Manuals+ — User Manuals Simplified.
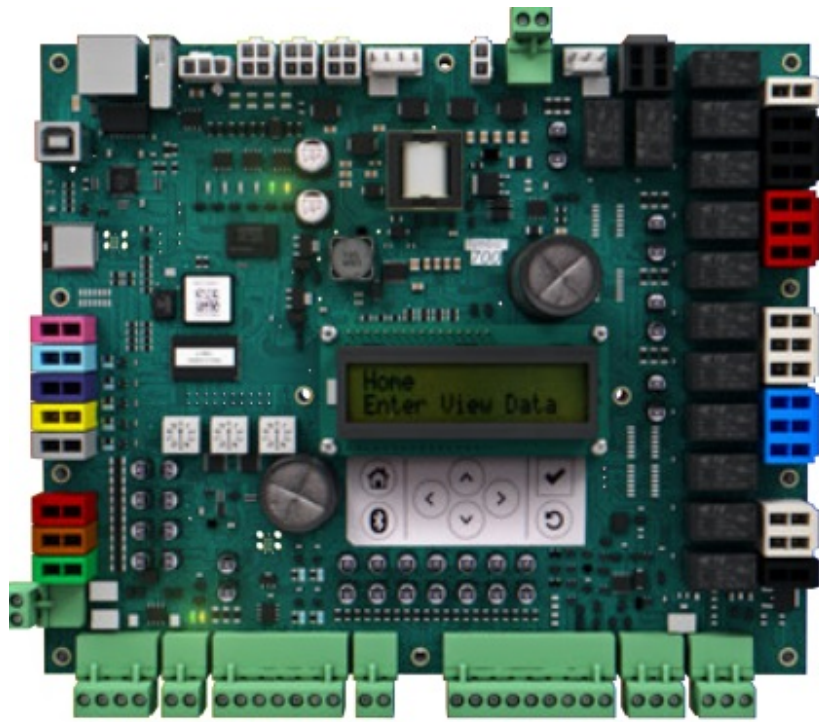

TRANE Symbio 700 Controller User Guide

Contents

TRANE Symbio 700 Controller

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.

Introduction

Read this manual thoroughly before operating or servicing this unit.

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.

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 the 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.

Revision History
Updated to include application on Precedent™ rooftop units.

Introduction

The Symbio™ 700 controller is a factory-installed, programmed control system providing digital control and protection of the equipment. It offers equipment and control configurations that can be used with light commercial packaged equipment. This control system consists of the Symbio 700 main controller and up to four option modules used to provide optional functional operation. A system may or may not include optional modules, depending on the configuration of the equipment.

Features and Benefits

- Open and Flexible
    - Readily available software for configuration and troubleshooting
    - Field upgradable software
    - Compatible with mobile service technology, Symbio 700 empowers customers to select a service that meets their needs
    - Full suite of communication options for BAS integration today and into the future
    - Optional TGP2 and XM support (Tracer TU required) to provide custom sequences and/or side control functionality
- Connected
    - Optional remote access and monitoring, providing troubleshooting support without a site visit.

Controller Overview

The Symbio 700 has two model options:

- Standard Configuration — provides standard troubleshooting via on-board user interface (UI) and access to the Symbio Service and Installation mobile app.
- Advanced Configuration — introduces additional troubleshooting tools and Building Automation System interface via BACnet®, Modbus™, or LonTalk™.

To upgrade from Standard Functionality to Advance Functionality a new Symbio 700 controller must be purchased with the Advance Functionality and installed on the equipment.

Functionality

Feature	Standard Functionality	Advanced Functionality
Communication Protocol	Not Available	BACnet over Zigbee (Air-Fi) BACnet MS/TP BACnet IP Modbus RTU Modbus TCP LonTalk
TGP2	Not Available	Unrestricted in Tracer TU
Expansion Module Support	Not Available	Up to 8 additional I/O via XM30/32 only. Requires Tracer TU to configure.

Symbio Service and Installation Mobile Application

The Symbio Service and Installation mobile app provides advanced configuration, setup, status updates, alarms,

and service capabilities for the Symbio 700 controller via Bluetooth connection. The Symbio 700 can connect to mobile devices that support BLE version 4.2 and higher. Only one connection is allowed at a time to prevent another user from connecting to the system while it is already in use. If a connection is lost, whether accidental or purposeful, a timer is used to prevent the controller from being locked by a user that does not disconnect the controller in a preferred manner. 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 1. Symbio Service & Installation app

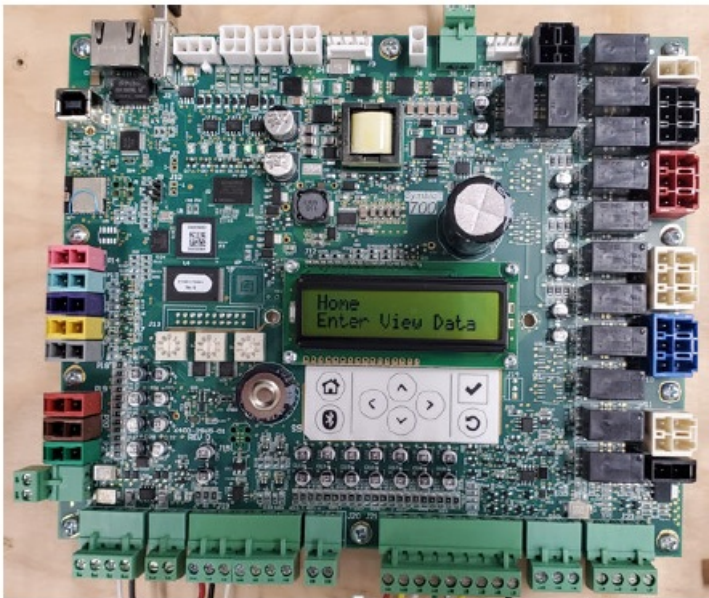**Connecting to the Symbio 700**

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®1 on your smart device.
2. Access the Symbio™ 700 controller in the low voltage portion of the equipment.

   Figure 2. Symbio 700 controller

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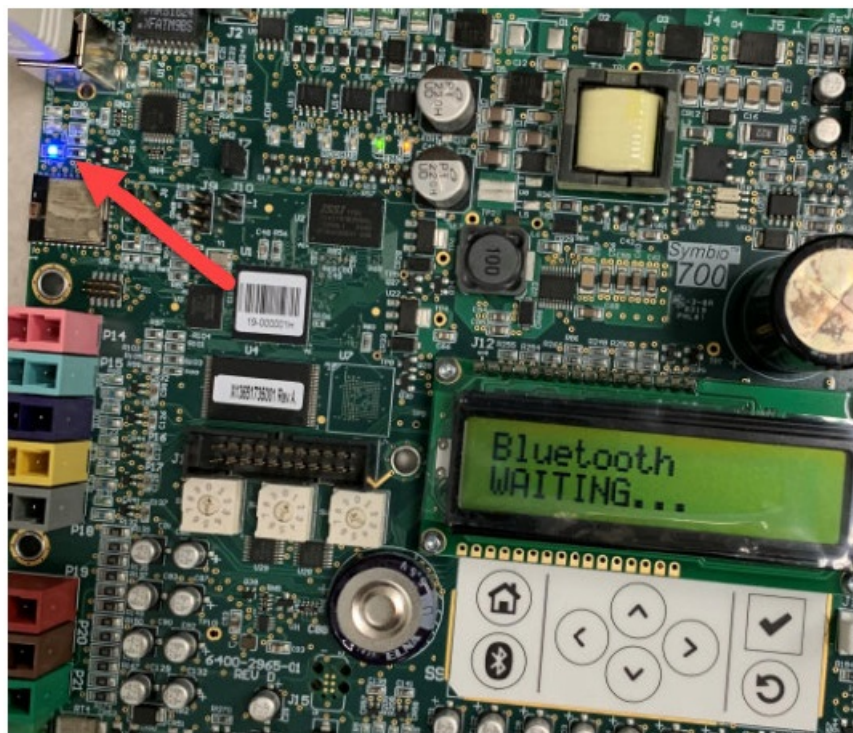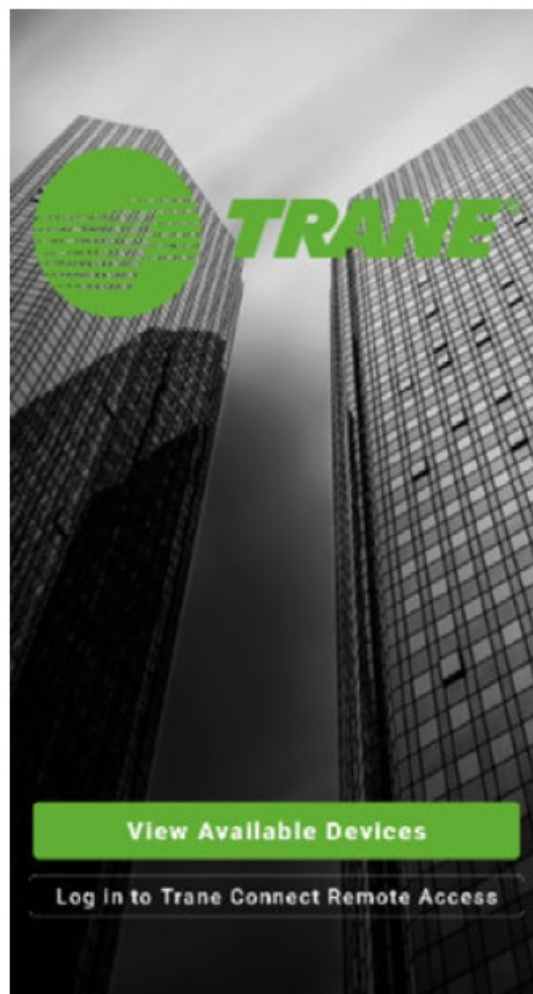- Confirm the status of Bluetooth communications.

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

Figure 3. Symbio 700 Bluetooth status

- Start the mobile app on your smart device.

Figure 4. Login screen

- On the login screen, press View Available Devices in the lower portion of the screen. Or Trane personnel can login using their Trane Connect user name and password.
- 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.

- 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 5. Bluetooth pairing
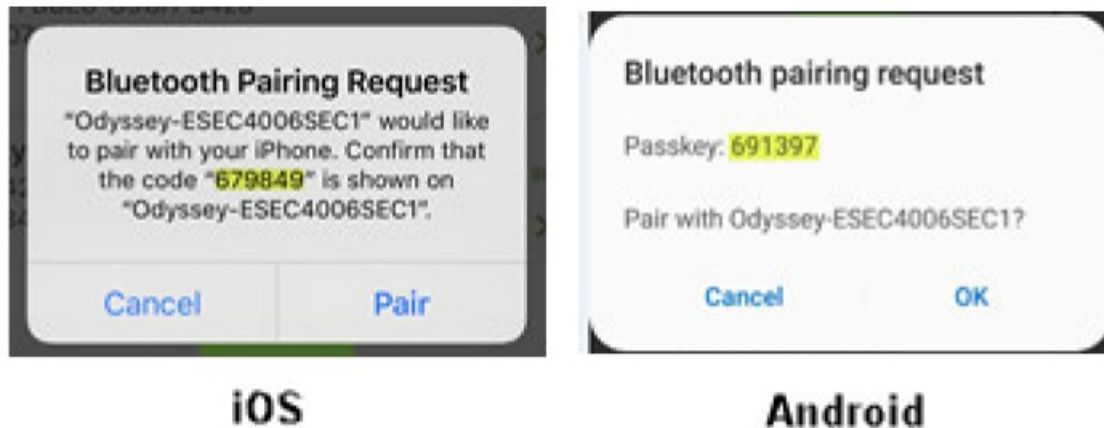
- Press on the Symbio 700 on-board keyboard/display to complete the pairing. When the LED light is a solid blue and the display reads Bluetooth Connected, the Bluetooth pairing and connection is complete.

Troubleshooting

Issue	Description
Smart device requirements not met	• Apple iPhone (iOS V10; iPhone 6 or later required) • Android (V5.0 Lollipop or later; a device with Bluetooth V4.2 or later required) ***Note:*** *It is not possible to check what Bluetooth connectivity version is installed on an Android device, as it does not appear in Settings.*
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	• 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 6. 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.
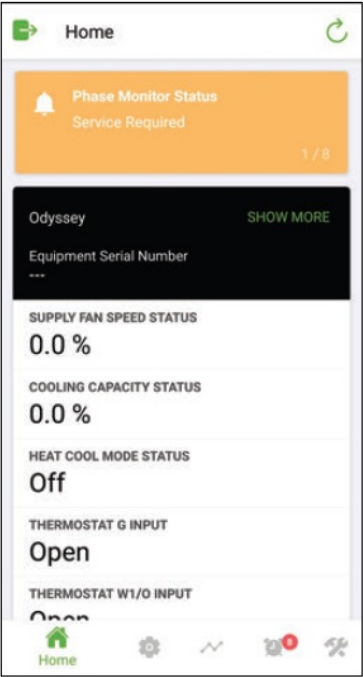
Figure 7. Settings screen

Status

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

Figure 8. Status screen

Figure 6. Home screen
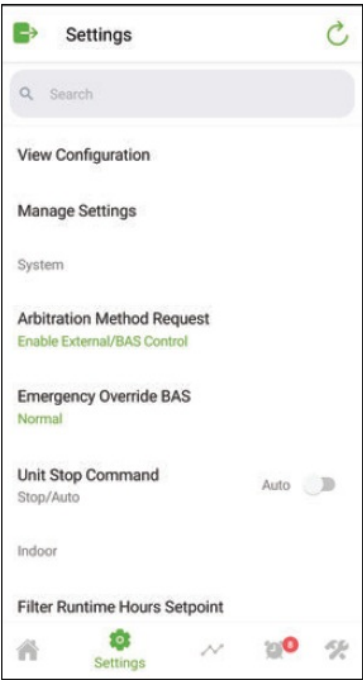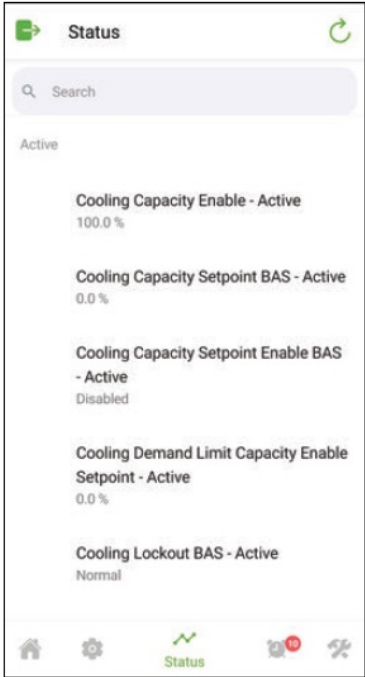
Figure 7. Settings screen

Figure 8. Status screen

Alarms

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

Figure 9. Alarms screen

Tools

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

Figure 10. Tools screen

Figure 9.   Alarms screen
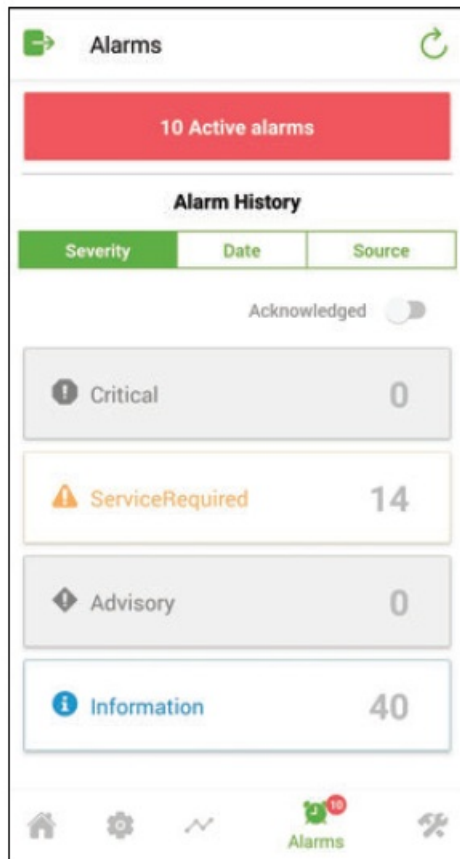
Figure 10.   Tools screen
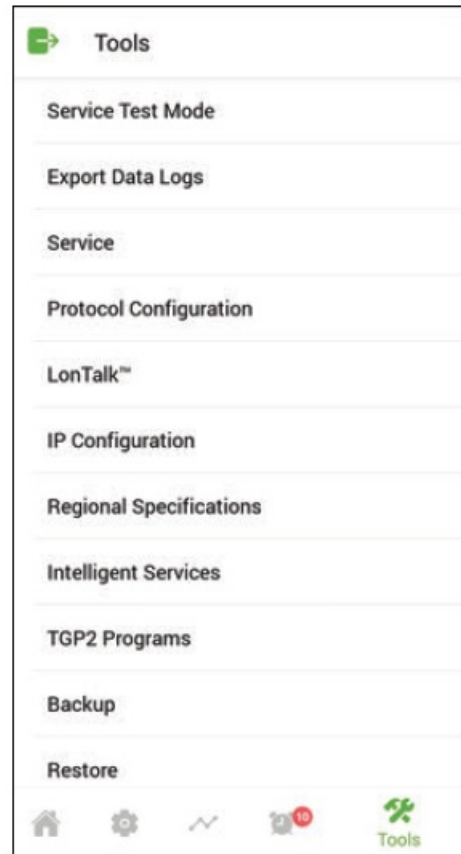
Editing Equipment Configuration

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 11. Home screen

2. Select View Configuration.

    Figure 12. View configuration screen

3. Select Edit.

    Figure 13. Edit configuration screen

Figure 11. Home screen
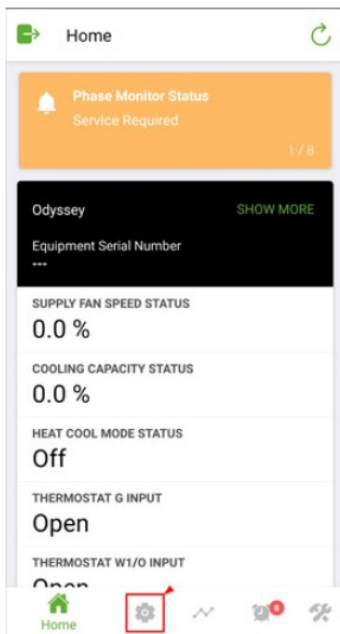
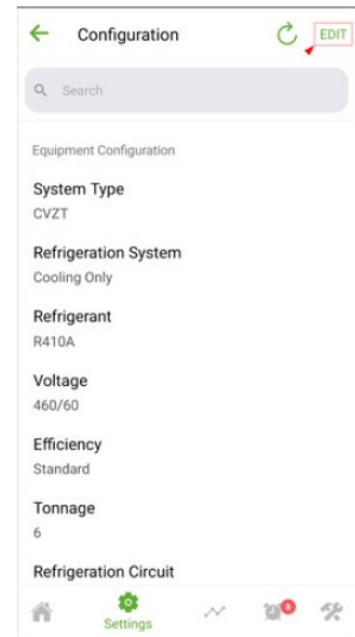Figure 12. View configuration screen
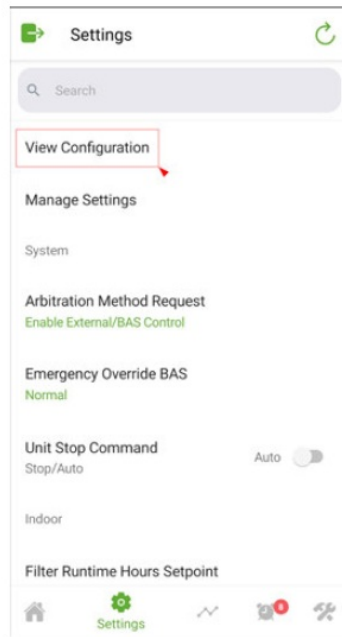
Figure 13. Edit configuration screen

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

   Figure 14. 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 15. 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 16. Edit configuration screen

Figure 14. Stopping the equipment screen
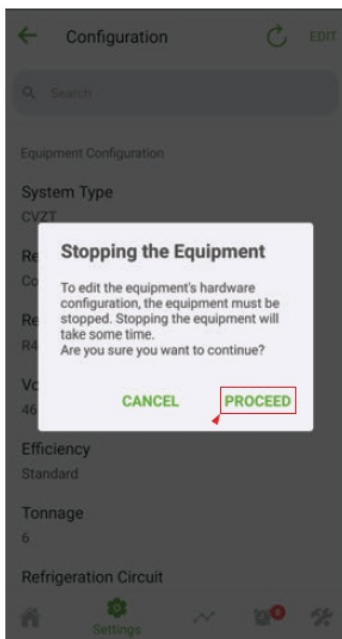
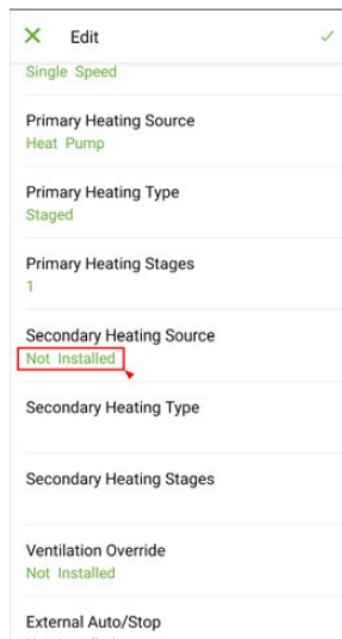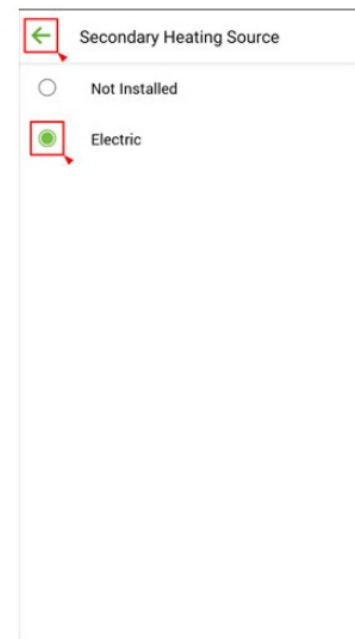Figure 15. Edit configuration screen

Figure 16. Edit configuration screen

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

   Figure 17. 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 18. Verify configuration screen

Figure 17. Verify configuration screen

Figure 18. 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.

   Figure 19. Home screen

2. Select the Alarm icon to view more information on historical and active alarms.

   Figure 20. Home screen

3. Tap to sort the Alarm history by Severity, Date, or Source.

   Figure 21. Alarm history screen
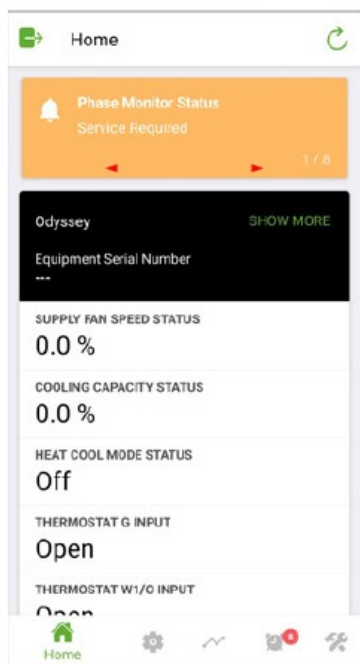
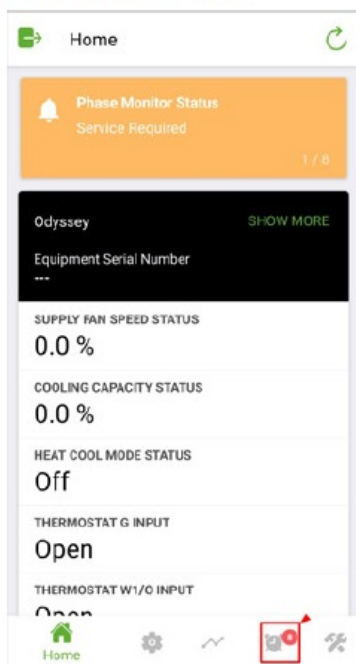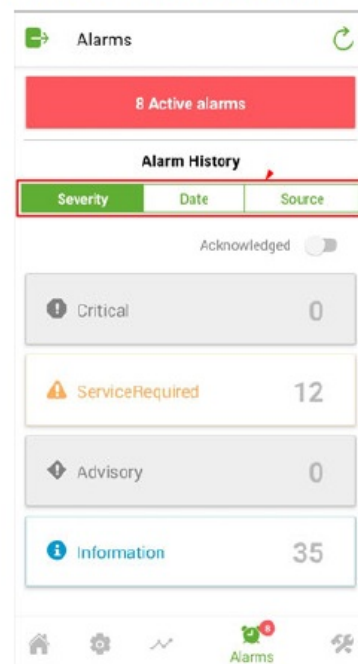Figure 19. Home screen   Figure 20. Home screen   Figure 21. Alarm history screen

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

Figure 22. Alarm history screen

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

Figure 23. Active alarms screen

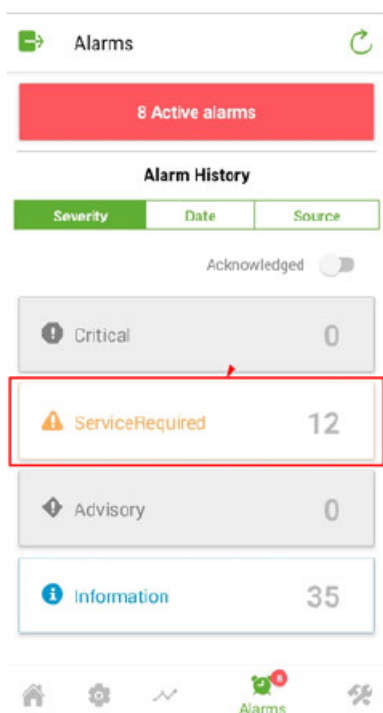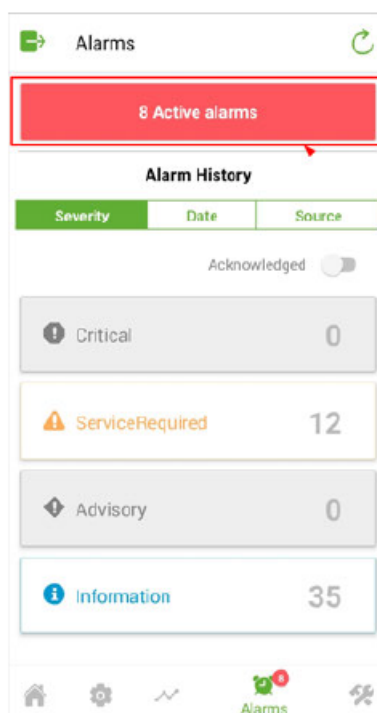Figure 22. Alarm history screen   Figure 23. Active alarms screen

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 24. Home screen

2. Select Service Test Mode.

   Figure 25. Tools screen

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

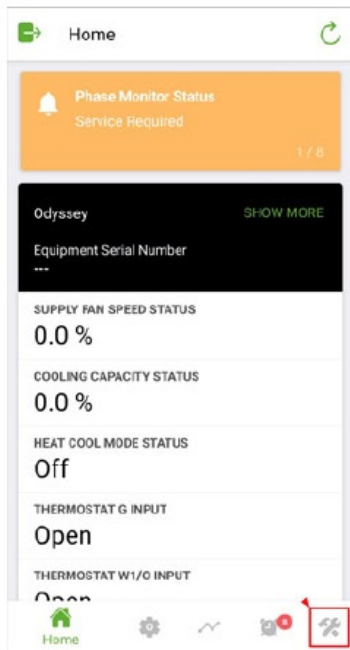   **Figure 26. Service test mode screen**

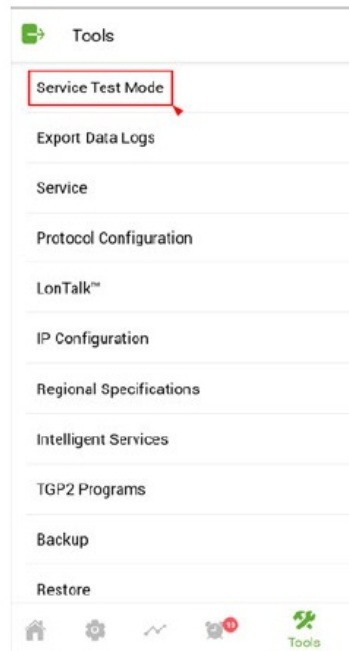

Figure 24. Home screen

Figure 25. Tools screen

Figure 26. Service test mode screen
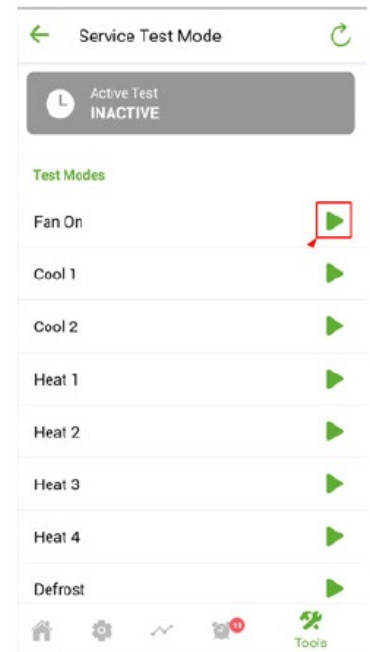
4. When a test is active, the status turns green and displays the name of the active test mode.

   Figure 27. 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 28. Active service test mode screen

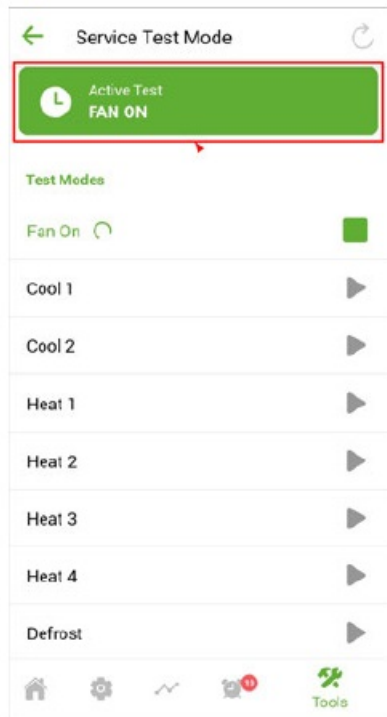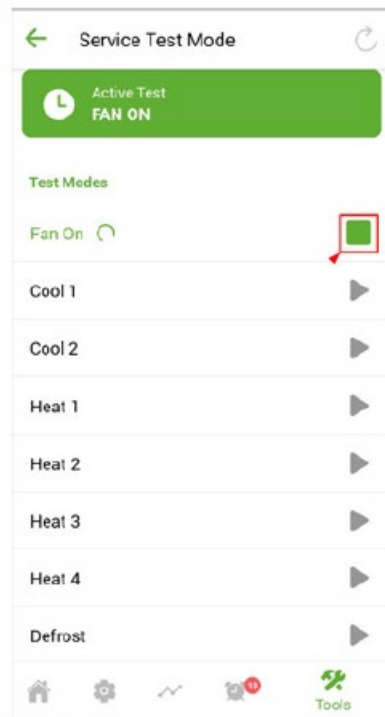Figure 27. Active service test mode screen

Figure 28. Active service test mode scree

Onboard Display

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 and Installation mobile app.

Figure 29. User interface keypad
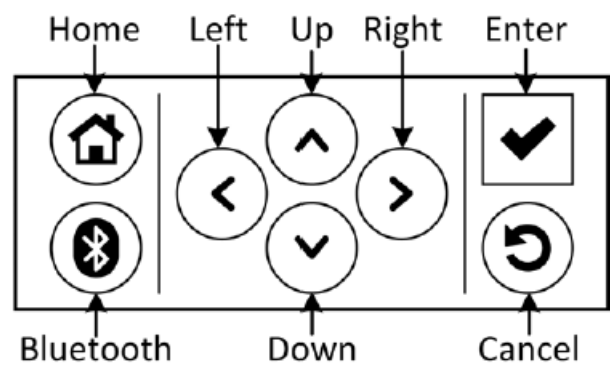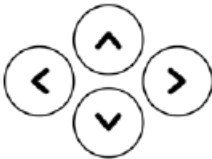
Figure 29. User interface keypad

Table 1. User interface buttons

Button	Description
	Up/Down buttons allow the user to scroll the menus and submenus.
	Left/Right buttons allow the user to scroll between values for editable items.
	• 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 curser 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.

Menu

Figure 30. Symbio 700 menu

Figure 30. Symbio 700 menu

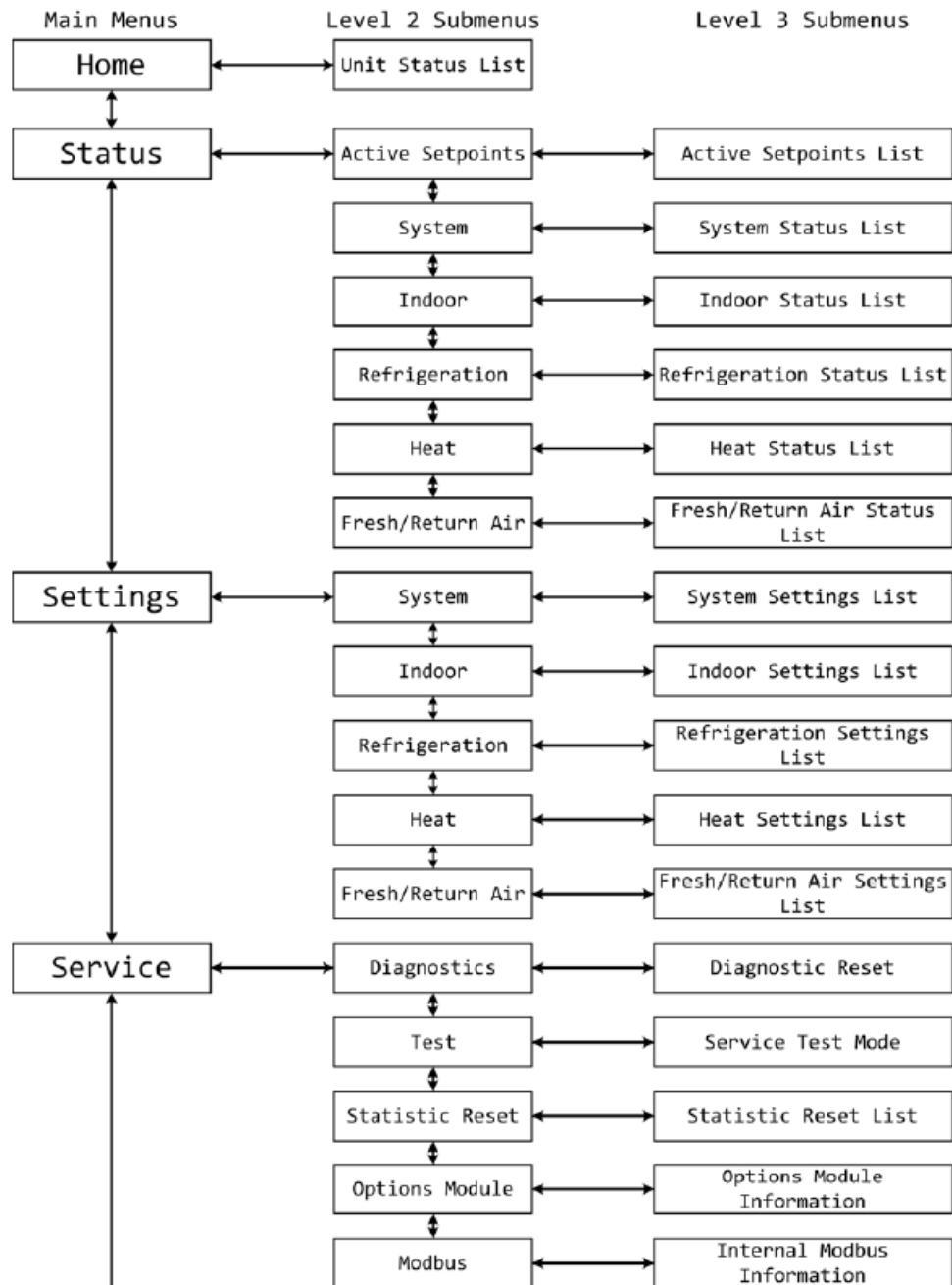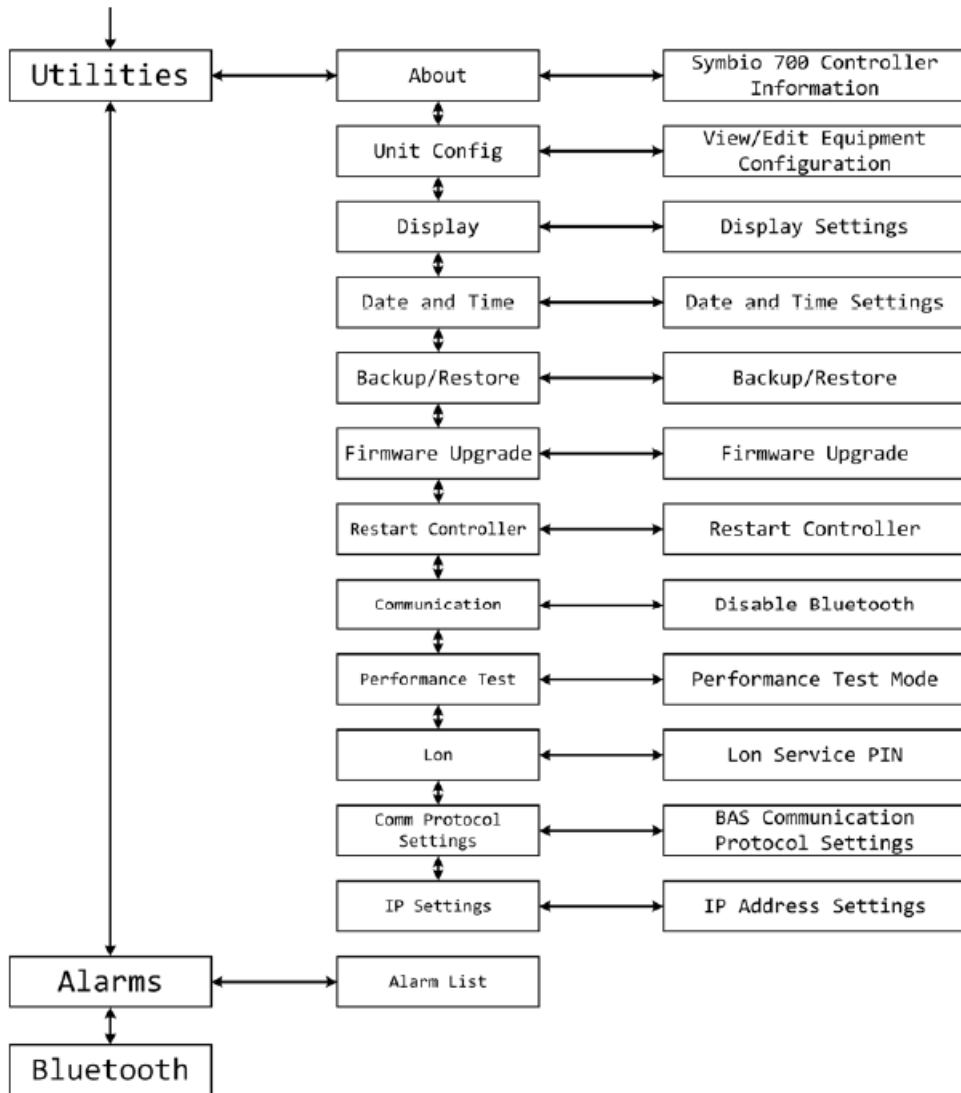| Main Menus	Level 2 Submenus	Level 3 Submenus
Home	Unit Status List	
Status	Active Setpoints	Active Setpoints List
	System	System Status List
	Indoor	Indoor Status List
	Refrigeration	Refrigeration Status List
	Heat	Heat Status List
	Fresh/Return Air	Fresh/Return Air Status List
Settings	System	System Settings List
	Indoor	Indoor Settings List
	Refrigeration	Refrigeration Settings List
	Heat	Heat Settings List
	Fresh/Return Air	Fresh/Return Air Settings List
Service	Diagnostics	Diagnostic Reset
	Test	Service Test Mode
	Statistic Reset	Statistic Reset List
	Options Module	Options Module Information
	Modbus	Internal Modbus Information

Figure 31. Symbio 700 menu (continued)

Figure 31. Symbio 700 menu (continued)

LED Functions

Table 2. Symbio 700 LED functions

LED	Function
LED 1 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 2 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 3 – Bluetooth	OFF = Bluetooth radio is not available ON = Active Bluetooth connection in process BLINKING = Controller is waiting for a Bluetooth connection
LED 4 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 5 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 6 – Binary Output	SOLID ON=When output is on OFF=When output is off

Table 2. Symbio 700 LED functions (continued)

LED	Function
LED 7	SOLID ON = When link is connected OFF = When link is disconnected
LED 8	BLINKING = Activity on link OFF = No activity on link
LED 9 – Status	SOLID GREEN = All objects in a normal state OFF = Controller not powered or is in an alarm condition
LED 10 – Status	BLINKING RED = At least one object is in a not normal state OFF = Controller not powered or is in a normal state
LED 11 – Internal Modbus Link TX	BLINKING GREEN = when Modbus data is sent
LED 12 – InternalModbus Link RX	BLINKING YELLOW = when Modbus data is received
LED 13 – IMC Link TX	BLINKING GREEN = when IMC data is sent
LED 14 – IMC Link RX	BLINKING YELLOW = when IMC data is received
LED 15 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 16 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 17 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 18 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 19 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 20 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 21 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 22 – Binary Output	SOLID ON=When output is on OFF=When output is off
LED 23 – EIA 485 Link RX	BLINKING YELLOW = when BACnet data is received
LED 24 – EIA 485 Link TX	BLINKING GREEN = when BACnet data is received

Documents / Resources

	TRANE Symbio 700 Controller [pdf] User Guide Symbio 700, Controller, Symbio 700 Controller, BAS-SVU054B-EN
	TRANE Symbio 700 Controller [pdf] User Guide Symbio 700 Controller, Symbio 700, Controller

References

- ∧ **Trane Technologies | A Leader in Climate and Sustainability**