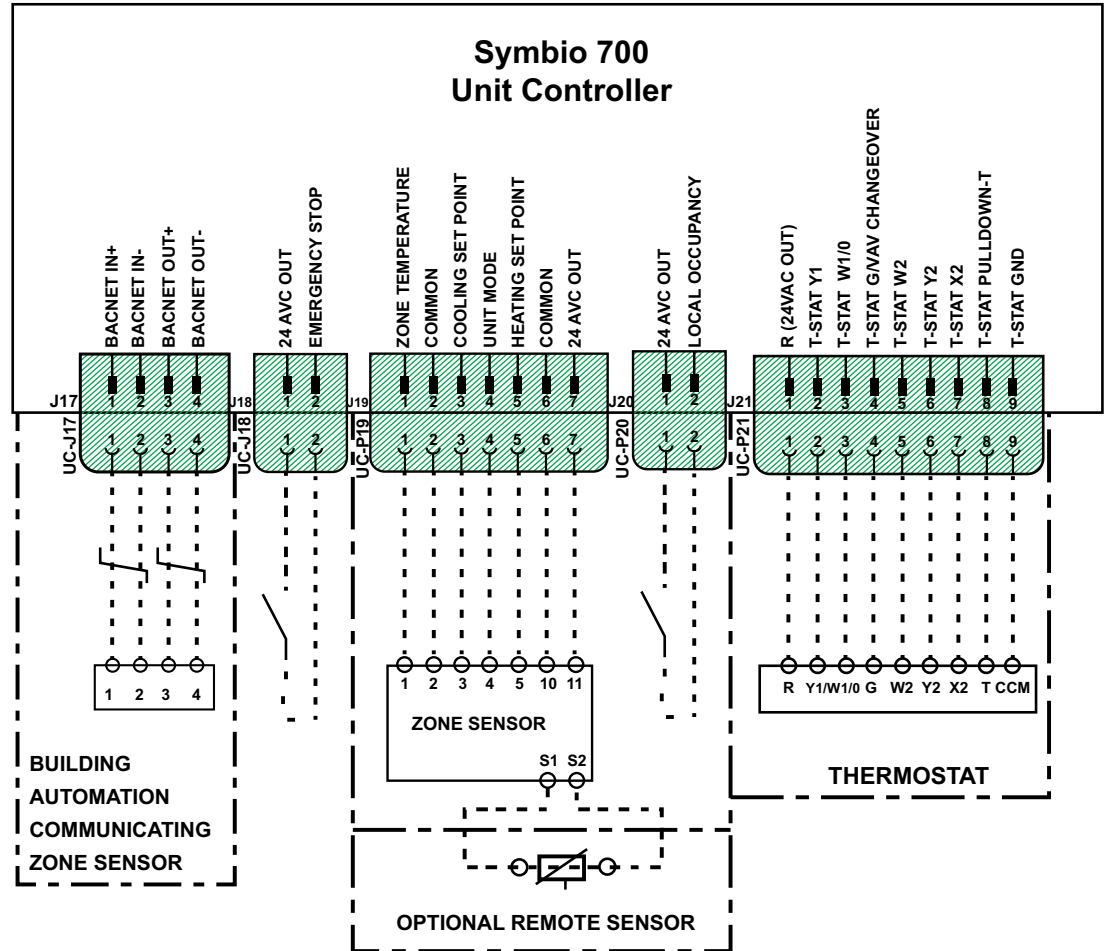
Condenser and Air Handler Pairings

Table 4. Condenser and air handler pairing instructions (continued)

Condenser (model # digit)	Air Handler		Wiring Reference	Instructions
	Type	Supply Fan Type (model # digit)		
Odyssey Symbio (Digit 15 = S)	Odyssey Symbio	Constant Volume (Digit 15 = 1)	"Pairing A," p. 18	Install a shielded, twisted pair cable if the Air Handler has Electric Heat and/or requires Single Zone VAV operation (Trane IMC communication)
		2-Speed Airflow (Digit 15 = C)	"Pairing H," p. 20	Pairing G, H, and 2 will not have heat in defrost. Pairing G, H, and 2; electric heat will not operate if zone sensor installed, only with a thermostat Install a shielded, twisted pair cable if the Air Handler has Electric Heat and/or requires Single Zone VAV operation (Trane IMC communication)
		Single Zone VAV (Digit 15 = D)	"Pairing B," p. 18	Install a shielded, twisted pair cable if the Air Handler has Electric Heat and/or requires Single Zone VAV operation (Trane IMC communication) Install a shielded, twisted pair cable for Symbio Condenser control of the Air Handler supply fan VFD (Modbus communication)
	Odyssey Electromechanical	Constant Volume (Digit 15 = 0)	"Pairing 1 or 2," p. 22	Pairing G, H, and 2 will not have heat in defrost.
		2-Speed Airflow (Digit 15 = A)		Pairing G, H, and 2; electric heat will not operate if zone sensor installed, only with a thermostat.
	Odyssey ReliaTel	Variable Speed, Single Zone VAV (Digit 15 = B)	"Pairing G (preferred)," p. 24	Pairing G, H, and 2 will not have heat in defrost. Pairing G, H, and 2; electric heat will not operate if zone sensor installed, only with a thermostat. Install a shielded, twisted pair cable for Symbio Condenser control of the Air Handler supply fan VFD (Modbus communication)
			"Pairing G (optional)," p. 27	Pairing G, H, and 2; electric heat will not operate if zone sensor installed, only with a thermostat. Pairing F, D or G require wire harness kit WIR010190 (required) and WIR010185 (optional) to connect Air Handler Relay Board to VFD. This pairing requires the replacement of the RTOM module with a Symbio Relay Board (MOD03105) and that the VFD wires 81B, 82B, 93B, 94B and 94D be replaced with wire harness kit WIR010190 (required) and WIR010185 (optional). The Air Handler will operate as a 2-speed fan.
	Generic Air Handler	Constant Volume	"Pairing Y," p. 29	
Two Symbio Condensers (2 condensers to 1 air handler)	Odyssey Electromechanical		"Pairing Z," p. 30	

Thermostat and Zone Sensor Wiring

Figure 1. Thermostat or zone sensor wiring to Symbio 700 unit controller



Connect a thermostat or other zone control device to the Symbio 700 Unit Controller. [Figure 1, p. 9](#) provides wiring guidance for zone sensor BAYSENS135.

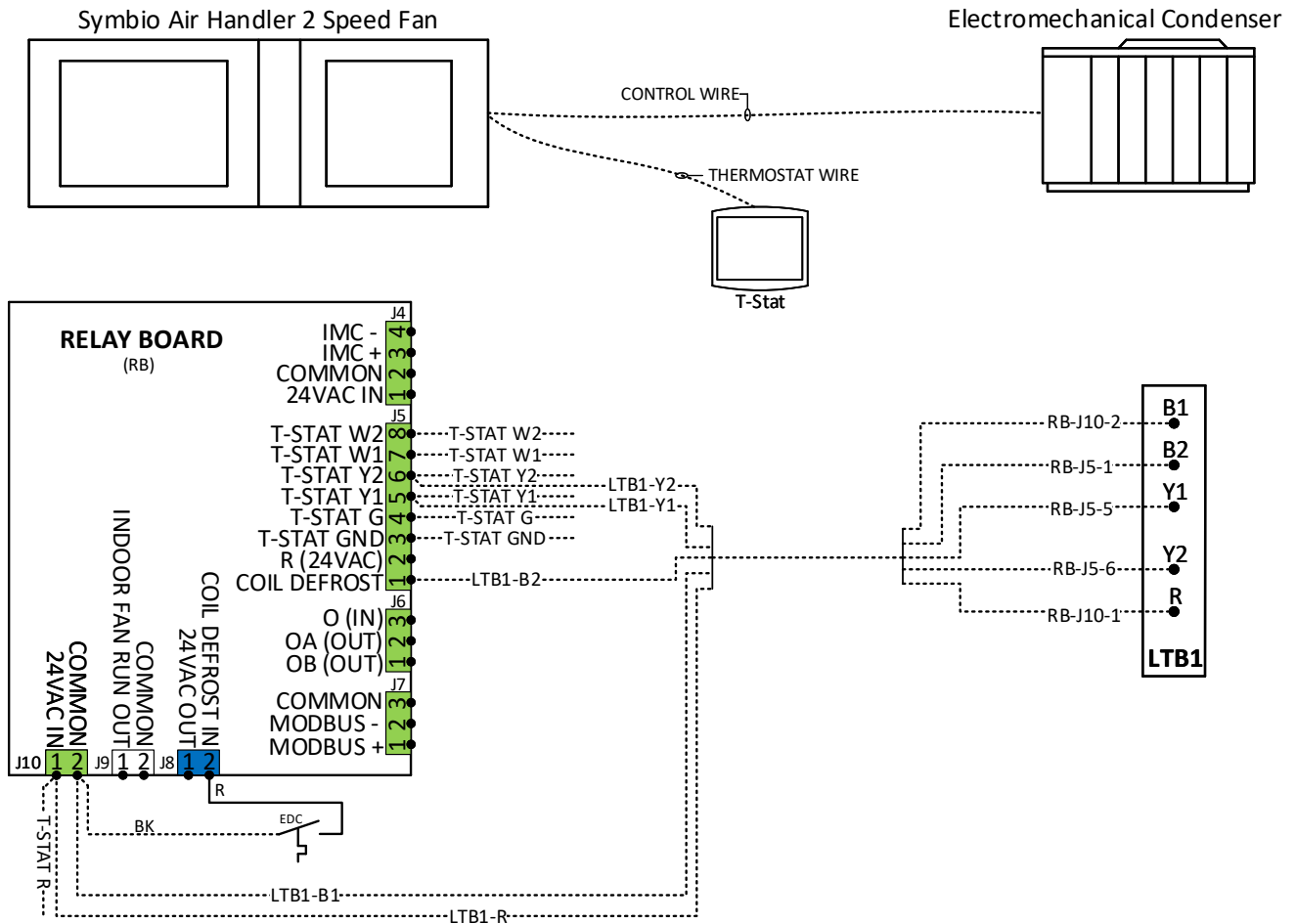
Notes:

- Symbio controls do not support BAYSENS109 and BAYSENS110 sensor LED indicators.
- Symbio 700, J21-1 (R), is current limited. Alternately, thermostat 24VAC power can be connected at Adapter Board (AB) J15-1.

Condenser and Air Handler Pair Wiring Information

Pairing C or 3

Figure 2. Pairing C or 3 — Electromechanical condenser with Symbio Air Handler



Thermostat Connections

Thermostat wire — up to seven conductors

1. Connect a pair of conductors from thermostat R and ground terminals to relay board J10-1 and relay board J5-3. It is recommended to use the J10-1 terminal on the relay board instead of the J5-2 terminal on the relay board to power the thermostat.
2. Connect the remaining conductors to their corresponding terminal on the J5 connector on the relay board. Depending on the size and setup of the application, the number of conductors will vary:
 - a. The W1 and W2 connections are needed only if the air handler has an electric heat accessory installed. A new electric heater must be used with a Symbio air handler. Legacy electric heaters cannot be reused on Symbio air handlers.
 - b. On units with single compressor, jumper relay board J5-5 and J5-6 together to enable high speed fan on call for cooling.

Air Handler to Condenser Connections

Control Wire — Thermostat style wire up to five conductors

Table 5. Pairing C or 3 air handler to condenser wiring

Cond.	Required/ Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	(RB) J10-1	LTB1-R	24VAC	If the air handler and condensing units have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining Control Wire conductors.
2	Required	(RB) J10-2	LTB1-B1	Ground	
3	Required	(RB) J5-5	LTB1-Y1	Compressor 1	
4	Optional	(RB) J5-6	LTB1-Y2	Compressor 2	
5	Optional	(RB) J5-1	LTB1-B2	EDC	This conductor is optional and is only needed if compressor protection at low evaporator temperatures is desired.

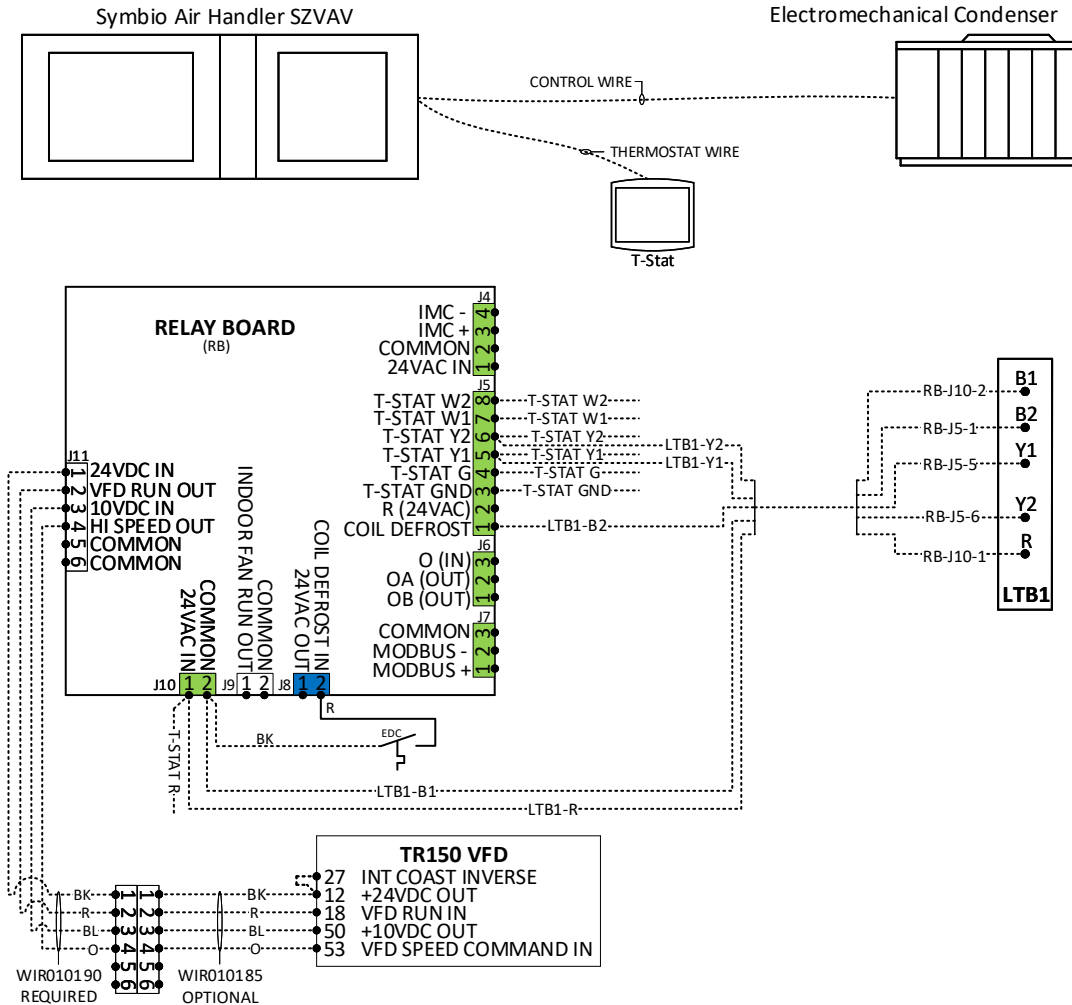
Evaporator Defrost Control

Thermostat style wire

1. If the EDC switch in the air handler will be utilized for low evaporator compressor protection, the factory wire landed on relay board J8-1 must be cut and moved to terminal relay board J10-2.
2. Move wire from terminal "H" to terminal "L" on EDC switch to enable normally closed switch operation. This step is required.

Pairing D

Figure 3. Pairing D for Electromechanical condenser to Symbio Air Handler SZVAV



Notes:

- Pairing an electromechanical condensing unit with a Symbio SZVAV air handler will limit the indoor fan to two speeds.
- This pairing requires the use of wire harness WIR010190 which can be purchased from Trane Supply. Wiring Harness WIR010185 is optional for this pairing and is only needed to provide a pigtail for the VFD.

Thermostat Connections

Thermostat wire — up to seven conductors

- Connect a pair of conductors from thermostat R and ground terminals to relay board J10-1 and relay board J5-3. It is recommended to use the J10-1 terminal on the relay board instead of the J5-2 terminal on the relay board to power the thermostat.
- Connect the remaining conductors to their corresponding terminal on the J5 connector on the relay board. Depending on the size and setup of the application, the number of conductors will vary:

- a. The W1 and W2 connections are needed only if the air handler has an electric heat accessory installed. A new electric heater must be used with a Symbio air handler. Legacy electric heaters cannot be reused on Symbio air handlers.
- b. On units with single compressor, jumper relay board J5-5 and J5-6 together to enable high speed fan on call for cooling.

Air Handler to Condenser Connections

Control Wire — Thermostat style wire up to five conductors

Table 6. Pairing D air handler to condenser wiring

Cond.	Required/ Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	(RB) J10-1	LTB1-R	24VAC	If the air handler and condensing units have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining Control Wire conductors.
2	Required	(RB) J10-2	LTB1-B1	Ground	
3	Required	(RB) J5-5	LTB1-Y1	Compressor 1	
4	Optional	(RB) J5-6	LTB1-Y2	Compressor 2	
5	Optional	(RB) J5-1	LTB1-B2	EDC	If the EDC switch in the air handler will be utilized for low evaporator compressor protection, the factory wire landed on relay board J8-1 must be cut and moved to terminal relay board J10-2. The EDC must also be changed from a normally open to normally closed switch by moving wire from terminal "H" to terminal "L" on EDC switch.

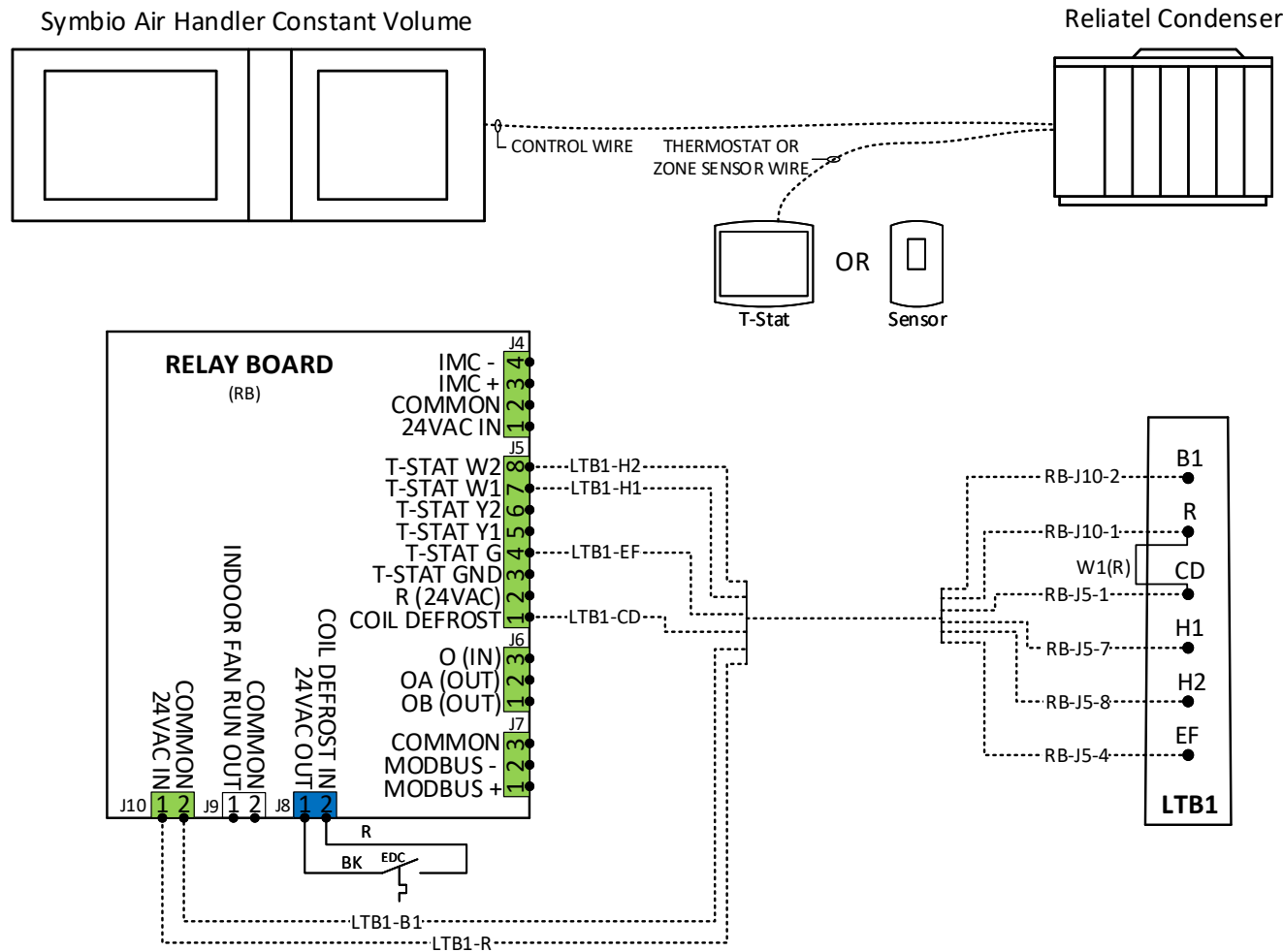
Air Handler Connections

TR150 Wire – WIR010190 and WIR010185 harnesses

1. Remove the existing wire harness from relay board P1 and VFD terminals 61, 68 and 69. This harness is not used for this pairing.
2. Connect wiring harness WIR010190 and WIR010185 from relay board J11 to VFD terminals 12, 18, 50, and 53. Verify that jumper exists between VFD terminals 12 and 27.
3. Update the following parameters in the TR150 VFD.
 - a. Change 3-15 from [11] Local Bus reference to [1] Analog Input 53
 - b. Change 5-10 from [0] No Operation to [8] Start
 - c. Change 5-12 from [0] No Operation to [2] Coast Inverse
 - d. Change 8-01 from [2] Control Word Only to [0] Digital and Control Word
 - e. Change 8-02 from [1] FC Port to [0] None
 - f. Verify 4-12 is set to 25 HZ
 - g. Verify 4-14 is set to 60 HZ
 - h. Verify 6-10 is set to 0.07V
 - i. Verify 6-11 is set to 10.00V
 - j. Verify 6-14 is set to 25 HZ
 - k. Verify 6-15 is set to 60 HZ

Pairing 4

Figure 4. Pairing 4 for ReliaTel Condenser to Symbio Air Handler Constant Volume



Air Handler to Condenser Connections

Control Wire — Thermostat style wire up to six conductors

Table 7. Pairing 4 air handler to condenser wiring

Cond.	Required / Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	RB-J5-4	LTB1-EF	Run command for supply fan	
2	Optional	RB-J10-1	LTB1-R	Power relay board	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining Control Wire conductors.
3	Optional	RB-J10-2	LTB1-B1	Power relay board	

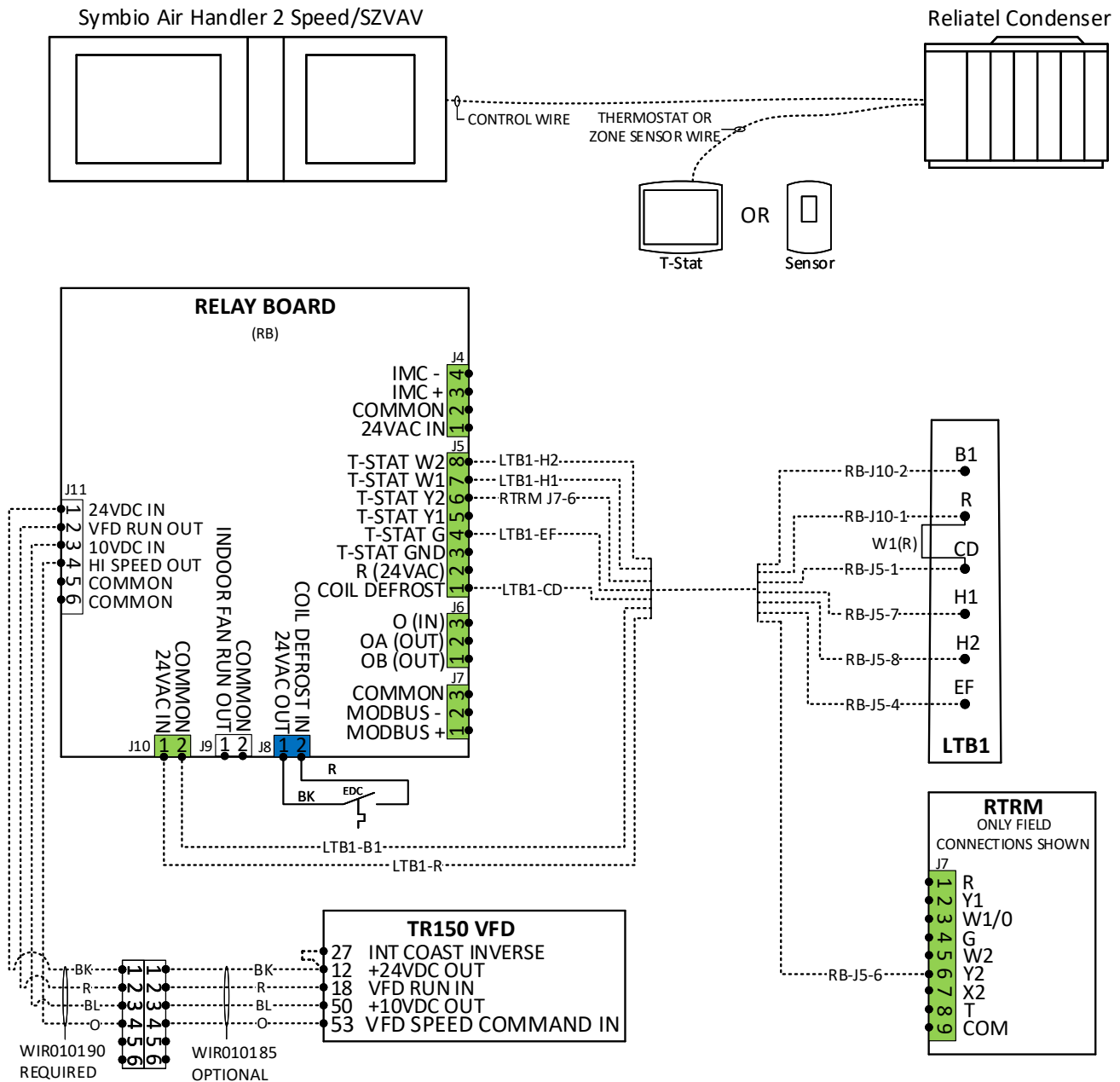
Condenser and Air Handler Pair Wiring Information

Table 7. Pairing 4 air handler to condenser wiring (continued)

Cond.	Required / Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
4	Optional	RB-J5-1	LTB1-CD	Disable the compressor when EDC switch activates	If the EDC switch in the air handler will be utilized for low evaporator compressor protection, remove the jumper wire [W1(R)] that is connected between the terminals LTB1-R & LTB1-CD in the condenser unit. If EDC is wired, change the connection from Terminal 'H' (NO) to terminal 'L' (NC).
5	Optional	RB-J5-7	LTB1-H1	Command to enable Heat – stage1	Conductor is required only if the air handler is installed with the electric heat units. If the electric heat kit is installed, remove the bypass wires 55A connecting J2-1 & J2-2 on RTRM (condenser unit) to enable the electric heat. For 2 stage electric heat, remove the bypass wire 49A connecting J1-3 & J1-6 on RTRM (condenser unit).
6	Optional	RB-J5-8	LTB1-H2	Command to enable Heat – stage2	

Pairing E or F

Figure 5. Pairing E or F for ReliaTel Condenser to Symbio Air Handler two speed or SZVAV



Note: Pairing an electromechanical condensing unit with a Symbio SZVAV air handler will limit the indoor fan to two speeds.

Air Handler to Condenser Connections

Control Wire — Thermostat style wire up to seven conductors

Table 8. Pairing E or F for air handler to condenser wiring

Cond.	Required / Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	(RB) J5-4	LTB1-EF	Run command to VFD	Refer to air handler connections.
2	Required	(RB) J5-6	RTEM J7-6	High speed command to VFD	
3	Optional	(RB) J10-1	LTB1-R	Power relay board	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining control wire conductors.
4	Optional	(RB) J10-2	LTB1-B1		
5	Optional	(RB) J5-1	LTB1-CD	Disable the compressor when EDC switch activates	If the EDC switch in the air handler will be utilized for low evaporator compressor protection, remove the jumper wire [W1 (R)] that connected between the terminals LTB1-R & LTB1-CD in the condenser unit. If EDC wired, change the connection from Terminal 'H' (NO) to terminal 'L' (NC).
6	Optional	(RB) J5-7	LTB1-H1	Command to enable Heat – stage 1	Conductor is required only if the air handler is installed with the electric heat units. If the electric heat kit is installed, remove the bypass wires 55A connecting J2-1 & J2-2 on RTRM (condenser unit) to enable the electric heat. For two stage electric heat, remove the bypass wire 49A connecting J1-3 & J1-6 on RTRM (condenser unit).
7	Optional	(RB) J5-8	LTB1-H2	Command to enable Heat – stage 2	

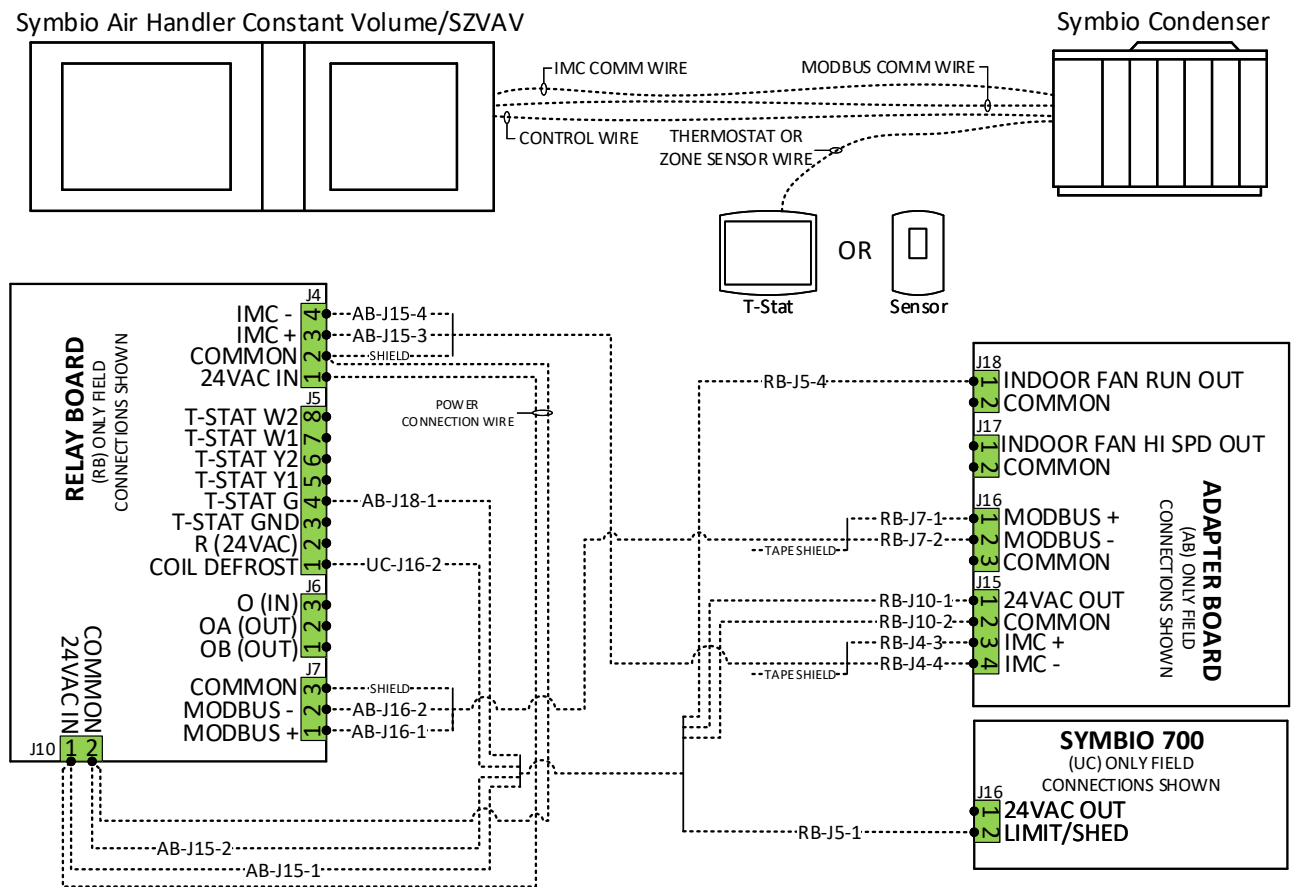
Air Handler Connections

TR150 Wire – WIR010190 and WIR010185 harnesses

1. Remove the existing wire harness from relay board P1 and VFD terminals 61, 68, and 69. This harness is not used for this pairing.
2. Connect wiring harness WIR010190 and WIR010185 from relay board J11 to VFD terminals 12, 18, 50, and 53. Verify that jumper exists between VFD terminals 12 and 27.
3. Update the following parameters in the TR150 VFD.
 - a. Change 3-15 from [11] Local Bus reference to [1] Analog Input 53
 - b. Change 5-10 from [0] No Operation to [8] Start
 - c. Change 5-12 from [0] No Operation to [2] Coast Inverse
 - d. Change 8-01 from [2] Control Word Only to [0] Digital and Control Word
 - e. Change 8-02 from [1] FC Port to [0] None
 - f. Verify 4-12 is set to 25 HZ
 - g. Verify 4-14 is set to 60 HZ
 - h. Verify 6-10 is set to 0.07V
 - i. Verify 6-11 is set to 10.00V
 - j. Verify 6-14 is set to 25 HZ
 - k. Verify 6-15 is set to 60 HZ

Pairing A or B

Figure 6. Pairing A or B for Symbio Condenser to Symbio Air Handler Constant Volume or SZVAV



Zone Sensor or Thermostat Connections

See [“Thermostat and Zone Sensor Wiring,” p. 9](#) for details on how to connect a zone sensor to J19 or thermostat to J21 on the Symbio 700 in the air handler. For SZVAV applications a space temperature sensor is required. Using a thermostat on a SZVAV air handler will result in two speed fan operation.

See [“Symbio Service and Installation Mobile Application,” p. 31](#) for details on how to use the Symbio Service and Installation Mobile App to verify that configuration for space controller on the Symbio 700 matches the desired zone sensor or thermostat application.

Air Handler to Condenser Connections

Control Wire — Thermostat style wire up to four conductors

Table 9. Pairing A or B air handler to condenser wiring

Cond.	Required /Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	(RB) J10-1	(AB) J15-1	24VAC	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining control wire conductors.
2	Required	(RB) J10-2	(AB) J15-2	Ground	
3	Required	(RB) J5-4	(AB) J18-1	Supply fan	Command the constant volume indoor fan to run or will interlock a variable speed fan with the electric heat.
4	Optional	(RB) J5-1	(UC) J16-2	EDC	This conductor is optional and is only needed if compressor protection at low evaporator temperatures is desired. Reference page 28 for details on how to use the Symbio Service and Installation Mobile Application to set the configuration for Demand Management to Demand Limit, and in Settings change Cooling Demand Limit Capacity Enable Setpoint to 0%.

Shielded Twisted Pair Cable — up to two cables

Table 10. Pairing A or B twisted pair cable wiring

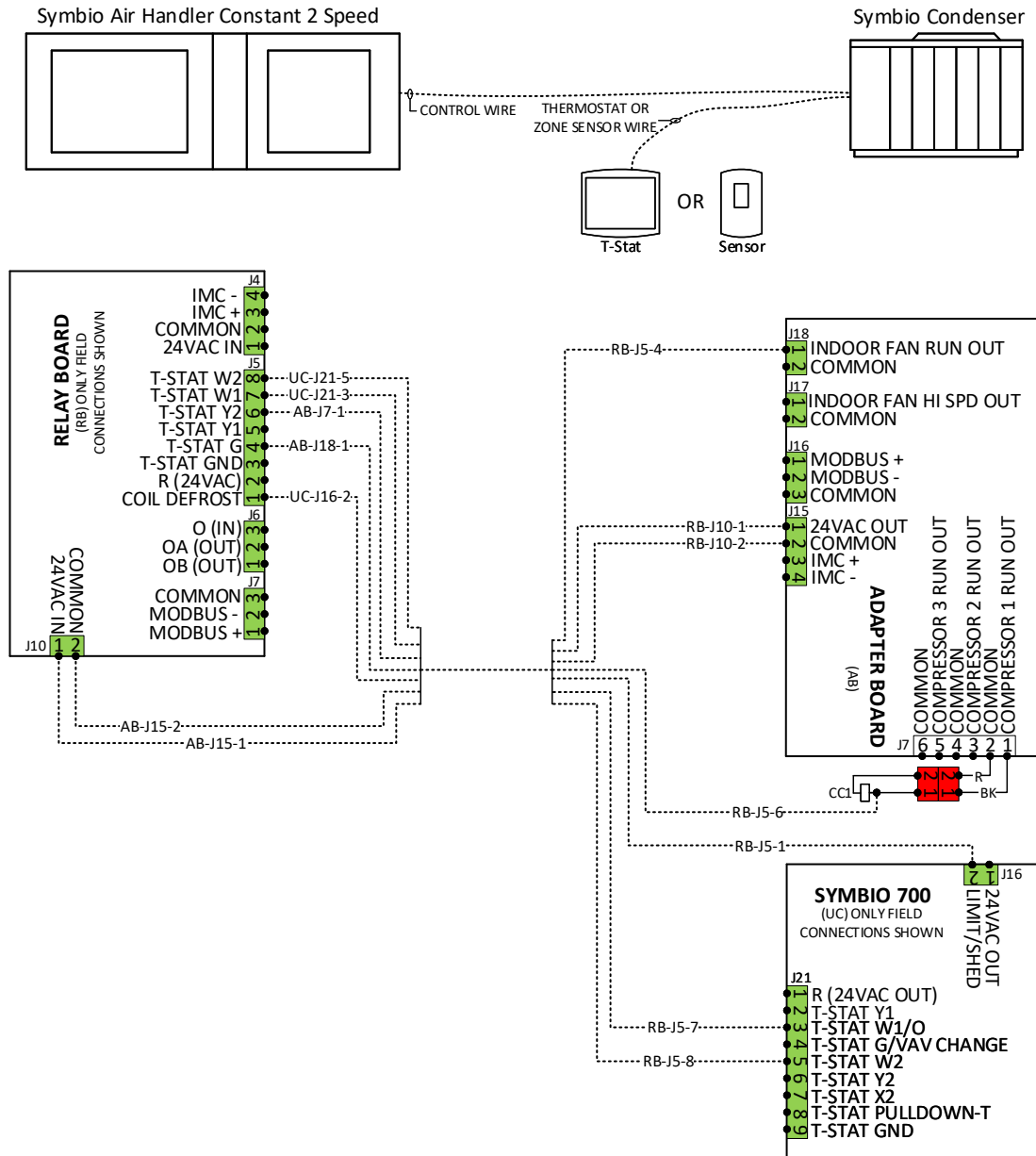
Cable	Required/Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Optional ^(a)	(RB) J4-3	(AB) J15-3	Electric Heat and/or VFD (IMC +)	
		(RB) J4-4	(AB) J15-4	Electric Heat and/or VFD (IMC -)	
		(RB) J4-3	No connect	Shield	Connect shield only at air handler to ground terminal. At condenser, tape shield back onto cable.
2	Optional ^(b)	(RB) J7-1	(AB) J16-1	Modbus +	
		(RB) J7-2	(AB) J16-2	Modbus -	
		(RB) J7-3	No connect	Shield	Connect shield only at air handler to ground terminal. At condenser, tape shield back onto cable.

^(a) Required if Options Module installed for electric heat operation and/or SZVAV application.

^(b) Required if air handler has a VFD for SZVAV application. Use the Symbio Service and Installation Mobile App to verify that configuration for system type is set to VVZT.

Pairing H

Figure 7. Pairing H for Symbio Condenser to Symbio Air Handler Constant two speed



Note: Electric heat will only operate when using a thermostat. If the condensing unit is a heat pump, electric heat will not operate in defrost mode.

Thermostat or Sensor Connections

See "Thermostat and Zone Sensor Wiring," p. 9 for details on how to connect a zone sensor to J19 or thermostat to J21 on the Symbio 700 in the air handler.

See "Symbio Service and Installation Mobile Application," p. 31 for details on how to use the Symbio Service and Installation Mobile App to verify that configuration for space controller on the Symbio 700 matches the desired zone sensor or thermostat application.

Air Handler to Condenser Connections

Control wire — Thermostat style wire up to seven conductors

Table 11. Pairing H air handler to condenser wiring

Cond.	Required/ Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	(RB) J10-1	(AB) J15-1	24VAC	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining control wire conductors.
2	Required	(RB) J10-2	(AB) J15-2	Ground	
3	Required	(RB) J5-4	(AB) J18-1	Supply fan	Command the indoor fan to low speed.
4	Required	(RB) J5-6	See (a) (b) (c) (d) (e)	Supply fan	
5	Optional	(RB) J5-7	(UC) J21-3	Electric heat	Commands first stage of electric heat (if installed). See "Symbio Service and Installation Mobile Application," p. 31 for details on how to use the Symbio Service and Installation Mobile App. Set Primary Heating Source to Not Installed or a diagnostic for Options Module Communication Fail will be active. The Symbio 700 will still command the Indoor Fan on with a W1 or W2 call from the thermostat.
6	Optional	(RB) J5-8	(UC) J21-5	Electric heat	Commands second stage of electric heat (if installed).
7	Optional	(RB) J5-1	(UC) J16-2	EDC	If the EDC switch in the air handler will be utilized for low evaporator compressor protection, use the Symbio Service and Installation Mobile Application to edit the following: <ul style="list-style-type: none"> Edit Configuration: set Demand Management to Demand Limit Edit Settings: Refrigeration set Cooling Demand Limit Capacity Enable Setpoint to 0%

- (a) Depending on the size of the condensing unit and the space reference, the termination on the Adapter Board will vary for the high-speed fan command. This conductor will always terminate on Relay Board J5-6.
- (b) If the condensing unit only has one compressor, splice the connection into Adapter Board J7-1. This will command the indoor fan to high speed when compressor contactor 1 (CC1) is energized.
- (c) If the condensing unit has two compressors, splice the connection into Adapter Board J7-3. This will command the indoor fan to high speed when compressor contactor 2 (CC2) is energized.
- (d) If the condensing unit has two compressors and you are using a thermostat for a space reference, connect to the Y2 output from the thermostat. This will command the indoor fan to high speed when a call for second stage of cooling is initiated. There is a chance of both compressors running with the fan on low speed if the thermostat removes the Y2 call before the minimum compressor on timer has expired.
- (e) If the condensing unit is a 10 or 20 ton version, splice the connection into Adapter Board J12-1. This will command the indoor fan to high speed when both compressors are fully loaded.

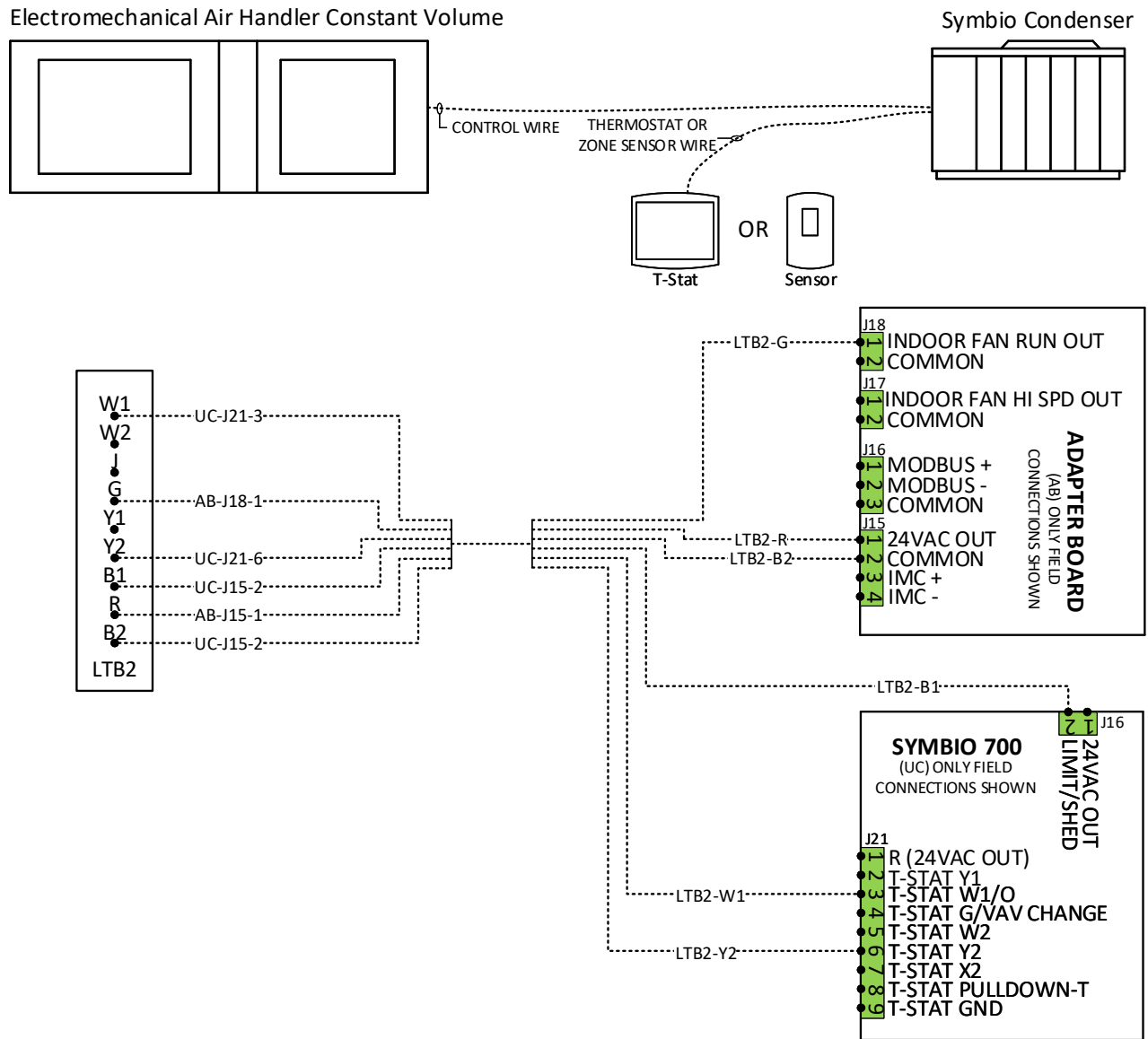
Symbio 700 Configuration and Settings

See "Symbio Service and Installation Mobile Application," p. 31 for details on editing equipment configuration. Review and edit the following:

- Indoor Fan Type:** When connecting the Symbio Condenser to an electromechanical air handler with two-speed fan operation, ensure that the Symbio 700 UC indoor fan type configuration is set to "Single Speed" selection. The air handler relay board will switch the fan speeds based on the compressor operation / thermostat call.
- Primary Heating Source:** If the air handler has electric heat, configure the Symbio 700 UC for primary heating source to "Not Installed", otherwise a Diagnostic for Options Module Comm Fail will be active. The Symbio 700 will still turn the indoor fan on with a W1 or W2 call.

Pairing 1 or 2

Figure 8. Pairing 1 or 2 for Symbio Condenser to Electromechanical Air Handler



Zone Sensor or Thermostat Connections

See "Thermostat and Zone Sensor Wiring," p. 9 for details on how to wire a zone sensor to a Symbio condenser.

Notes:

- Symbio 700 thermostat connection J21-1 (R) is current limited. Alternately, wire the thermostat R-wire to Adapter Board J15-1 and thermostat C-wire to Symbio adapter board J15-2.
- If a zone sensor is installed, air handler electric heat will not operate.

Air Handler to Condenser Connections

Control wire — Thermostat style wire up to seven conductors

Table 12. Pairing 1 or 2 air handler to condenser wiring

Cond.	Required/ Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	LTB2-B2	(AB) J15-2	Ground	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining control wire conductors.
2	Required	LTB2-G	(AB) J18-1	Low fan speed	
3	Required	LTB2-Y2	(UC) J21-6	High fan speed	
4	Required	LTB2-W1	(UC) J21-3	Electric Heat	W1 and W2 are jumped together in the air handler to activate high fan speed
5	Optional	LTB2-Y2	(UC) J21-2	Single compressor	High fan speed in cooling
6	Optional	LTB2-R	(AB) J15-1	24VAC for EDC	Power to evaporator defrost (if installed)
7	Optional	LTB2-B1 or LTB2-CD	(UC) J16-2	EDC	<p>2-Speed Fan: Move wire 37M to LTB2-R</p> <p>If the EDC switch in the air handler will be utilized for low evaporator compressor protection, use the Symbio Service and Installation Mobile Application to edit the following:</p> <ul style="list-style-type: none"> Go to Tools > Service > Customer Connection Polarity and change Demand Limit Input to Reversed. Edit Configuration and set Demand Management to Demand Limit. Edit Settings > Refrigeration and set Cooling Demand Limit Capacity Enable Setpoint to 0%.

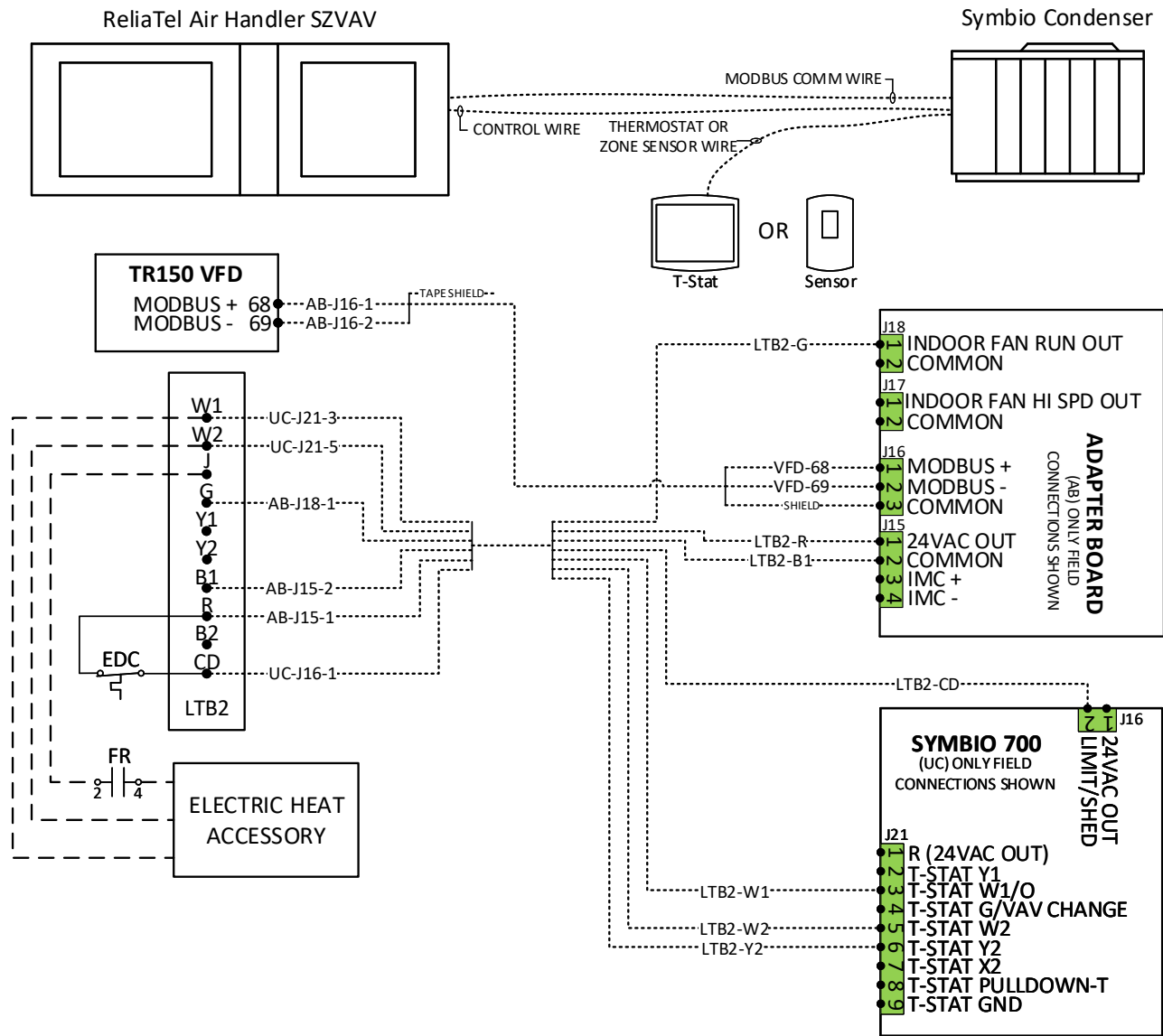
Symbio 700 Configuration and Settings

See “[Symbio Service and Installation Mobile Application](#),” p. 31 for details on editing equipment configuration. Review and edit the following:

- **Indoor Fan Type:** When connecting the Symbio Condenser to an electromechanical air handler with two-speed fan operation, ensure that the Symbio 700 UC indoor fan type configuration is set to “Single Speed” selection. The air handler relay board will switch the fan speeds based on thermostat call.
- **Primary Heating Source:** If the air handler has electric heat, configure the Symbio 700 UC for primary heating source to “Not Installed”, otherwise a Diagnostic for Options Module Comm Fail will be active. The Symbio 700 will still turn the indoor fan on with a W1 call.

Pairing G (preferred)

Figure 9. Pairing G for Symbio Condenser to ReliaTel Air Handler SZVAV



Thermostat Connections

Wire the thermostat to the Symbio 700 J21 except for R, wire thermostat R to Symbio adapter board J15-1.

Air Handler to Condenser Connections

Control wire — Thermostat style wire up to six conductors

Table 13. Pairing G (preferred) air handler to condenser wiring

Cond.	Required/ Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	LTB2-R	(AB) J15-1	24VAC	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining control wire conductors.
2	Required	LTB2-B1	(AB) J15-2	Ground	
3	Required	LTB2-G	(AB) J18-1	Low fan speed	
4	Optional	LTB2-W1	(UC) J21-3	Electric Heat	
5	Optional	LTB2-W2	(UC) J21-5	Electric Heat	
6	Optional	LTB2-CD	(UC) J16-2	EDC	<p>If the EDC switch in the air handler will be utilized for low evaporator compressor protection, use the Symbio Service and Installation Mobile Application to edit the following:</p> <ul style="list-style-type: none"> Go to Tools > Service > Customer Connection Polarity and change Demand Limit Input to Reversed. Edit Configuration and set Demand Management to Demand Limit. Edit Settings > Refrigeration and set Cooling Demand Limit Capacity Enable Setpoint to 0%.

Shielded twisted pair cable — up to one cable

Table 14. Pairing G twisted pair wiring

Cable	Required/ Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required ^(a)	(VFD) 68	(AB) J16-1	Modbus +	
		(VFD) 69	(AB) J16-2	Modbus -	
		No connect	(AB) J15-3	Shield	Connect shield only at condenser to ground terminal. At air handler, tape shield back onto cable.

^(a) Remove and isolate wires from VFD terminals 12, 18, 27, 53, and 55 and from fan run relay terminals 2 and 4.

Air Handler Changes

- The following VFD re-programming (TR-150) is required:
 - Reference 1 Source – [11] Local Bus Reference
 - Terminal 18 Digital Input – [0] No Operation
 - Terminal 27 Digital Input – [0] No Operation
 - Control Site – [2] Control Word Only
 - Control Source – [1] FC Port
 - Control Timeout Time – 15.0 sec
 - Control Timeout Function – [2] Stop
 - Protocol – [2] Modbus RTU
 - Address – 2

Condenser and Air Handler Pair Wiring Information

- Baud Rate – [7] 115200 Baud
 - Parity / Stop Bits – [0] Even Parity, 1 Stop Bit
 - Minimum Response Delay - 0.005 sec/5ms
 - Maximum Response Delay – 0.1 sec/100ms
2. Repurpose the fan run relay to become a fan interlock for electric heat:
- a. Move brown electric heat control wire from LTB2–J to FT terminal 4, wire FR-2 to LTB2J.
 - b. Add a field wire from LTB2–J to FR terminal 2.

Notes: *The following alarms will persist, but the unit will operate:*

- *Indoor Options Module Communication Status*
- *Diagnostic: Unit Communications Failure*
- *Frostat Input*

Symbio 700 Configuration and Settings

See [“Symbio Service and Installation Mobile Application,” p. 31](#) for details on editing equipment configuration. Review and edit the following:

- System Type: CVZT
- Indoor Fan Type: Multi Speed

Condenser and Air Handler Pair Wiring Information

Air Handler to Condenser Connections

Control wire — Thermostat style wire up to eight conductors

Table 15. Pairing G (optional) air handler to condenser wiring

Cond.	Required / Optional	Air Handler Connection	Condenser Connection	Purpose	Instructions
1	Required	LTB2-R	(AB) J15-1	24VAC	It is recommended that the air handler and condensing unit share low voltage power. If the air handler and condensing unit have separate low voltage power, these conductors can be omitted, but isolation relays are needed on the remaining control wire conductors.
2	Required	LTB2-B1	(AB) J15-2	Ground	
3	Required	(RB) J5-4	(AB) J18-1	Indoor fan run	
4	Required	(RB) J5-5	(UC) J21-2	Single compressor	
5	Required	(RB) J5-6	(UC) J21-6	High fan speed	
6	Optional	LTB2-W1	(UC) J21-3	Electric heat	
7	Optional	LTB2-W2	(UC) J21-5	Electric heat	
8	Optional	LTB2-CD	(UC) J16-2	EDC	
					If the EDC switch in the air handler will be utilized for low evaporator compressor protection, use the Symbio Service and Installation Mobile Application to edit the following: <ul style="list-style-type: none">Go to Tools > Service > Customer Connection Polarity and change Demand Limit Input to Reversed.Edit Configuration and set Demand Management to Demand Limit.Edit Settings > Refrigeration and set Cooling Demand Limit Capacity Enable Setpoint to 0%.

Air Handler Connections

Control wire — Thermostat style wire, four conductors

Table 16. Pairing G (optional) air handler wiring

Cond.	Required / Optional	Air Handler Connection	Purpose	Instructions
1	Required	LTB2-R to Relay Board J10-1	24VAC	
2	Required	LTB2-B1 to Relay Board J10-2	Ground	
3	Required	LTB2-W1 to Relay Board J5-7	Electric heat	High speed fan request during heating
4	Required	LTB2-W2 to Relay Board J5-8	Electric heat	High speed fan request during heating

Symbio 700 Configuration and Settings

See [“Symbio Service and Installation Mobile Application,” p. 31](#) for details on editing equipment configuration. Review and edit the following:

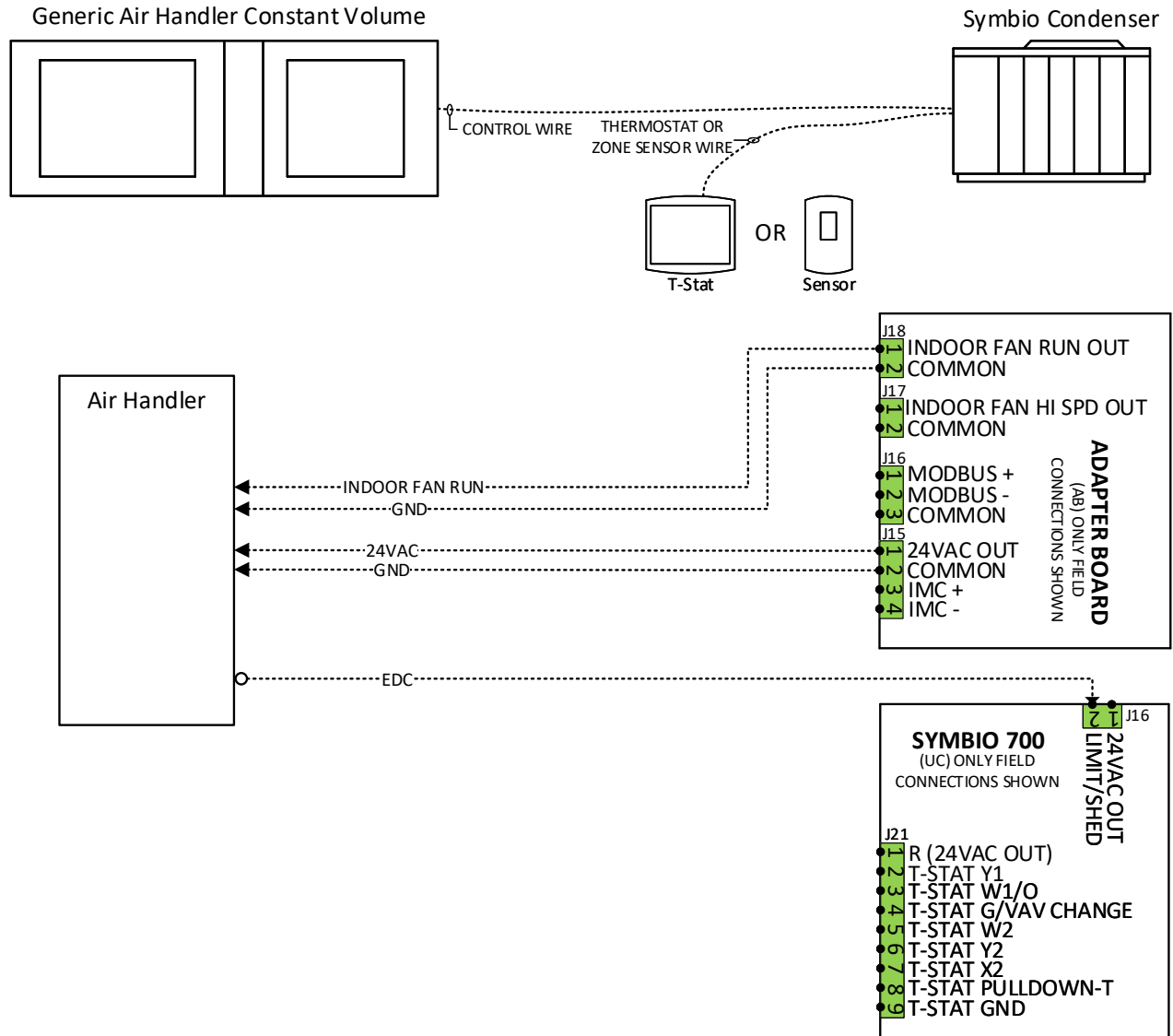
- System Type: CVZT
- Indoor Fan Type: Single Speed

The following alarms will persist, but the unit will operate:

- Indoor Options Module Communication Status
- Diagnostic: Unit Communications Failure
- Froststat Input

Pairing Y

Figure 11. Pairing Y for Symbio Condenser to Generic Air Handler



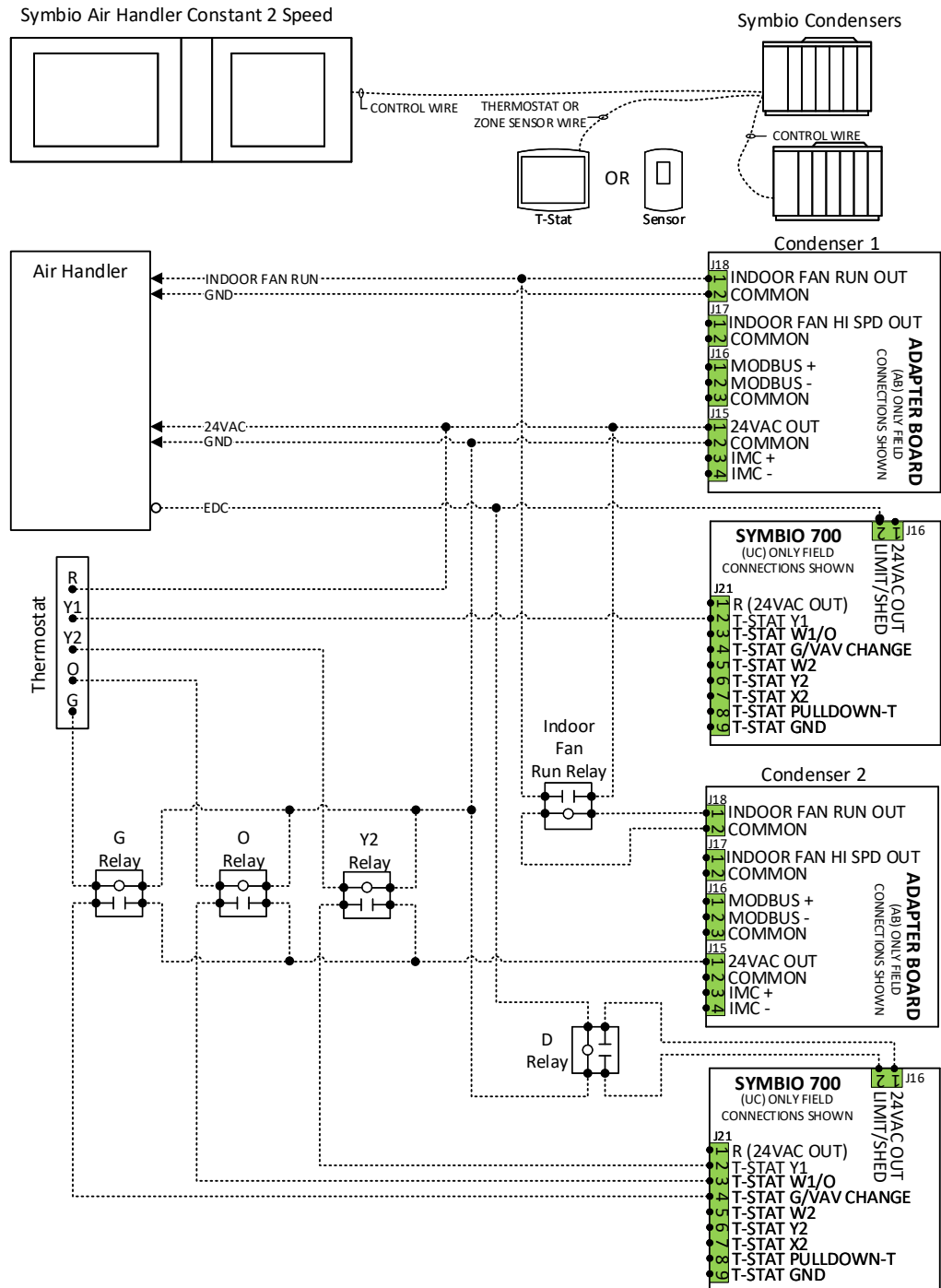
Notes:

- Install supply fan run out, (UC) J18-1, and ground (UC) J18-2 to air handler.
- Power (24VAC) and ground from the condenser are required for Evaporator Defrost Control (EDC) signal.

If the EDC switch in the air handler will be utilized for low evaporator compressor protection, the Symbio Service and Installation Mobile Application can be used to edit the (EDC) for direct or reverse logic. Go to Tools > Service > Customer Connection Polarity, and change the Demand Limit Input to **Direct** or **Reversed**.

Pairing Z

Figure 12. Pairing Z for two Symbio Condensers to one Symbio Air Handler



Note: This diagram is an example of how to use isolation relays for wiring two Odyssey Symbio single-compressor condensers.

Symbio Service and Installation Mobile Application

The Symbio Installation and Service tool is required to view and edit the following:

- Equipment configuration
- Historical alarms
- Firmware updates
- Backup and restore
- Building Automation System configuration

For more detailed information on the Symbio Service and Installation Mobile Application, refer to the Quick Start Guide for Symbio Service and Installation - BAS-SVN043*-EN.

Download Mobile App

To download the Symbio Service & Installation mobile app:

1. Access the Apple App Store or Google Play store by scanning the QR code below or clicking one of the download links.



- [Apple download link](#)
 - [Google Play \(Android\) download link](#)
2. Navigate to the Apple App Store or Google Play Store on your mobile device.
 3. Search for **Trane Symbio** to locate the Symbio Service & Installation app.
 4. Download and install the app.

Figure 13. Symbio Service & Installation app



Connecting to the Symbio 700

Required Tools


- 5/16 inch nut driver tool for panel removal
- Smart devices supported:
 - iPhone®
 - Android™
- Trane Symbio Service & Installation mobile app

Connecting to the Symbio 700 Controller

1. Enable **Bluetooth** on your smart device.
2. Access the Symbio 700 controller in the low voltage portion of the equipment.

Figure 14. Symbio 700 controller



- 3. Press  on the Symbio 700 keyboard/display to turn on Bluetooth.
- 4. Confirm the status of Bluetooth communications.


	Blue LED	Display	Description
Press for On/Off	Off	NOT CONNECTED	Bluetooth Off
	Blinking	WAITING...	Bluetooth On — Not Paired
	On Solid	CONNECTED	Bluetooth On — Connected/Paired

Figure 15. Symbio 700 Bluetooth status



- 5. Start the mobile app on your smart device.

Figure 16. Login screen

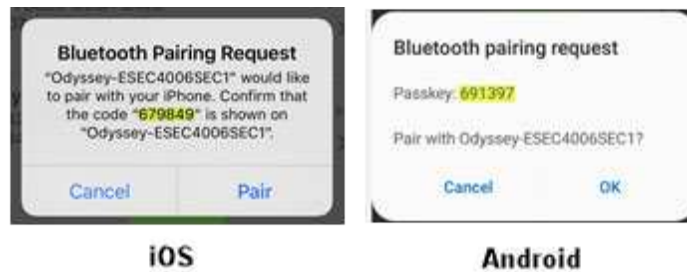


6. On the login screen, press **Skip** in the lower right-hand corner of the screen. Or Trane personnel can login using their Trane Connect user name and password.
7. On the Unit List page, select the Symbio 700 controller to pair with. If the controller is not listed, press the refresh arrow in the upper right-hand corner of the screen.

Note: If a Symbio 700 is not the original Symbio controller as shipped with the equipment, the Bluetooth equipment list will list the controller serial number, instead of the equipment serial number.

8. When prompted, pair the app to the Symbio 700 controller. A popup message displays a 6-digit random number. The same number is shown on the display of the Symbio 700 controller until the pairing is complete, allowing the user to confirm connection to the intended controller.

Figure 17. Bluetooth Pairing



9. Press ☒ on the Symbio 700 on-board keyboard/display to complete the pairing.

When the LED light is a solid blue and the display reads Bluetooth Connected, the Bluetooth pairing and connection is complete.

Troubleshooting

Issue	Description
Smart device requirements not met	<ul style="list-style-type: none">• Apple iPhone (iOS V10; iPhone 6 or later required)• Android (V5.0 Lollipop or later; a device with Bluetooth V4.2 or later required) <p>Note: <i>It is not possible to check what Bluetooth connectivity version is installed on an Android device, as it does not appear in Settings.</i></p>
Multiple users attempting to connect to the controller via Bluetooth	Only one user can connect to the Symbio 700 controller via Bluetooth. If the blue light is solid, another user is connected to the controller.
Device outside of Bluetooth range limits	Bluetooth has physical range limitations. A user can lose connectivity if too far away from the controller and will need to re-access connectivity from the Units List page.
Exceeded limit of equipment pairings	The app only allows 10 saved pairings per device. Android devices will auto delete the oldest pairing. If auto delete fails, you can manually delete pairings. iOS users must manually delete pairings through Settings.
Smart device unpaired or disconnected from controller	<ul style="list-style-type: none">• Pressing the Bluetooth button on the controller while connected will disconnect the controller from the smart device.• Cycling power to the controller, a firmware update, or a restore/start controller will disconnect the Bluetooth connection.• Equipment shutdown will disconnect the Bluetooth connection.

Navigation

The Symbio Service & Installation app allows users to view and edit equipment settings. Each page is represented by an icon at the bottom of the screen.

Home

On the home screen, select the tools icon at the bottom of the screen to navigate to the **Settings** screen.

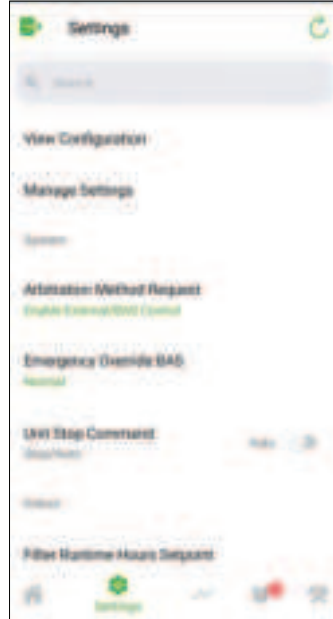
Figure 18. Home screen



Settings

The Settings screen allows users to set up equipment. Users can set the default value for many setpoints and modes. Edit any setting by selecting the green text.

Figure 19. Settings screen



Status

The Status screen displays all information available in the Symbio 700. Some information can be overridden by selecting the green text.

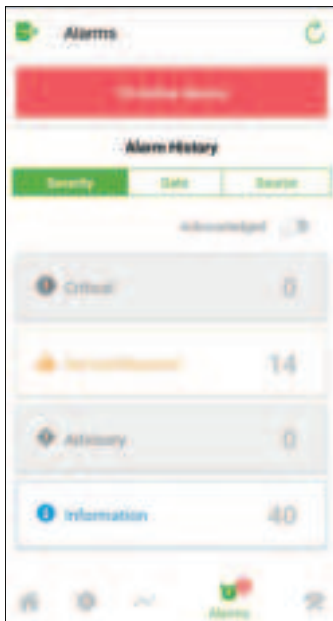
Figure 20. Status screen



Alarms

The Alarms screen displays all active and historic BACnet alarms that are available on the equipment.

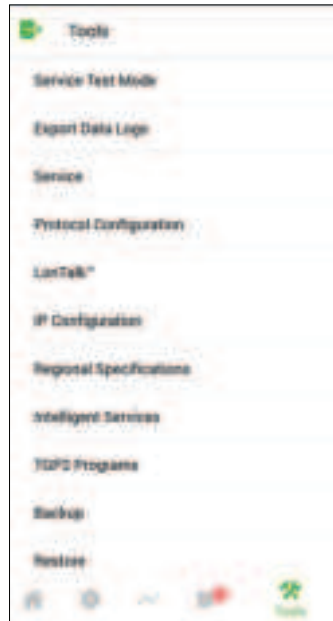
Figure 21. Alarms screen



Tools

The Tools screen provides access to common procedures for the equipment.

Figure 22. Tools screen



Editing Equipment Configuration

Depending on how the split system condenser and air handler are paired, adjusting the equipment configuration may be required for proper operation. To edit the equipment configuration:

1. On the home screen, select the tools icon at the bottom of the screen to navigate to the **Settings** screen.

Figure 23. Home screen



2. Select **View Configuration**.

Figure 24. View configuration screen



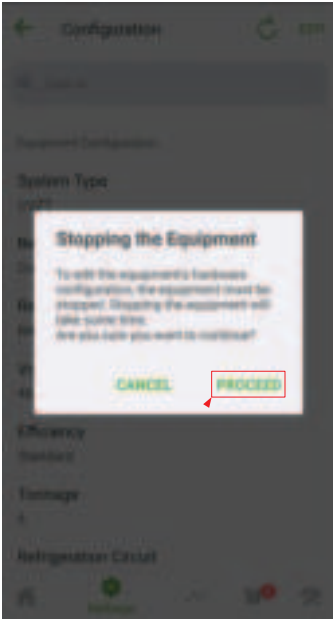
3. Select **Edit**.

Figure 25. Edit configuration screen



4. The equipment must be stopped to edit the configuration. Press **Proceed** to stop the equipment.

Figure 26. Stopping the equipment screen



5. On the **Edit** screen, scroll to the option that needs to be edited. To edit an option, select the green text.

Figure 27. Edit configuration screen



6. Select the desired option. Then select the back arrow at the top of the page to go back to the previous page.

Figure 28. Edit configuration screen



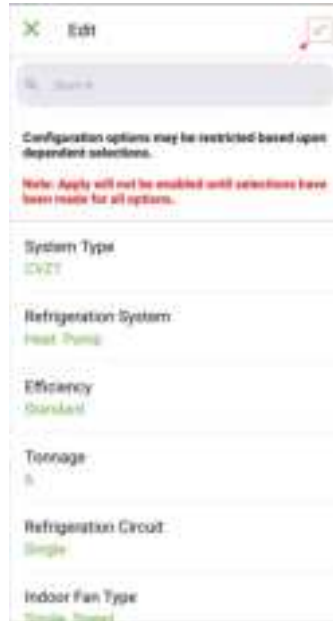
7. Verify that all options are properly set. If — **Select One** — displays, an option must be selected to save.

Figure 29. Verify configuration screen



8. When editing is complete, press the green check mark at the top of the page. The check mark is only available when all options are set properly.

Figure 30. Verify configuration screen



Viewing Alarms

To verify proper equipment operation and to help troubleshoot, the Symbio Service & Installation app allows users to view equipment alarms. Depending how the Symbio 700 is licensed, these views may be slightly different from what is shown.

1. On the Home screen, swipe left or right at the top of the page to view active alarms.
2. Select the Alarm icon to view more information on historical and active alarms.
3. Tap to sort the Alarm history by Severity, Date, or Source.

Figure 31. Home screen



Figure 32. Home screen



Figure 33. Alarm history screen



4. Select a group to view more details about the alarms.

Figure 34. Alarm history screen



5. Select the Active alarms button to view more details about active alarms on the equipment.

Figure 35. Active alarms screen



Service Test Mode

Service Test Mode provides the ability to energize the various components of the system, either to support general system startup tasks or to support troubleshooting. Below are the steps to initiate Service Test Mode. For detailed information on how each Service Test State is interpreted based on the equipment configuration, refer to the Symbio 700 Odyssey Controls Application Guide (ACC-APG001*-EN).

1. On the home screen, select the tools icon at the bottom of the screen to navigate to the **Settings** screen.

Figure 36. Home screen



2. Select **Service Test Mode**.

Figure 37. Tools screen



3. Select any of the green play icons to initiate that test mode.

Figure 38. Service test mode screen



4. When a test is active, the status turns green and displays the name of the active test mode.

Figure 39. Active service test mode screen



5. To exist Service Test Mode, click the stop icon next to the active test mode. Active test modes time out after the Service Test Timeout timer (60 minutes default) expires or power is cycled to the controller.

Figure 40. Active service test mode screen



Symbio 700 User Interface

The Symbio 700 controller provides a 2 X 16 backlit LCD display on the middle of the controller. The onboard user interface includes a Bluetooth pair button to pair with the Symbio 700 controller for use with the Symbio Service & Installation mobile app.

Figure 41. User interface keypad

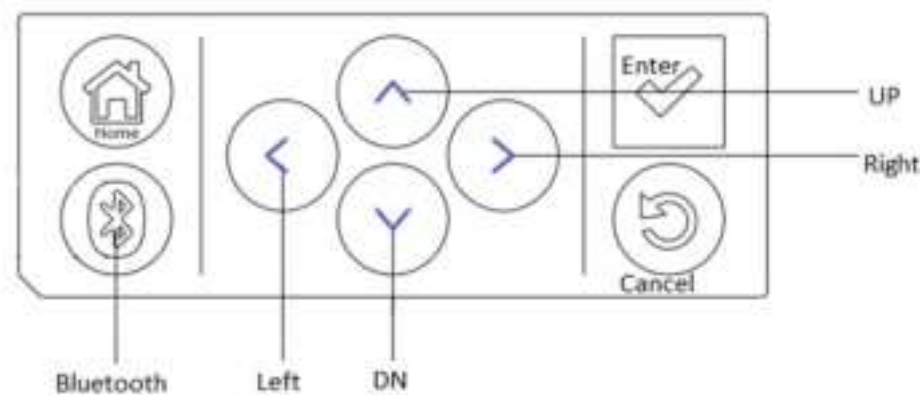
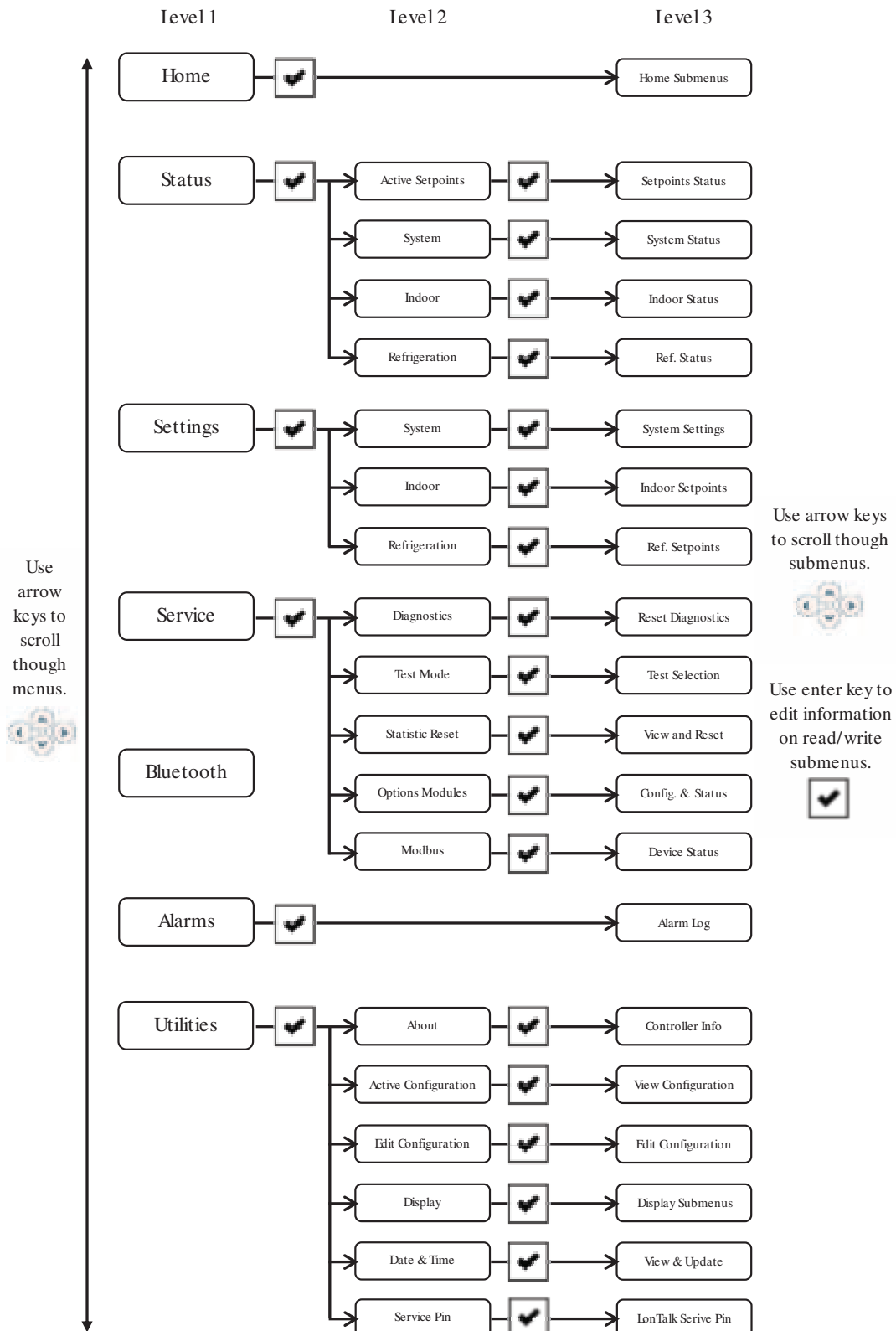


Table 17. User interface buttons

Button	Description
Up/down	Allow the user to scroll the menus and submenus.
Left/right	Allow the user to scroll between values for editable items.
	<ul style="list-style-type: none"> Allows user to drill down into a component of the menu tree. Confirm data changes on writable data. When data is editable, the data point's least significant digit flashes with a cursor. If the data has multiple editable digits, the user scrolls the cursor left and right to choose the editable digit. Once the editing is complete, the data is not changed and propagated through the controller until the Enter button is tapped.
	Tap to exit all submenus and return to the Home screen.
	Tap to go to the Bluetooth menu and initiate the Bluetooth device pairing sequence.
	Tap to return to the previous menu level.

The interface provides an intuitive menu structure: alarms, status, service, settings, and utilities. Configuration of the unit is accomplished under the utilities menu item. A complete list of functions is outlined in the Symbio 700 User Guide - BAS-SVU054*-EN.

Figure 42. Symbio 700 menu



Editing Equipment Configuration

To edit the configuration of the equipment using the onboard display navigate to the **Edit Configuration Settings** submenu. The figure below shows the path to the edit configuration submenu. Use the enter button to advance to submenus and the up and down arrow buttons to scroll through menus.

Figure 43. Symbio 700 utilities menu



Viewing Alarms

To view equipment alarms using the onboard display navigate to the Alarm List submenu. The figure below shows the path to the Alarm List submenu. Use the enter button to advance to submenus and the up and down arrow buttons to scroll through menus.

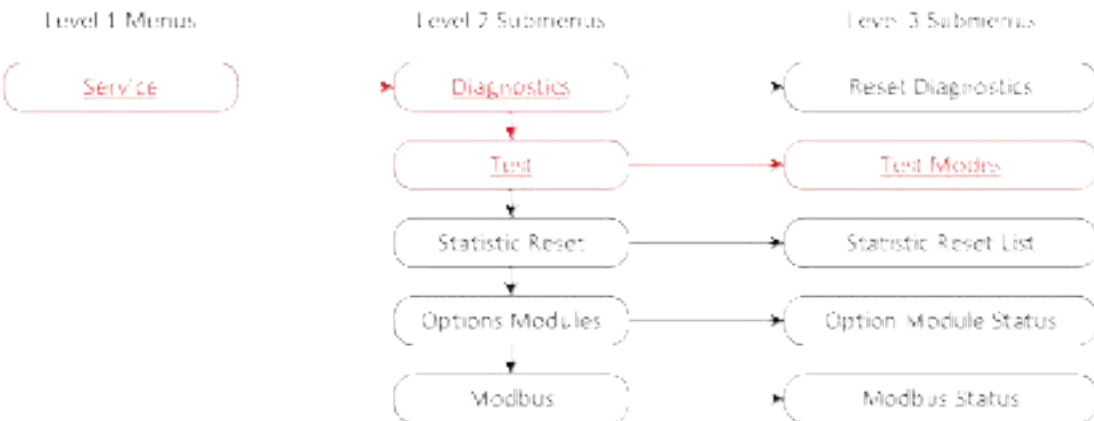
Figure 44. Symbio 700 alarms menu



Service Test Mode

To put the equipment into Service Test Mode, use the onboard display navigate to the Test Modes submenu. The figure below shows the path to the Test Modes submenu. Use the enter button to advance to submenus and the up and down arrow buttons to scroll through menus.

Figure 45. Symbio 700 service test mode menu



More Help and Information

Trane Light Commercial Help Center



Trane Split Systems



Trane and American Standard create comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or americanstandardair.com.

Trane and American Standard have a policy of continuous product and product data improvement and reserve the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.