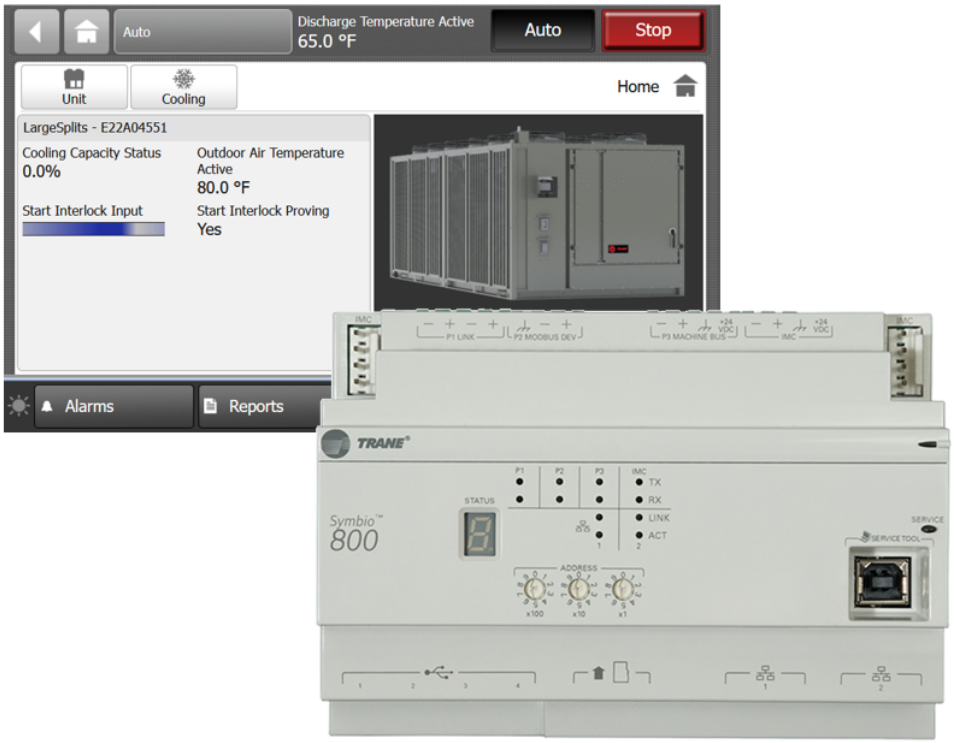
Programming Guide

IntelliCore™ Split System with Symbio™ 800

20 to 120 Tons with TD-7 Display



⚠ 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.

November 2024

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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:

⚠ 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.

⚠ 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.**

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Trademarks

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Agency Listings and Compliance

The European Union (EU) Declaration of Conformity is available from your local Trane® office.

Table of Contents

Overview

The purpose of this guide is to assist you in installing, programming, and operating the equipment with the TD-7 display and the Symbio™ UI. This guide describes how to access the screens and the types of information that appear on the screens.

The TD-7 display is an optional accessory. The TD-7 display is mounted to the unit and allows you to view data, make operational changes, and manually control the equipment. The TD-7 is also available virtually through user laptop using IP address: http://198.80.18.1/UI_Medium/index.html.

Symbio UI is a built-in service tool that allows users to set up, operate, and troubleshoot the equipment. Symbio™ UI traning videos can be found on www.youtube.com.

Hardware

The TD-7 display is a durable factory-mounted touch screen display that is designed to operate in both indoor and outdoor environments.

Communication

A factory provided Ethernet cable provides communication between the TD-7 display and the unit controller.

Screen Characteristics

The 7-inch WVGA 800 x 480 resolution touch-sensitive color screen is backlit, which enables viewing in poor light conditions including outdoor usage (with the exception of direct sunlight).

Touchscreen Guidelines

The touch screen registers the downward pressure of a touch. Light, quick, yet deliberate touches are most effective. Touching with more pressure has no effect.

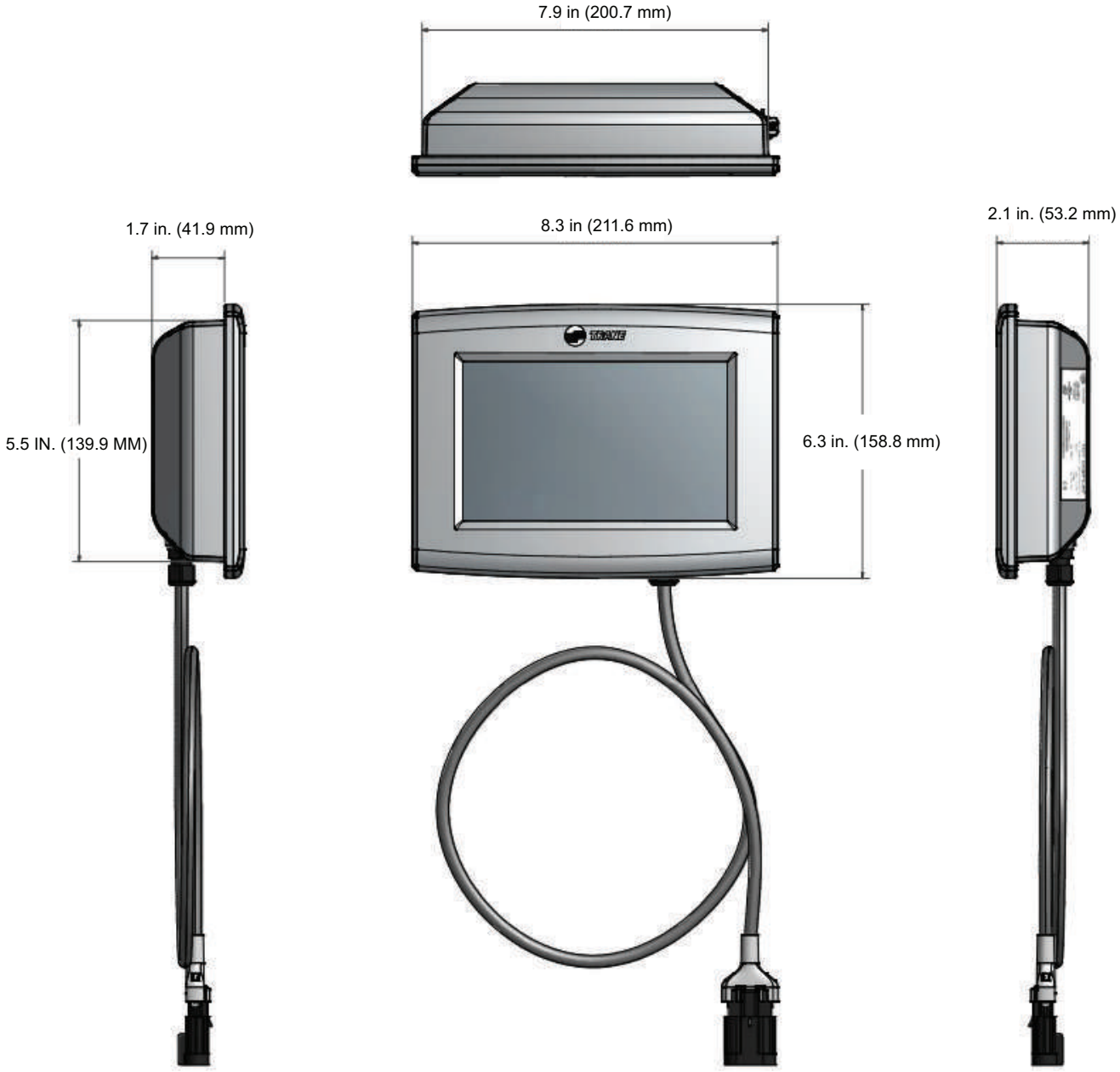
Recommended tools to use:

- Finger
- Thumb
- Pencil eraser

Do not use:

- A screwdriver
- A pen
- A pencil point
- Any other sharp or pointed object that might scratch the screen surface

Dimensions



Note: *The power cable is permanently attached to the TD-7 display. The power connector provides strain relief and protection from the elements.*

Specifications and Agency Compliance

Specification	
Input power	24 Vac +/- 15%, 21 VA, 50 or 60 Hz
Storage temperature	-67°F to 203°F (-55°C to 95°C) Humidity: Between 5% and 100% (non-condensing)
Operating temperature	Temperature: -40°F to 158°F (-40°C to 70°C) Humidity: Between 5% and 100% (non-condensing)
Mounting weight	Mounting surface must support 1.625 lb. (0.737 kg) Mounting Type: VESA (75 mm x 75 mm)
Environmental rating (enclosure)	IP56 (dust and strong water protected) with use of an optional Sealed Ethernet Cable
Agency Compliance	
• UL916 PAZX, Open Energy Management Equipment, UL 60730-1, 5th Ed. • UL94-5V, Flammability • FCC CFR Title 47, Part 15.109: Class A Limit, (30 MHz—4 GHz) • CE EMC Directive 2004/108/EC • CE EMC Directive 2004/108/EC	

TD-7 Display

Supported Languages

The TD-7 display supports built-in languages:

- English
- French (Canadian)
- Spanish (Latin American)

Security

Log In

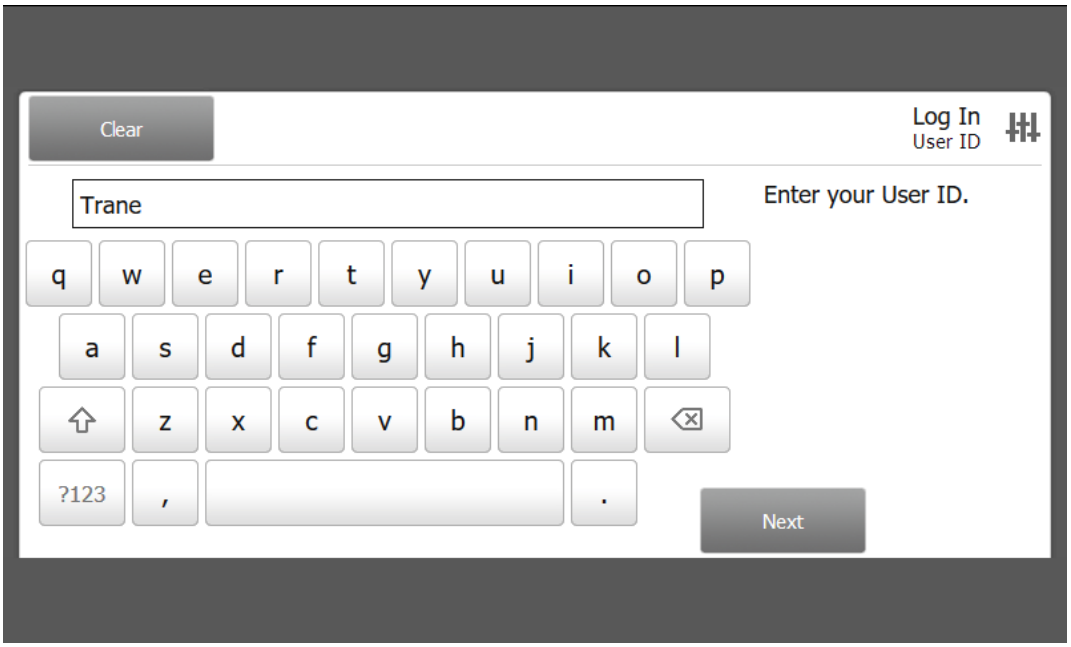
By default, security for the display connection is disabled and the Log In screen is hidden. When security is enabled for the display connection, the display will show the Log In screen. A valid User ID and Password is required to access the status and settings on the display.

Both the User ID and Password screen display the virtual keyboard shown in Figure 1, p. 10. The User IDs, Passwords, and password complexity are configured by the Symbio™ UI and can't be configured using the display.

User ID Screen

To Log In enter a valid User ID. Press Next button to complete the User ID entry and navigate to the Password screen. Press the Clear to erase the User ID.

Figure 1. User ID screen



Password Screen

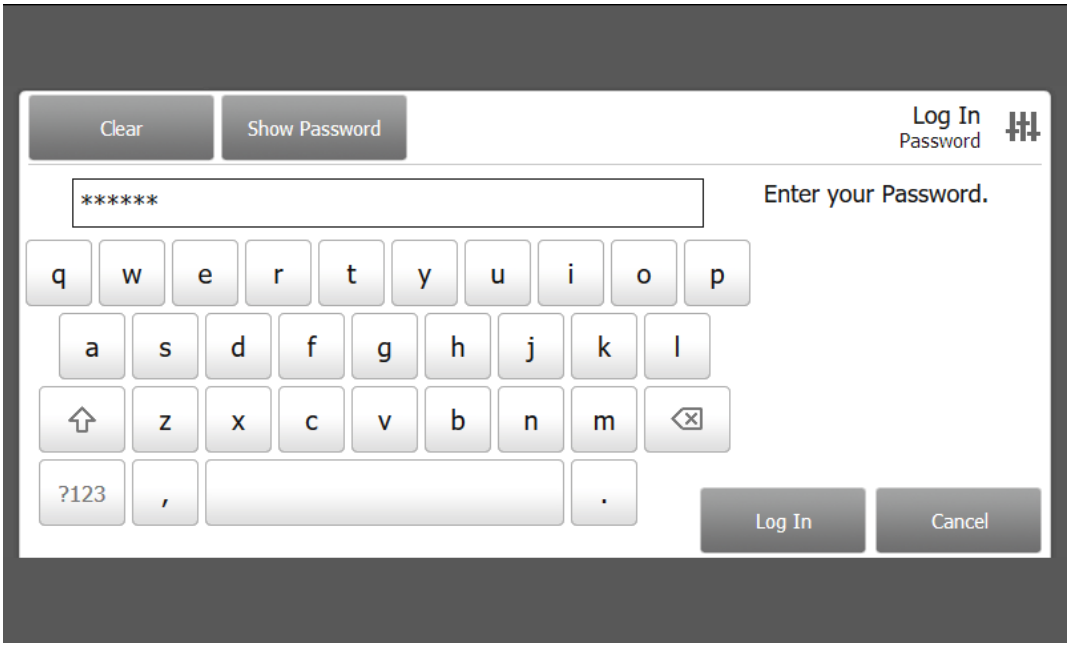
Enter a valid User ID and Password to unlock the display. Press Log In to complete the Password entry.

- Press Show Password to make the characters entered visible.
- Press Hide Password to display characters as an asterisk (*).
- Press Cancel to return to the User ID screen.
- Press Clear to erase the Password.

Entering a valid combination of User ID and Password the display will navigate to the home page.

Entering an invalid combination of User ID and password causes the display to show the error message **"The User ID and/or Password is not valid."** and the display will remain on the Password Screen.

Figure 2. Log In Password screen

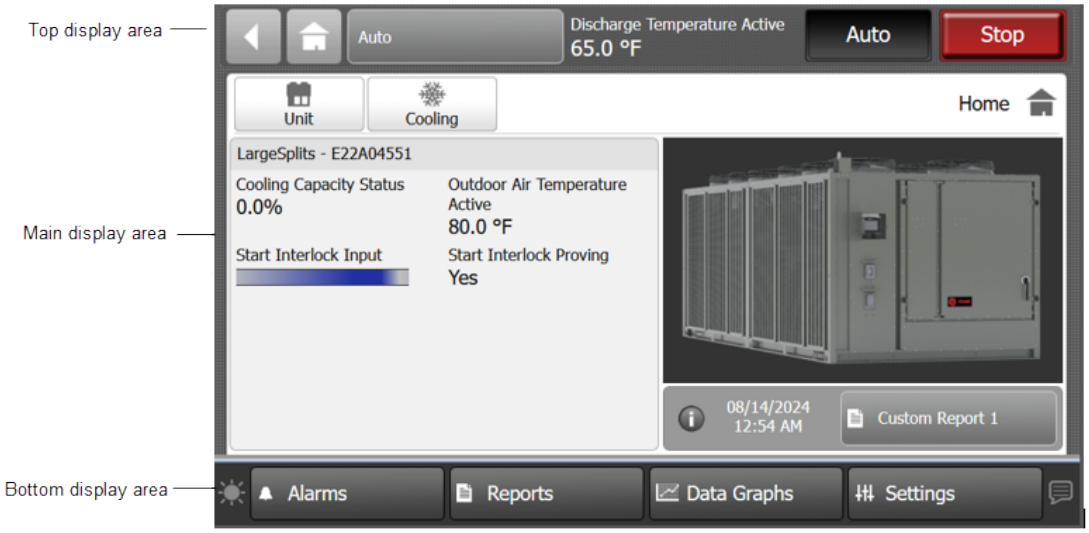


Screen Overview

There are three distinct areas on the TD-7 screens:

- Top display area
- Main display area
- Bottom display area

Figure 3. TD-7 display area



Top Display Area

Figure 4. TD-7 menu bar

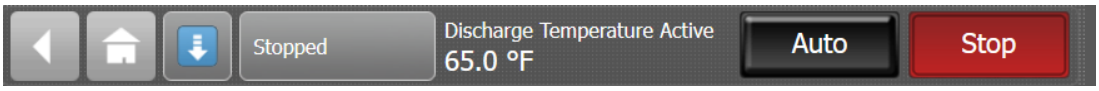


Table 1. Menu bar buttons

	The Back button, when touched, returns to the previous screen visited.
	The Home button, when touched, navigates to the home page.
	The Manual Override button, when shown, indicates at least one manual override is active. Touch this icon to navigate to the Manual Control Settings page.
	The Operating Modes button navigates to the Operating Modes screen.
	The Discharge Temperature Active is displayed in the header Data Area.

Main Display Area (Home Screen)

The Home screen is an overview of the unit and its operation. High-level status information is presented so that a user can quickly understand the mode of operation of the unit and navigate quickly to other areas of the display for more detail.

Figure 5. TD-7 Main display area of home screen

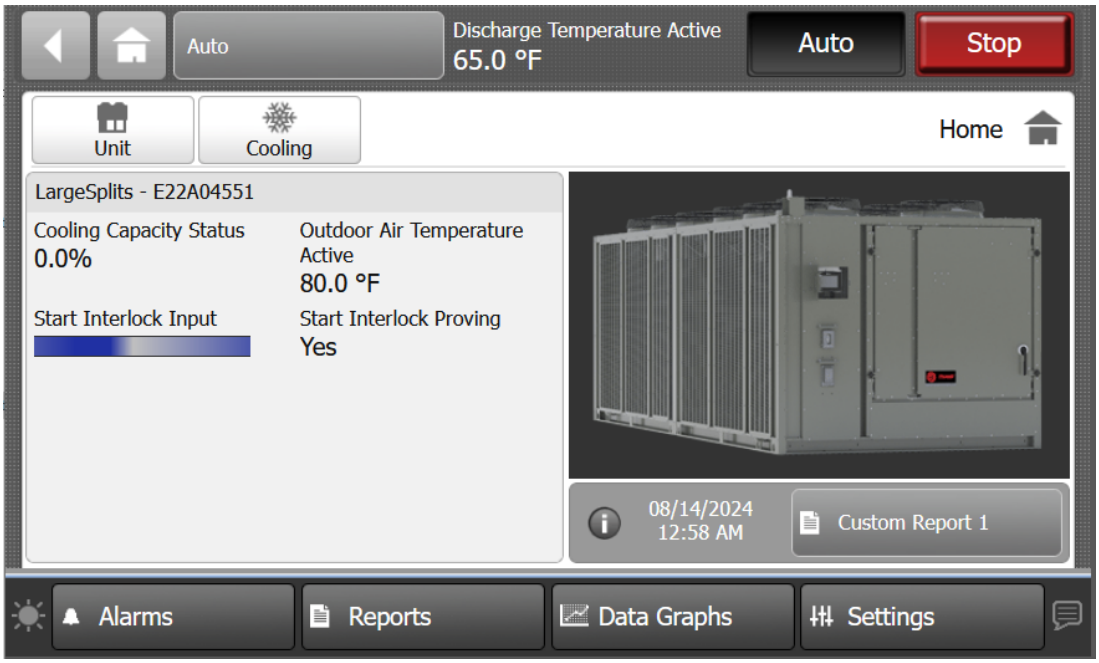
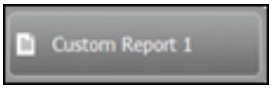


Table 2. Main display area buttons

	Touch this button to view the status of unit features.
	Touch this button to view the status of cooling components.
	Touch the information icon to view hardware part numbers and software version numbers.
	Touch this button to access the adjust the date and time.
	Touch this button to access Custom Report 1.

Bottom Display Area

The bottom display area contains functional buttons that provide a link to the appropriate screen.

Table 3. Bottom display area buttons

	Screen brightness settings. Set the brightness to 30%, 60%, 90% display back light brightness.
	Touch this button to open the Alarms screen. When an alarm is present, this button will flash.

Table 3. Bottom display area buttons (continued)

	Touch this button to navigate to the Reports screen.
	Touch this button to open the Data Graphs screen.
	Touch this button to open the Settings screen, which contains options for manual controls, Feature settings, Binding, Unit Settings, and display settings.
	Language selection: Touch this icon to select a language that will be displayed on all screens.

Alarms

Equipment level alarms appear on the TD-7 display immediately upon detection. Touch the Alarms button in the bottom display area to view the Alarms screen.

Alarm Screens

When an alarm is present, the Alarm button at the bottom of the TD-7 screen will flash. Press this alarm button to display all active alarms. Some alarms will clear automatically and will be removed from this screen. Other alarms require you to press the Reset Alarms button to manually clear the alarm. When the Reset Alarms button is pressed, if the failure condition causing the problem has been removed, the alarm will clear. Otherwise, the alarm will persist.

Pressing the Historic Alarms button displays a list of up to 100 of the past alarms that are no longer active.

The Active Alarms and Historic Alarms screens can be sorted by Target, Severity, Date and Time, or Description by pressing the category in the top row of the alarm list. The sort order can be toggled between ascending and descending order. By default, the Alarms are sorted by Date and Time in descending order. The sorted category is highlighted light blue in color and an arrow indicates the direction of the sort.

Figure 6. Active Alarms screen

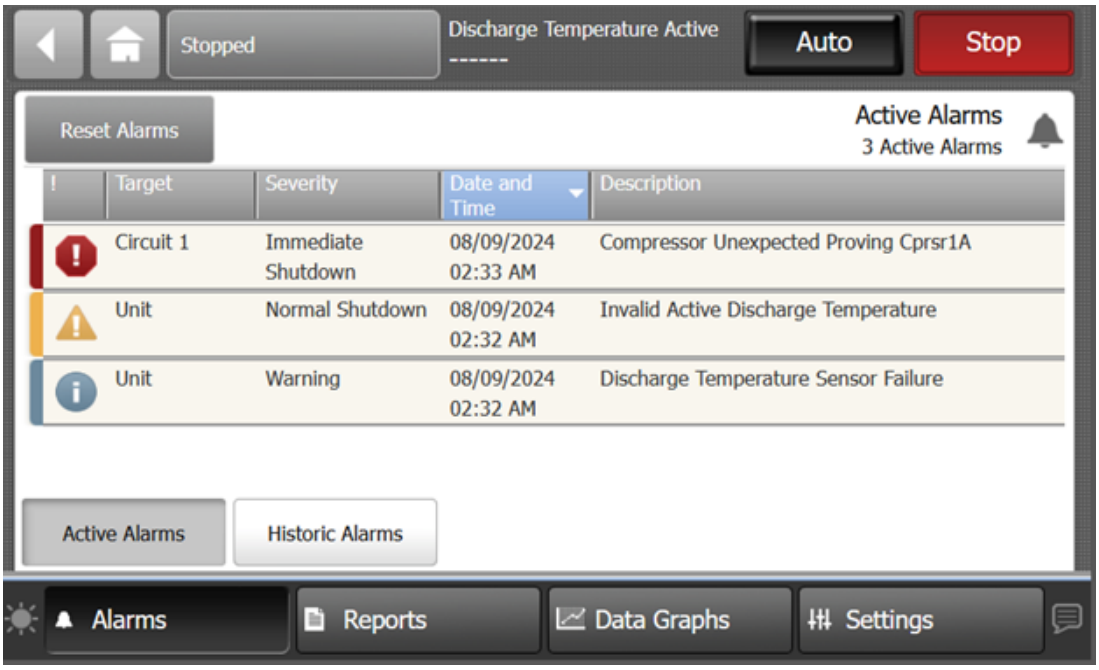


Figure 7. Historic Alarms screen

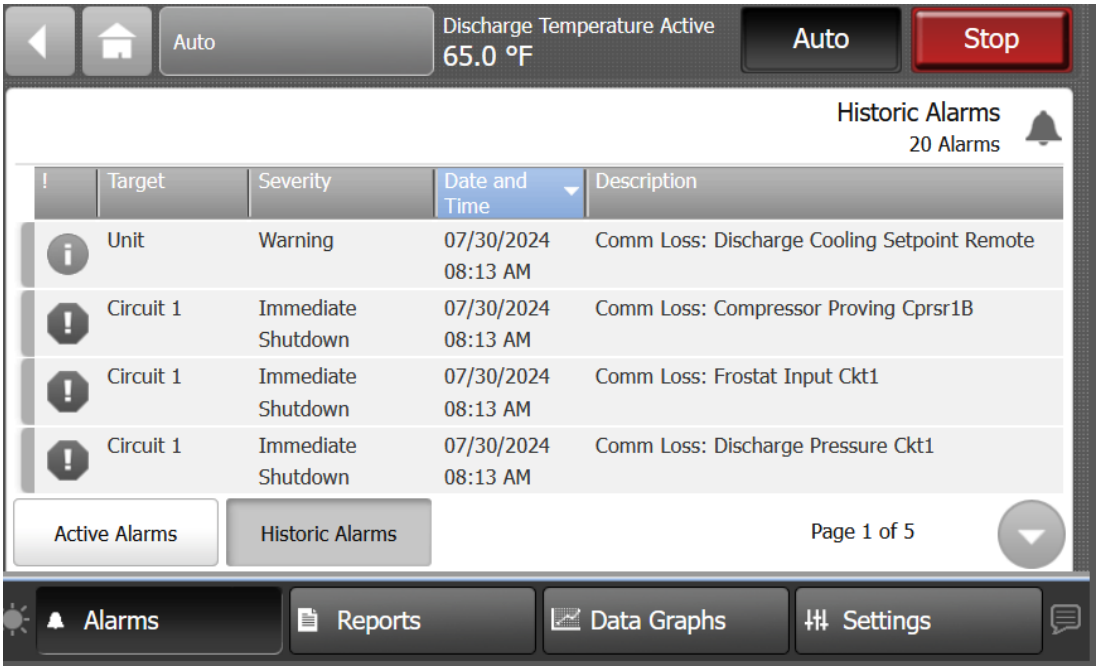


Table 4. TD-7 alarms

Active Alarm	Historic Alarm	Severity
		Immediate shutdown
		Normal shutdown
		Warning

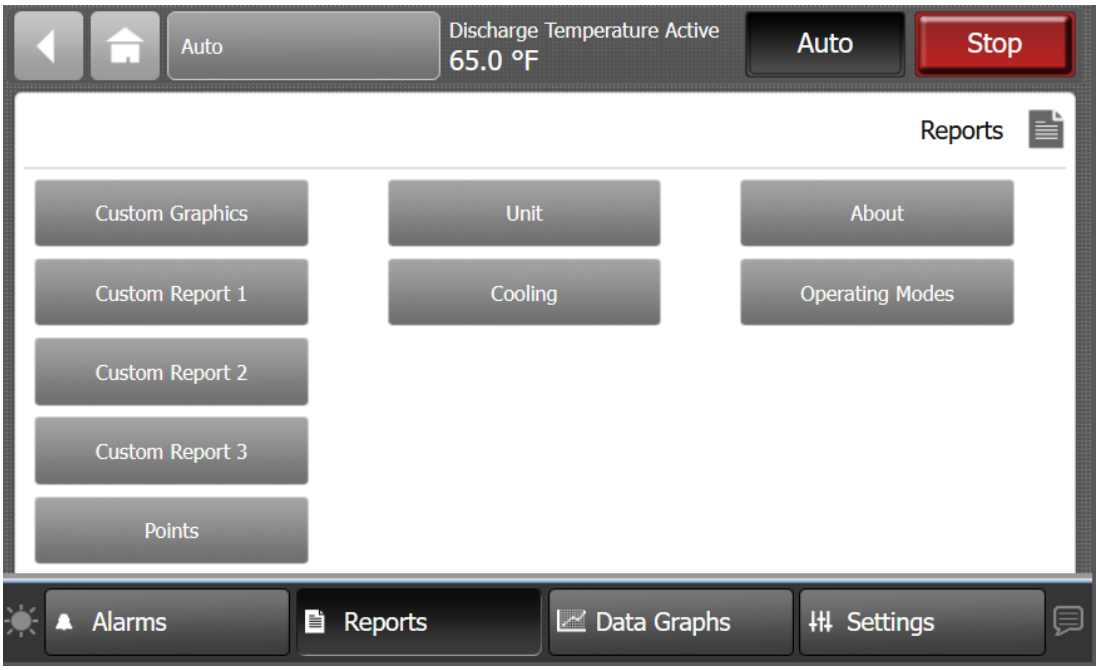
Reports

You can use the TD-7 display to view a variety of reports and create and edit custom reports.

Touch the **Reports** button in the bottom display area to view the Reports screen. The Reports screen contains the following buttons:

- Custom Graphics
- Custom Report 1
- Custom Report 2
- Custom Report 3
- Points
- Unit
- Cooling
- About
- Operating Modes

Figure 8. Reports screen



Custom Graphics

The TD-7 Display supports a maximum of 12 custom graphics. Custom graphics are created and loaded using Tracer® Graphics Editor (TGE). See the TGE online help for more information.

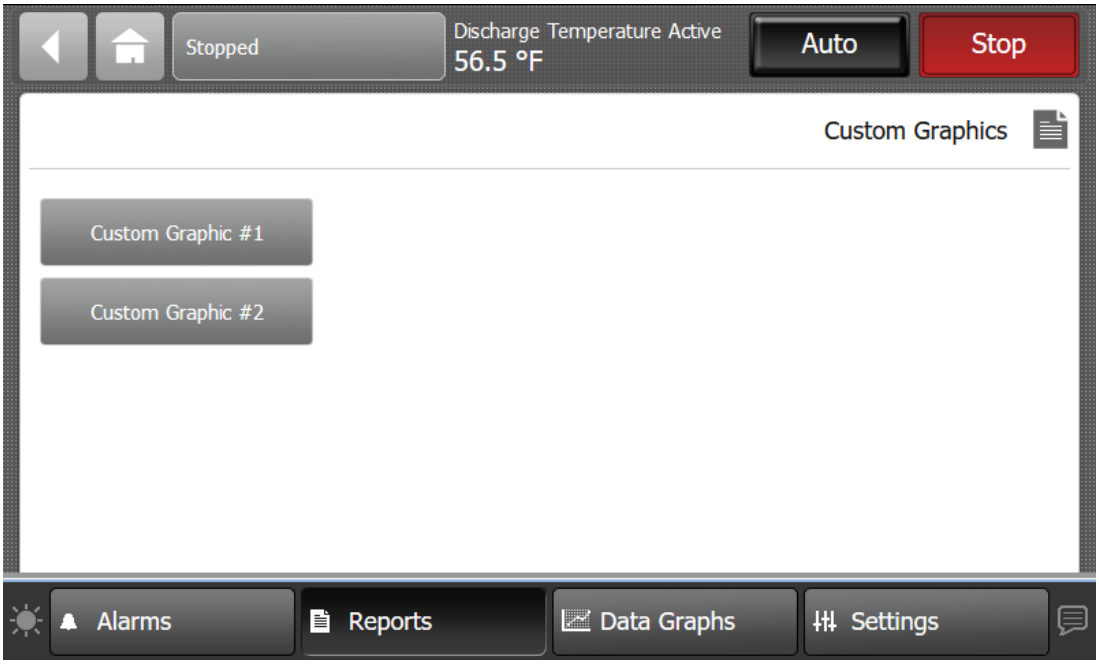
Graphics in TD-7 allow you to:

- Display the value of any point on the controller
- Display animation items such as fans and dampers
- Perform overrides
- Link to the Alarms page
- Link to the User Points Report and Custom Reports
- Link to another Custom Graphic

Accessing a Graphic

1. Navigate to the Reports screen, then touch Custom Graphics. The Custom Graphics screen with up to 12 Custom Graphic buttons is shown below. Each button on the screen represents a custom graphic. Custom graphics are published to the Symbio™ 800 Controller using Tracer® Graphics Editor (TGE) in Tracer® TU.
2. Touch the preferred graphic.

Figure 9. Custom Graphics screen (example)



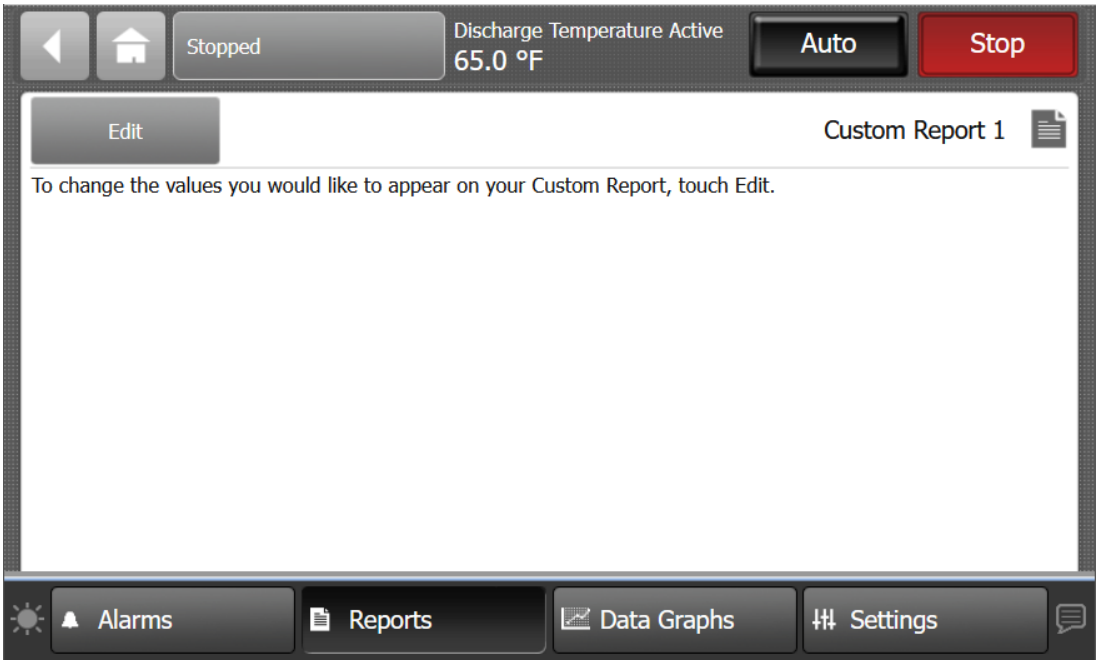
Custom Reports

You can create up to three custom reports using the TD-7 display. Available reports are labeled Custom Report 1, 2, or 3.

Creating a Custom Report

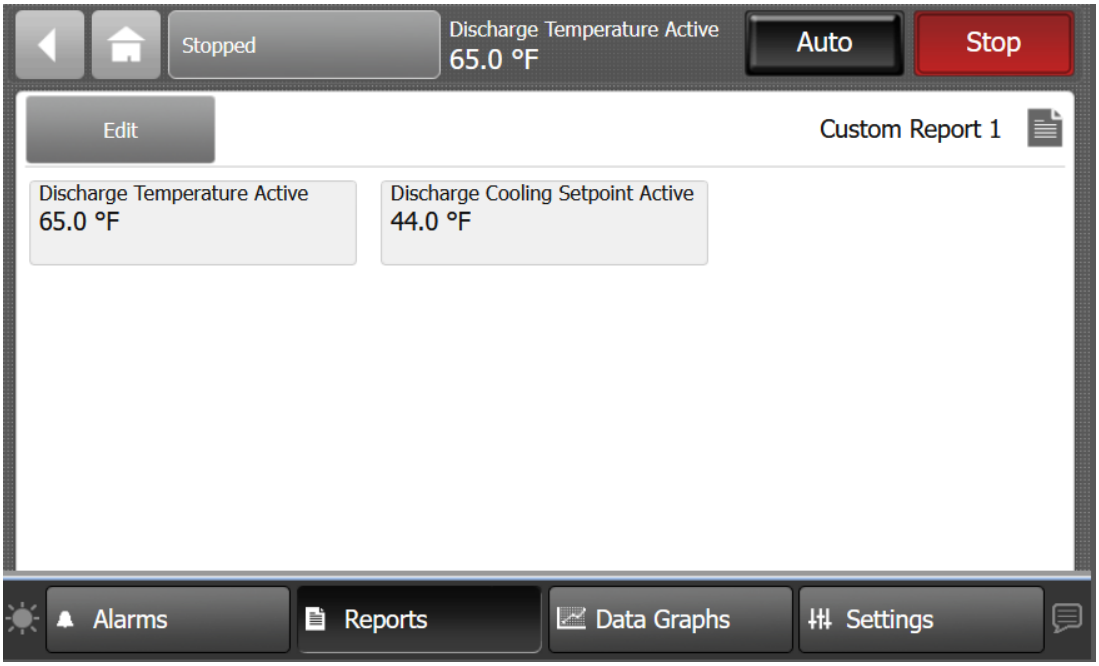
1. Navigate to the Reports screen, then touch one of the three custom report buttons. The Custom Report (1, 2, or 3) screen appears.
2. Touch the **Edit** button. The Edit Custom Report screen appears.

Figure 10. Creating a Custom Report



3. Use the up and down arrow buttons to select a data category. Add items by touching the item that is highlighted blue, then touch the **Add** button.
4. Continue adding values to your report. When you are finished, touch the **Save** button. The Custom Report screen, populated with your selected values, appears
5. To view the items in the selected list, touch a value in this list and use the up and down arrows to the right of the list. To change the location of an item in the list, select the item and then use the up and down arrows above the table to move the items.

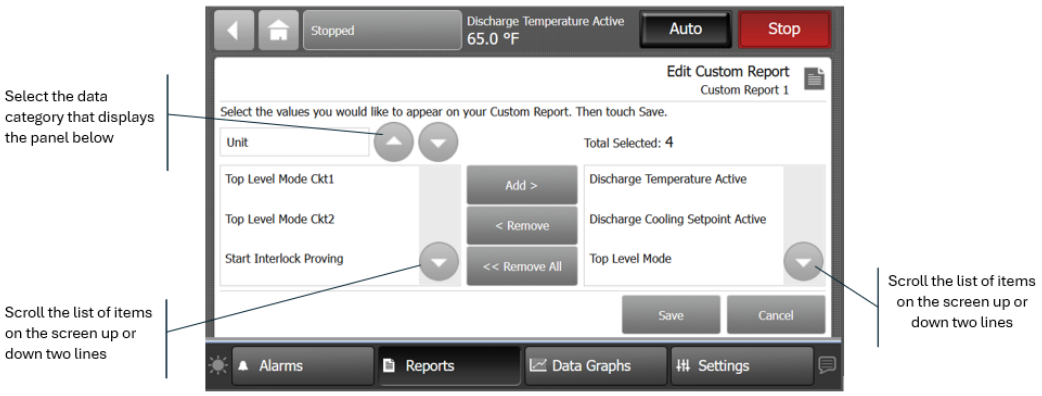
Figure 11. New Custom Report screen



Editing a Custom Report

1. Touch **Reports** to view the Reports screen.
2. Touch the report that you want to edit. Follow steps 2 through 5 in “Creating a Custom Report,” p. 17 to complete your edits.

Figure 12. Editing a Custom Report



Changing the Order of Items in a Custom Report

Items in a custom report can be rearranged according to personal preference by using the editing tools as described in Editing a Custom Report.

For example, you created the custom report shown in Figure 10, p. 18, but would prefer to move item “Supply Fan Speed Command” to the top left portion of the report.

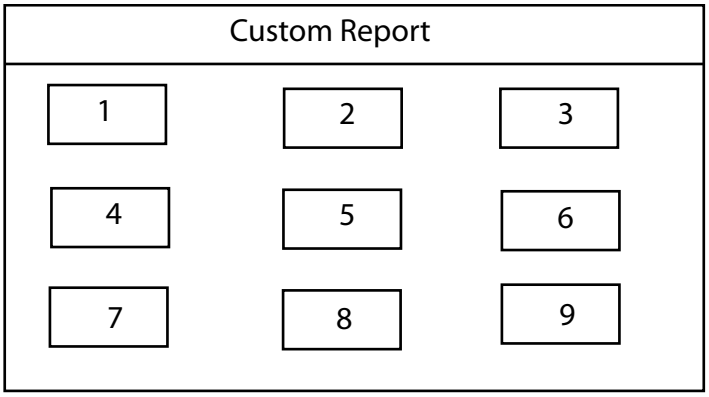
To change the order for the example described above:

1. Touch the **Edit** button on the Custom Report screen.
2. Use the arrow buttons to locate the item to be reordered. When located, touch the item which will then be highlighted blue.
3. Use the arrow buttons to move the highlighted item to the top of the list (number 1 position).
4. Touch **Save**. You will be returned to the Custom Report screen, where the reordering changes now appear.

Note: *On the TD-7 display, report items are ordered from left to right with the first item appearing at the top left portion of the screen. Up to nine items can appear on each Custom Report screen with a maximum of 4 screens and 36 items per report.*

The model in depicts a custom report screen with the first nine items displayed on the screen. Use this model to accurately reorder items in your custom reports.

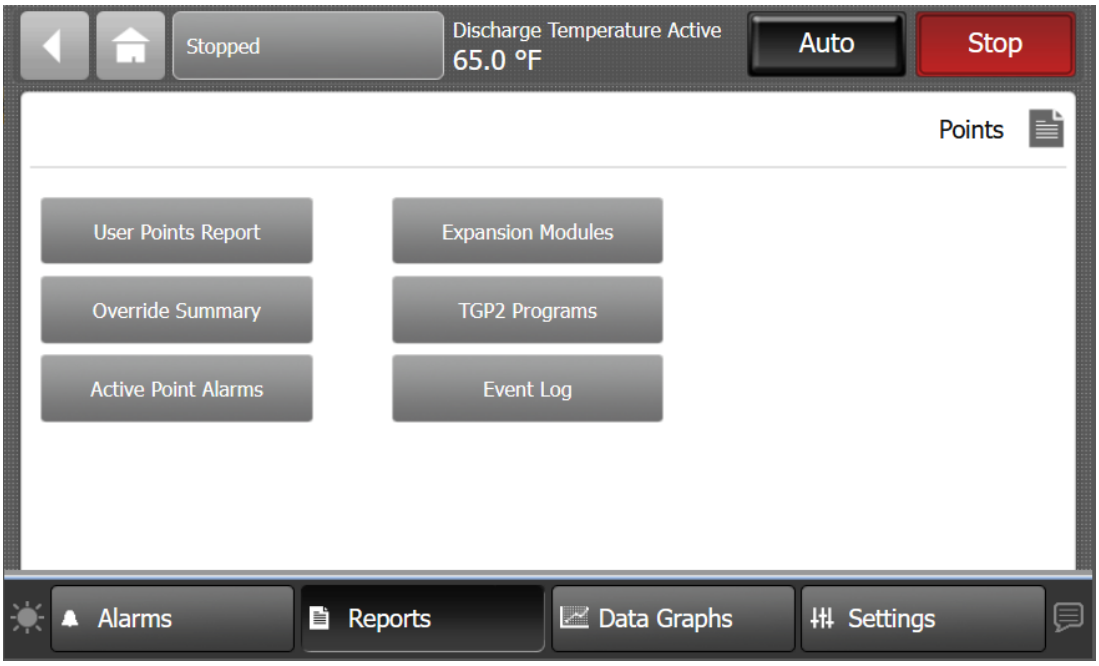
Figure 13. Custom Report (order of items)



Points

Touch the Points button to view the Points report screen, which contains access to screens for viewing and manipulating a subset of the BACnet® Point interface.

Figure 14. Points reports screen



User Points Report

Touch the **User Points Report** button to view the User Points Report screen, which contains user created points for the unit controller. Use the up and down arrows located at the right most bottom of the screen to page up or down.

Figure 15. User Points Report screen

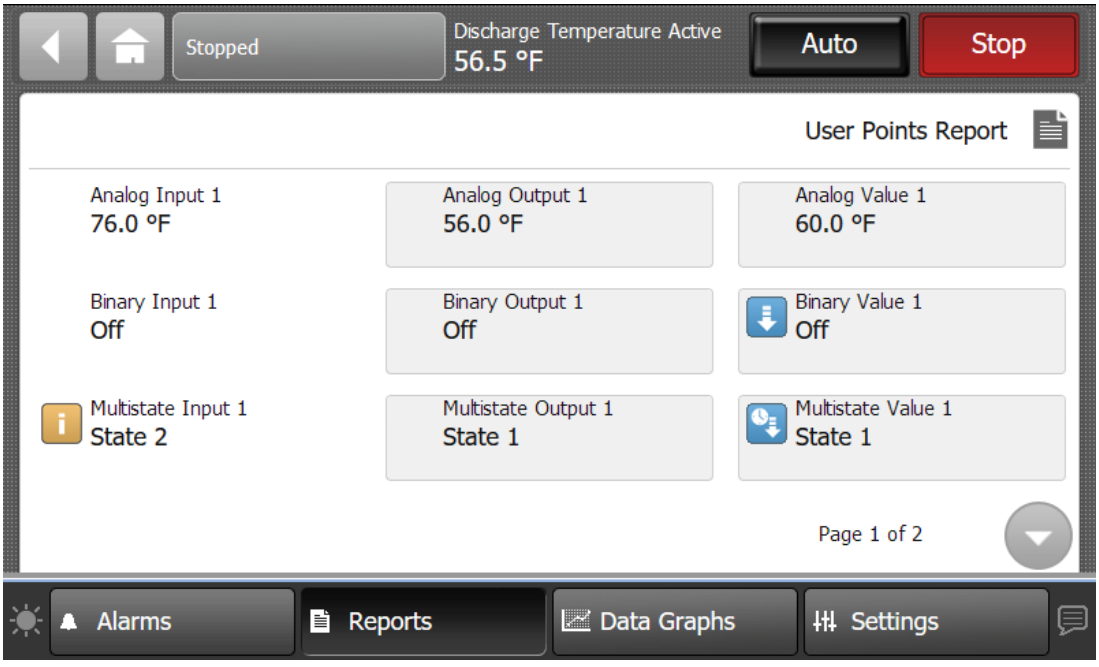
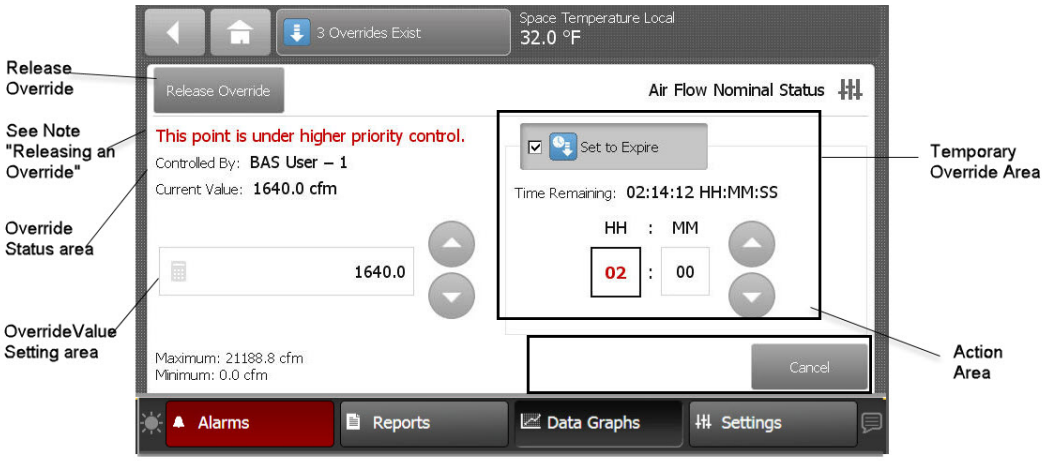


Figure 16. Point Override screen components



Override Status Area

This area shows who is controlling the point, followed by the active priority level and the current value of the point. If security is enabled, the name of the user that performed the override will be shown in the Controlled By field. If security is disabled, “Front Panel” is displayed for all overrides performed by the TD-7.

Override Value Setting Area

This area contains buttons that when pressed, change the override status. The button that is active has a shaded appearance in color. The exception is analog points, which require manually entering a value.

Temporary Override Area

This area allows you to set up a temporary override.

Action Area

This area allows you to apply, save, or cancel edits made to the point override.

Releasing an Override

Touch the Release Override button to release the current override. This action returns you to the Override Summary screen.

Note: *If a point is under a higher priority control, you can still proceed with releasing the override. However, it will not take effect until the higher priority level is removed in Tracer® TU, Tracer® SC +, or Tracer® Ensemble™.*

Analog Overrides

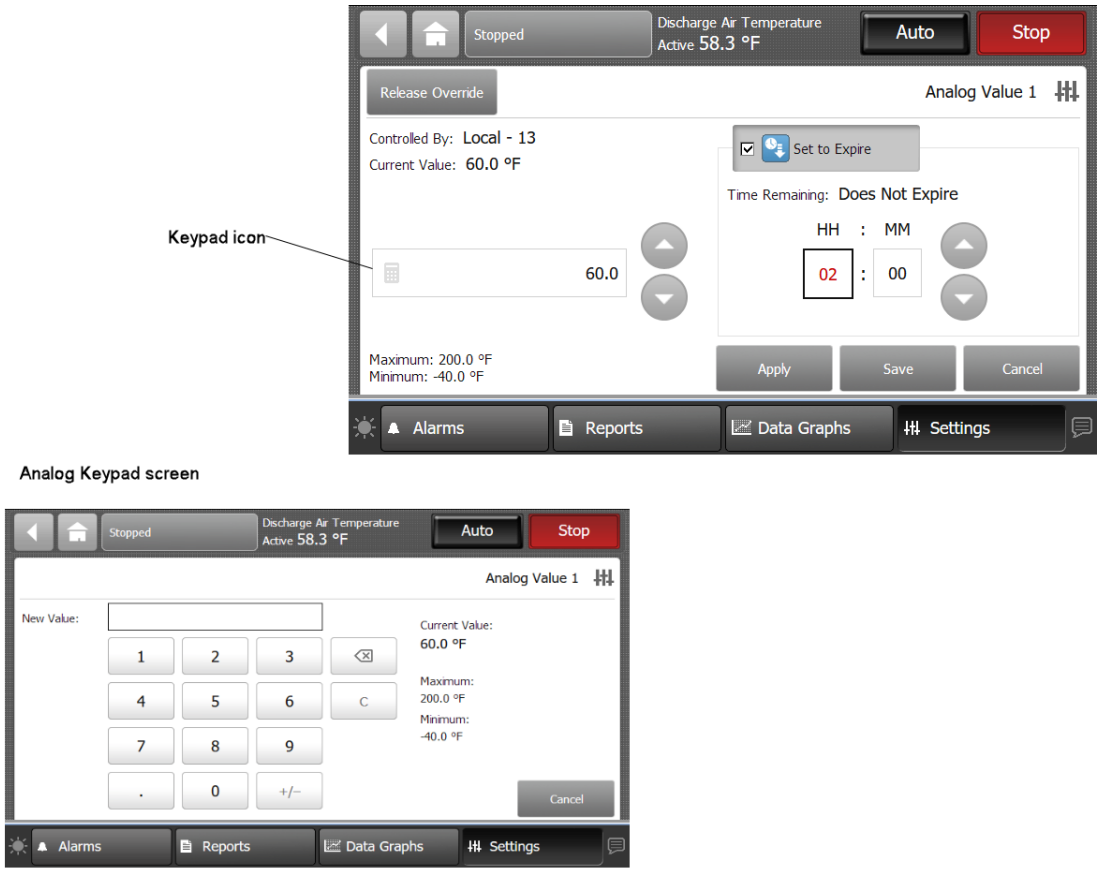
The Analog Override screen contains up and down arrows in the Override setting area, as well as a keypad icon that when touched, opens the Analog Keypad.

Use the up and down arrow buttons to select a value. Touch the **Apply** or **Save** button to retain your changes. To manually enter a value, touch the keypad icon.

To display the Analog Keypad screen:

1. Touch the keypad icon to open the Analog Keypad screen.
2. Enter a value by tapping the numerals on the keypad.
3. Touch **Enter** to save and return to the Override screen.

Figure 17. Display the Analog Keypad screen

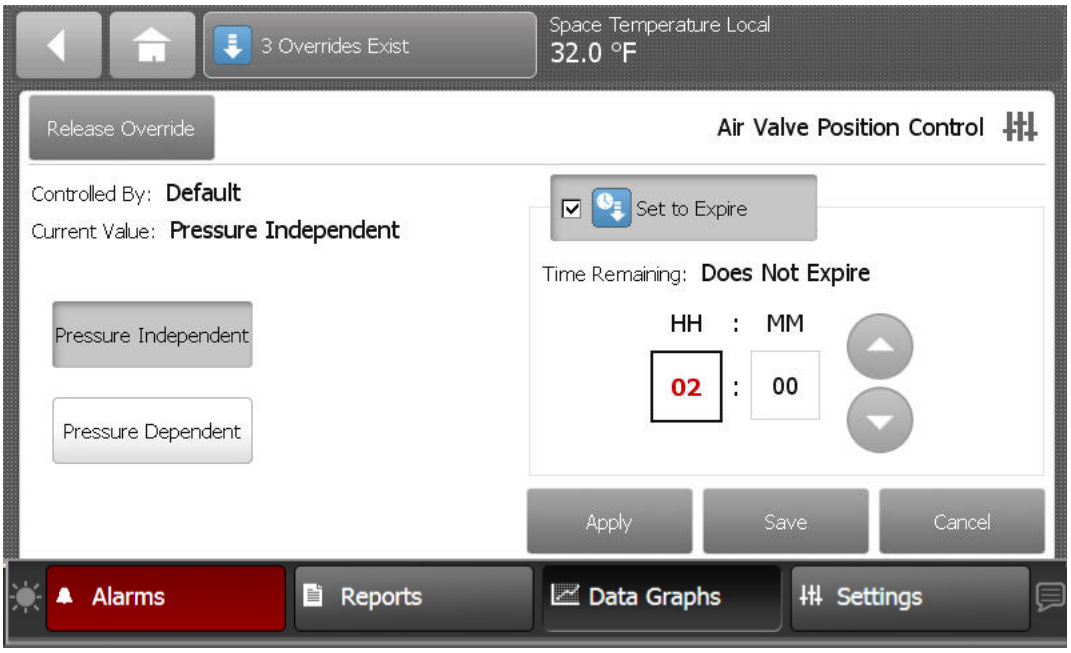


Binary Overrides

The Binary Override screen provides buttons with point state text that is used to set the current value. Multistate overrides with four or fewer states have similar screen functions as the binary override screen.

Touch a button in the override setting area to select a state. Touch the **Apply** or **Save** button to retain your changes.

Figure 18. Binary Override screen

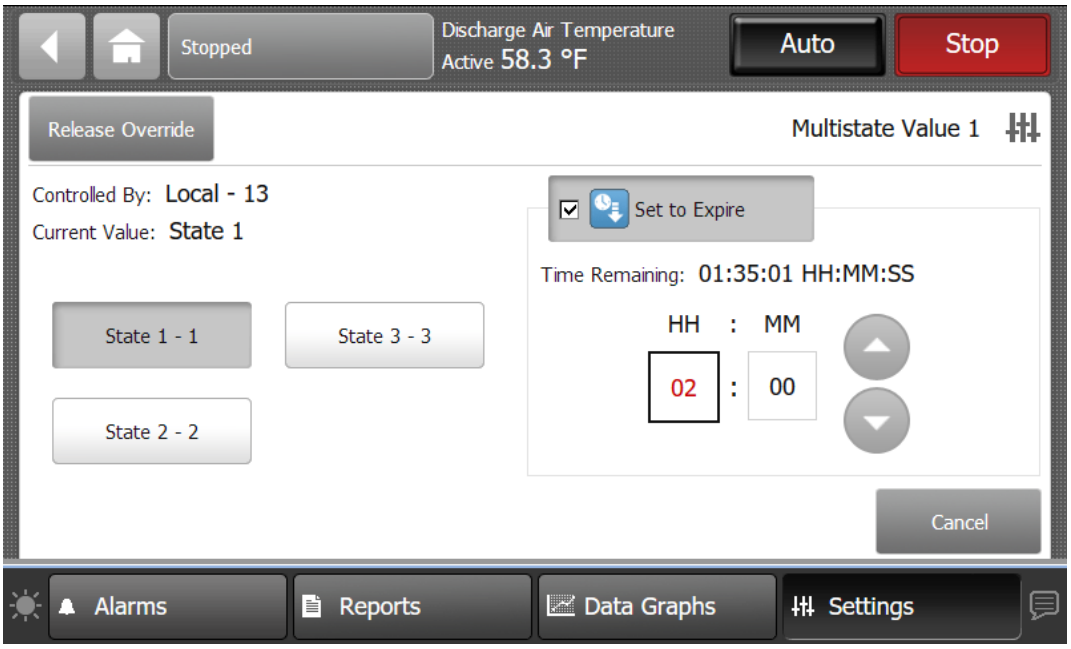


Multistate Overrides

Multistate override screens that contain five or more items will contain up and down arrow buttons in the Override setting area.

Use the up and down arrow buttons to select a state. Touch the **Apply** or **Save** button to retain your changes.

Figure 19. Multistate Override screen (five or more states)



Setting Up a Temporary Override

You can set up a temporary override by using the buttons in the Temporary Override area. The default duration for temporary overrides is 2 hours 0 minutes. The maximum duration for a temporary override is 99 hours 59 minutes. If more time is needed, consider setting up a permanent override.

1. Touch the **Set to Expire** button.

   A check mark appears in the check box, the override icon becomes blue, and the Time Remaining area appears.

2. Touch either the hours (**HH**) or minutes (**MM**) button, then use the up and down arrows to set the override.

   The HH and MM buttons, when pressed change by one increment. Press down on the buttons to accelerate. A second touch of the (HH) or (MM) buttons will open the Analog keypad screen.

3. Touch the **Apply** or **Save** button to set the temporary override.

Override Summary

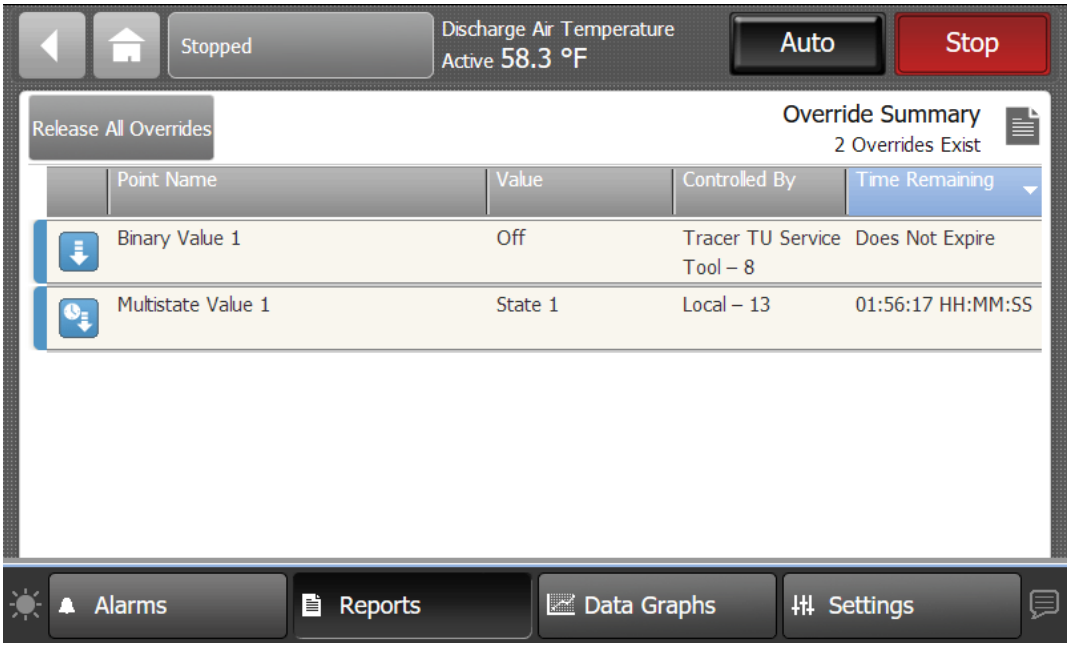
The TD-7 has a built-in override summary report. Touch the Override Summary button on the Points screen.

The Override Summary screen contains all active overrides. Columns are sortable and automatically default to Time Remaining.

The override icon ( ) indicates that a point override is in effect indefinitely. The temporary override icon ( ) indicates that an override will expire after a specified duration.

To release all overrides in the list, touch the **Release All Overrides** button (only points that are controlled at the TD-7 user's priority level will be released). Touch anywhere in a point row to navigate to the corresponding Point Override screen.

Figure 20. Override Summary screen



Active Points Alarms and Event Log

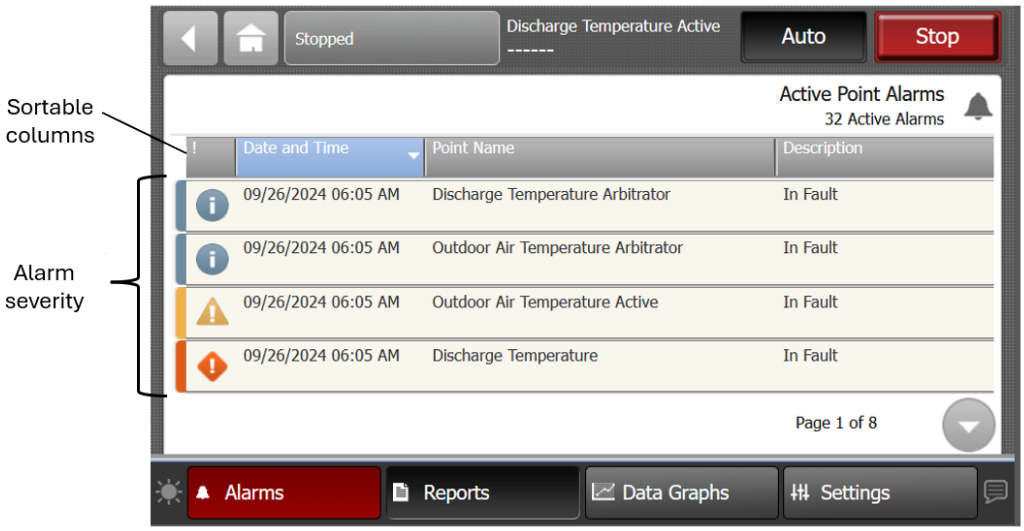
Active Point Alarms

Active Point Alarms appear on the TD-7 display immediately upon detection. Touch the Active Point Alarms to view the Active Point Alarms.

The figure below shows the Active Point Alarms screen and commonly used functions. When the point alarm clears and the point returns to normal, the alarm will automatically be removed from the list. The number of active point alarms is displayed in the top right portion of the screen.

For the point alarms to appear on the TD-7 display, the point must have an alarm notification class selected other than None when it was set up in Symbio™ UI or Tracer® TU. Additionally, the point must have entered the appropriate notification (In Alarm, When Failed, Return to Normal, or the notification class set to a value other than None).

Figure 21. Active Point Alarms screen



Event Log

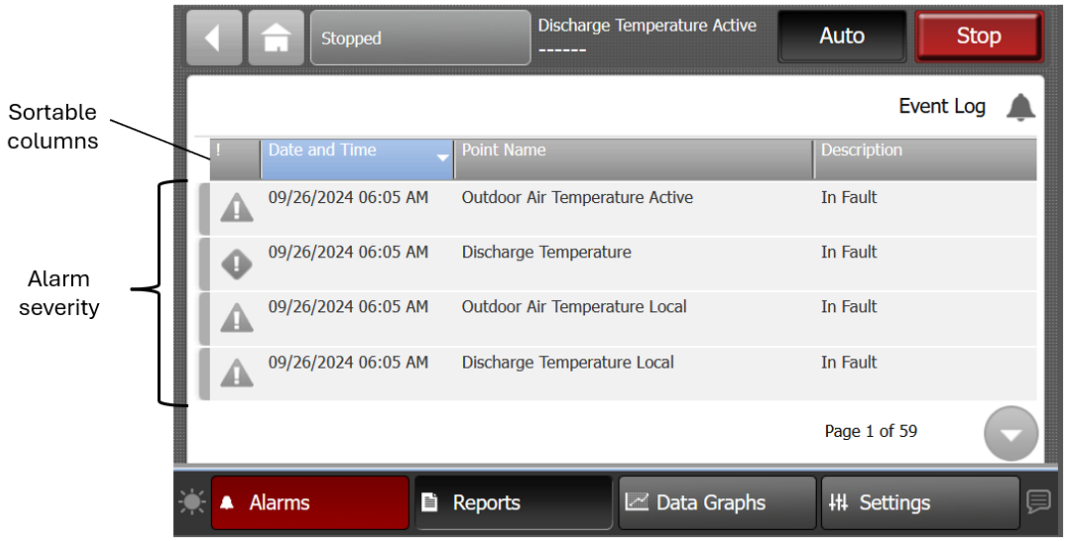
Touch the Event Log to view the Event Log.

Point Alarm icons appear in the left-most column of the Active Point alarms and Event Log screens. They are identifiable by their shape and color.

The figure below shows the Event Log screen and commonly used functions.

For the events to appear on the TD-7 display, the point must have an alarm notification class selected other than None when it was set up in Symbio™ UI or Tracer® TU. Additionally, the point must have entered the appropriate notification (In Alarm, When Failed, Return to Normal, or the notification class set to a value other than None).

Figure 22. Event Log screen



Point Alarm and Event Log Icons

Point Alarm icons appear in the left-most column of the Active Point alarms and Event Log screens. They are identifiable by their shape and color.

Table 5. TD-7 alarms

Active Alarm	Historic Alarm	Severity
		Critical
		Service Required
		Warning
		Information
		None

Sorting Point Alarms and Event Log Events

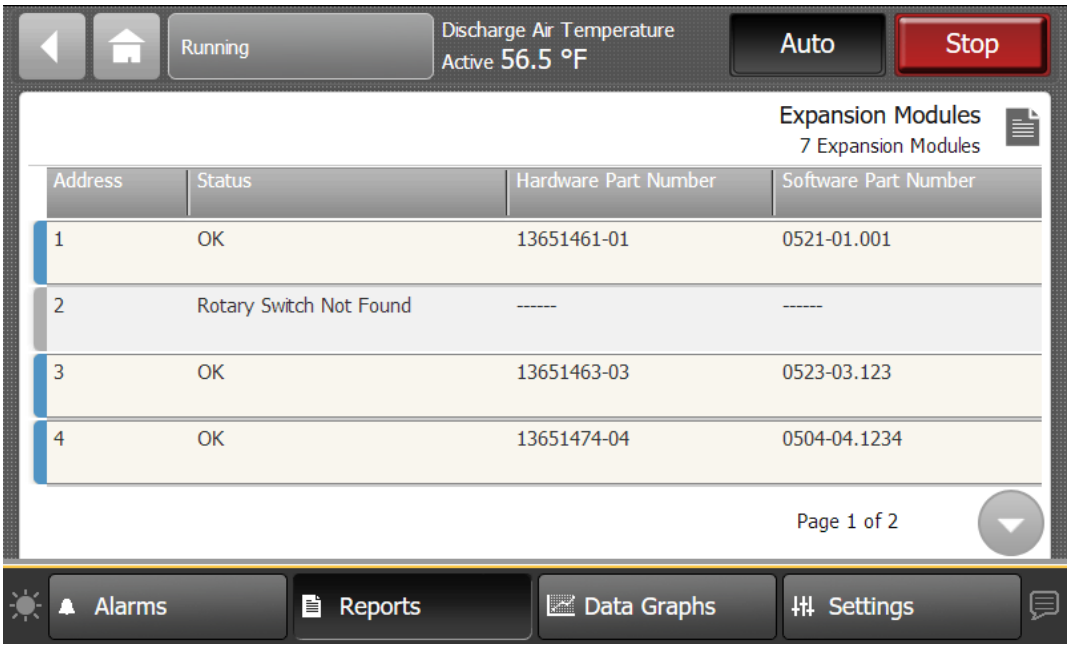
To sort point alarms or events in the event log by a category other than date and time, touch one of the other column headings in the table. The column heading responds by changing to blue, and the alarms table re-sorts according to the blue column heading. By touching the blue column heading again, the column will change the sort direction.

- Severity (!): Active alarms are at the top followed by the most severe.
- Date and Time (the default sort): Most recent alarms are at the top.
- Point Name: Alphabetical sort based on the point name.
- Description: Alarms are sorted alphabetically by description.

Expansion Modules

Touch the **Expansion Module** button to view the Expansion Modules screen. If expansion modules have been installed, they will appear in Expansion Modules screen.

Figure 23. Expansion Modules screen



Expansion module screen columns:

Address — This is the rotary address of the defined or discovered expansion module.

Status — Under normal conditions, OK will display in this column. If not refer to *Tracer XM30, XM32, XM70, and XM90 Expansion Modules – Installation, Operation, and Maintenance* (BAS SVX46*-EN)

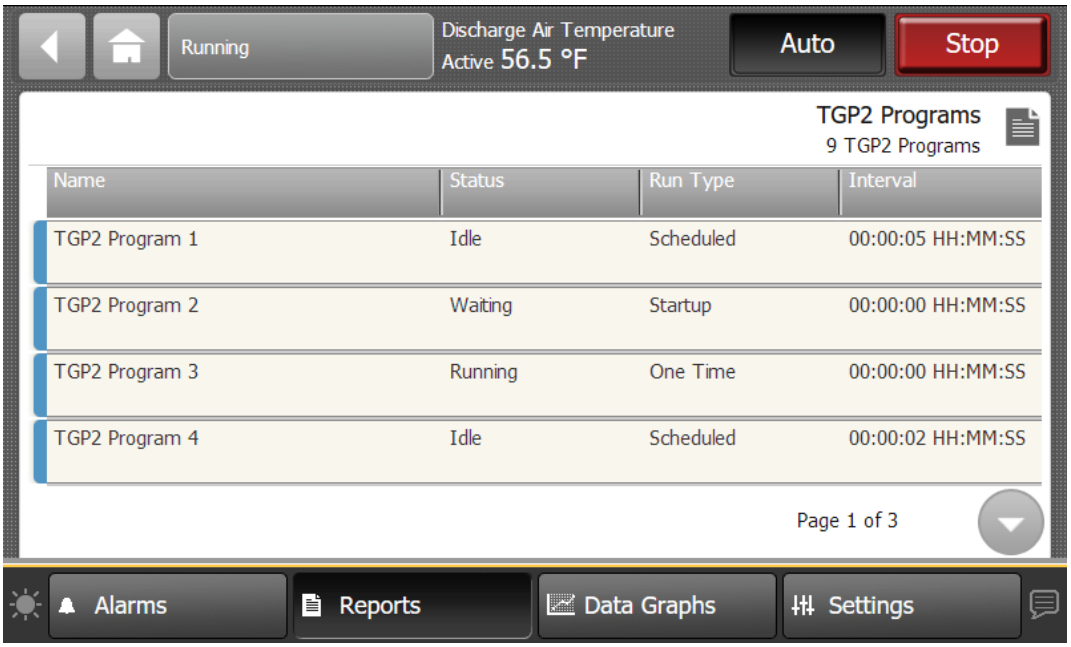
Hardware part number — This is the part number for the expansion module.

Software part number — This is the version number of the software running in the expansion module.

TGP2 Programs

Touch the **TGP2 Programs** button to view the TGP2 Programs screen. All TGP2 programs that have been installed on the controller appear here. The program name, status, run type, and interval for each program is provided. Interval is the scheduled run interval for the program and is displayed in HH:MM:SS. If the run type is Startup or Event, the interval field will display all zeros.

Figure 24. TGP2 Programs screen



Unit

Touch the Unit button to view Unit status information in the table below.

The data presented in this table is unit configuration dependent.

Table 6. Unit status

Cooling Capacity Status
Discharge Temperature Active
Outdoor Air Temperature Active
Start Interlock Input
Start Interlock Proving
Equipment Stop
Emergency Stop
Ctrl Box Ventilation Fan Relay
Ctrl Box Ventilation Fan Run Time
Minimum Ventilation Status
Outdoor Air Damper Command
Outdoor Air Damper Position
Economizer Min Position Setpoint Active
Manual Overrides Time Remaining

Cooling

Touch the Cooling button to view Cooling, Circuit 1 and Circuit 2 level status information in the table below.

The data presented in this table is unit configuration dependent.

Table 7. Cooling, Circuit 1 and Circuit 2 level status

Cooling	Cooling - Circuit 1	Cooling - Circuit 2
Cooling Capacity Status	Compressor 1A Request	Compressor 2A Request
Discharge Temperature Active	Compressor 1B Request	Compressor 2B Request
Outdoor Air Temperature Active	Compressor 1B Stage 2 Request	Compressor 2C Request
Discharge Cooling Setpoint Status	Compressor 1C Request	Compressor 2A Status
Discharge Cooling Setpoint Active	Compressor 1A Status	Compressor 2B Status
Freezestat Input Status	Compressor 1B Status	Compressor 2C Status
Economizing	Stage 2 Enable Cprsr 1B	Suction Pressure Ckt2
Economizer Airside Enable Active	Compressor 1C Status	Suction Saturated Temperature Ckt2
Economizer Decision Method	Suction Pressure Ckt1	Suction Temperature Ckt2
Econ Enable Min Outdoor Air temp Setpt	Suction Saturated Temperature Ckt1	Discharge Pressure Ckt2
	Suction Temperature Ckt1	Discharge Saturated Temperature Ckt2
	Discharge Pressure Ckt1	Estimated Compressor Discharge Temp Ckt2
	Discharge Saturated Temperature Ckt1	Liquid Line Relay Enable Ckt2
	Estimated Compressor Discharge Temp Ckt1	Condenser Air Flow Ckt2
	Liquid Line Relay Enable Ckt1	Condenser Fan Stage Ckt2
	Condenser Air Flow Ckt1	Low Ambient Damper Position Ckt2
	Condenser Fan Stage Ckt1	Condenser Fan Relay 1 Ckt2
	Low Ambient Damper Position Ckt1	Condenser Fan Relay 2 Ckt2
	Condenser Fan Relay 1 Ckt1	Condenser Fan Relay 3 Ckt2
	Condenser Fan Relay 2 Ckt1	Condenser Fan Relay 4 Ckt2
	Condenser Fan Relay 3 Ckt1	Frostat Ckt2
	Condenser Fan Relay 4 Ckt1	Hot Gas Bypass Relay Enable Ckt2
	Frostat Ckt1	Starts Cprsr2A
	Hot Gas Bypass Relay Enable Ckt1	Starts Cprsr2B
	Starts Cprsr1A	Starts Cprsr2C
	Starts Cprsr1B	Running Time Cprsr2A
	Starts Cprsr1C	Running Time Cprsr2B
	Running Time Cprsr1A	Running Time Cprsr2C
	Running Time Cprsr1B	
	Running Time Cprsr1C	

About

Touch the **About** button to view the About screen. View information about the unit controller and the TD-7 display to which it is connected. Touch the arrow button to scroll to the next screen.

Figure 25. About screen

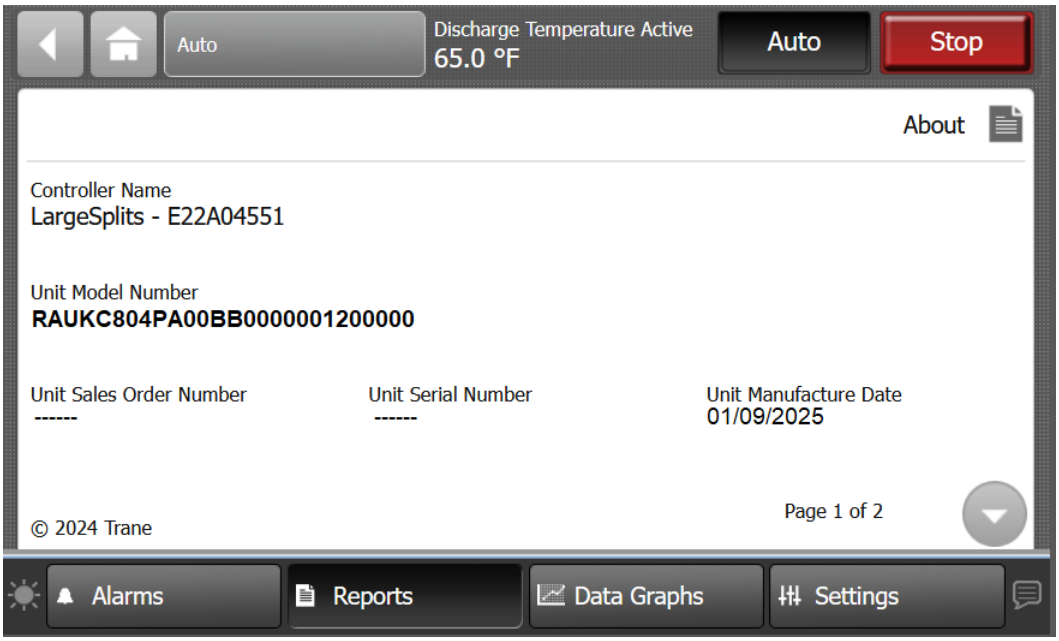
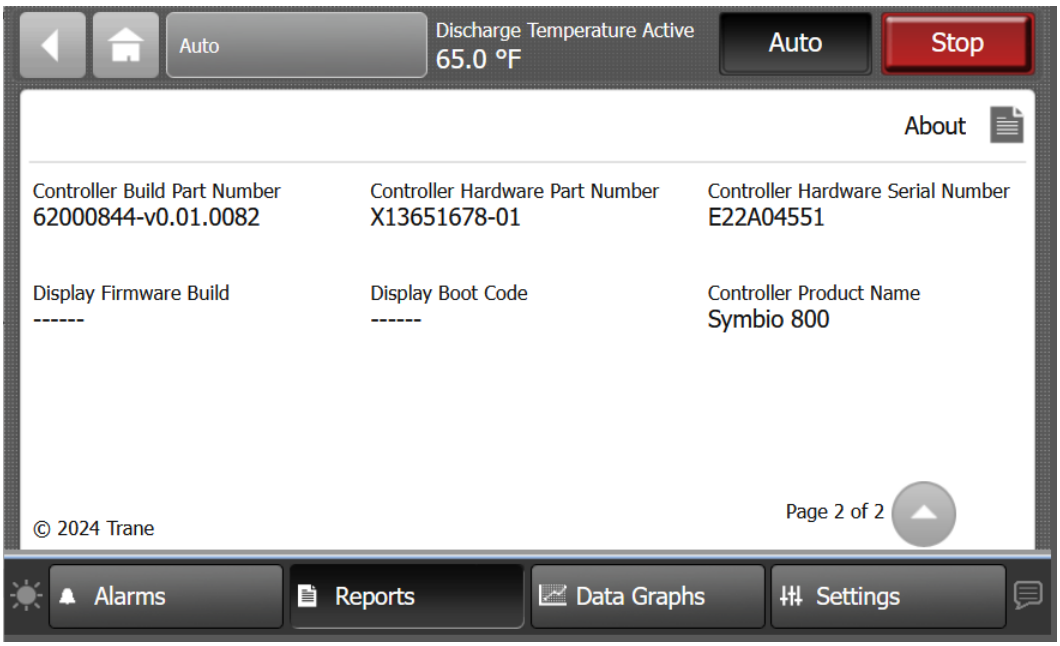


Figure 26. About screen



Controller Name — This is the name that was assigned to the Symbio™ 800. By default, the controller name is the controller serial number.

Unit Model Number — This is the model number of the equipment on which the Symbio™ 800 controller is installed. This value is typically entered in the factory, but can be entered in the controller.

Unit Sales Order Number — This is the order number for the equipment that the Symbio™ 800 controller is controlling. This number is typically entered at the factory, but can be entered in the controller.

Unit Serial Number — This number applies to the piece of equipment that the Symbio™ 800 controller is controlling. This number is typically entered at the factory, but can be entered in the controller.

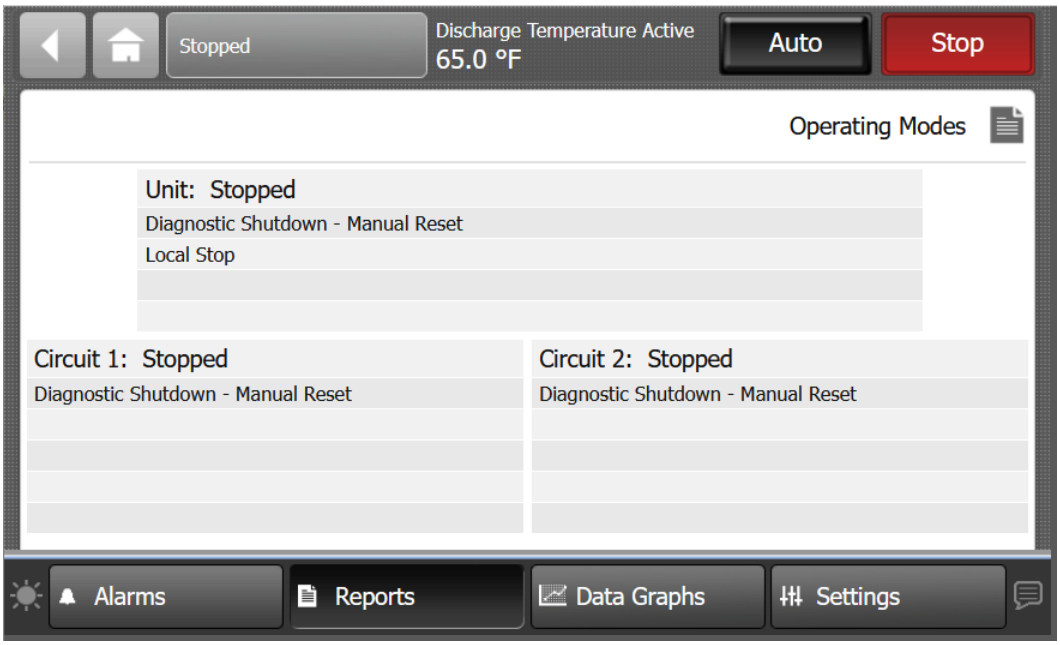
Controller Product Name — The controller product name will always be Symbio™ 800.

Controller Hardware Part Number — This is the part number for the Symbio™ 800 controller.

Operating Modes

The Operating Modes screen provides Unit and Circuit level mode information valuable to understanding the equipment operating state. Each Unit and Circuit mode provide sub-mode information with details to understand active controls and limits that are affecting operation.

Figure 27. Operating Modes screen



Unit Operating Modes

Unit operating modes provide a status of the equipment operating state. Each of the unit modes will have one or more sub-modes that provide more details about the functions active in the mode. The following tables show each top level mode and list the possible sub modes for each, associated with unit and refrigeration circuit operation.

Table 8. Unit operation - top level mode - stopped

Unit	
Top Level Mode	**Description**
Stopped	The unit is not running. All components are turned Off and are Closed. The unit will be allowed to run when all sources inhibiting unit operation have been removed (for example, clearing alarms, timers satisfied, releasing to Auto mode operation).
Stopped Sub Modes	**Description**
Diagnostic Shutdown - Auto Reset	The unit is stopped by a Unit Level diagnostic that may be reset automatically depending on conditions and the specific diagnostic's reset criteria.
Diagnostic Shutdown - Manual Reset	The unit is stopped by a Unit Level diagnostic that requires manual intervention to reset.
Equipment Stop	Contact has opened on the Equipment Stop input.

Table 8. Unit operation - top level mode - stopped (continued)

Immediate Stop	Unit is stopped by pressing the Stop button at the TD-7 Display, then pressing the Immediate Stop button on the following screen.
Local Stop	Unit is stopped by pressing the Stop button at the TD-7 Display. This stop has highest priority and cannot be remotely overridden. Note: TU with a direct USB connection to the Symbio™ 800 has unit level privileges and can also place the controller in Stop or Auto.
Power Up Delay Inhibit (XX:XX Min:Sec)	The unit has experienced a power cycle, or has just terminated all active Ventilation Override Mode or Emergency Override Mode events. When the Power-Up Start Delay timer expires the unit will enter Stop mode as defined in this table. Note: If the unit is configured with Rapid Restart and the last Top Level Mode was Stopped, Rapid Restart will be pending and the unit will enter the active Rapid Restart event once Auto mode has been entered.
Start Inhibited by BAS	The unit is Full Source arbitration and the Auto Stop Command BAS point is set to Stop.

Table 9. Unit operation - top level mode - run inhibit

Unit	
Top Level Mode	**Description**
Run Inhibit	The unit is currently being inhibited from starting (and running), but may be allowed to start if the unit inhibit or the unit level diagnostic conditions are manually or automatically cleared.
Run Inhibit Sub Modes	**Description**
Diagnostic Shutdown - Auto Reset	While the unit is in Auto mode, the entire unit has been stopped by a unit level diagnostic that may be reset automatically depending on conditions and the specific diagnostic's reset criteria.
Off	The unit has been placed into Heat Cool Mode = Off.
Power Up Delay Inhibit (XX:XX Min:Sec)	The unit has experienced a power cycle, or has just terminated all active Ventilation Override Mode or Emergency Override Mode events. When the Power-Up Start Delay timer expires the unit will enter Auto mode as defined in this table. Note: If the unit is configured with Rapid Restart and the last Top Level Mode was Auto, with no other inhibits pending, the Rapid Restart event will become active immediately.
Start Inhibited by BAS	The unit is Full Source arbitration and the Auto Stop Command BAS point is set to Stop.
Software Service Lock	Tracer TU service tool invoked unit lockout to prevent operation of the unit during certain procedures, such as configuration or binding.

Table 10. Unit operation - top level mode - auto

Unit	
Top Level Mode	**Description**
Auto	The unit has been placed into Auto mode by pressing the TD-7 Auto button (with all other sources for unit Stop inactive) but is not currently running. The unit can be expected to start at any moment given that the proper conditions and remote units interlocks are satisfied.
Auto Sub Modes	**Description**
Waiting for Interlock Proving	The remote units Supply Fan (VAV) / Circulating Pump (EVP) start interlock is Off, or the start interlock is On but the unit has not proven this input for 5 continuous seconds.
Waiting for a Need to Cool	Unit is in Auto and Interlock has been proven in a cooling mode but is waiting for conditions to be met to turn on first stage of cooling or start active economizer operation.

Table 11. Unit operation - top level mode - running

Unit	
Top Level Mode	**Description**
Running	The remote unit's supply fan (VAV) / circulating pump (EVP) is proven On and capacity control is active with first stage of DX or economizer operation.

Table 11. Unit operation - top level mode - running (continued)

Running Sub Modes	Description
Cool	In Cool Mode with active DX Operation.
Cool – Economizing	Cooling Capacity State = 0%, Economizer is installed. Outdoor Air Damper position is above minimum position (Economizing Active).
Cool - Economizing + DX	Cooling Capacity State > 0%, Economizer is installed. Outdoor Air Damper position is above minimum position (Economizing Active).
Rapid Restart	Unit is actively in Rapid Restart operation.
Demand Limit Cool	Demand Limit Request BAS is set to true and the unit is actively holding or unloading cooling staging to meet Demand Limit requirements

Table 12. Unit Operation – top level mode – various

Unit	
Top Level Mode	**Description**
Various	These sub modes may be displayed in most of the top level unit modes
Various Sub Modes	**Description**
Cooling Manual Override	The compressor control manual override is active.
Outdoor Air Damper Manual Override	The outdoor air damper is under manual control.
Cool Lockout	The unit is in Full Source arbitration and the Cooling Lockout BAS point is set to Locked Out, Disables Compressor Cooling.
Rapid Restart	Unit is actively in Rapid Restart operation.

Circuit Operating Modes

Circuit Operating Modes provide refrigerant circuit level operating state and sub-mode information. When the unit has two circuits, the user interface will provide both Circuit 1 and Circuit 2 mode and sub-mode information. The tables below show each **Circuit** - **Top Level Mode** and lists the Sub Modes possible.

Table 13. Circuit operation-top level mode - stopped

Circuit	
Top Level Mode	**Description**
Stopped	The circuit is not running, and cannot run without intervention.
Stopped Sub Modes	**Description**
Diagnostic Shutdown – Manual Reset	The circuit has been shutdown on a latching diagnostic.
Front Panel Circuit Lockout	The circuit is manually locked out by the circuit lockout setting (Front Panel Lockout CktX) – the nonvolatile lockout setting is accessible through either the user interface or Tracer TU.
Front Panel Compressor Lockout	At least one of the compressors on the circuit has been placed into front panel compressor lockout. – the nonvolatile lockout setting is accessible through either the user display or TU.
Manual Override Condenser Fans	The condenser fans on the circuit are under manual control. (Condenser Fan Stage Manual Ovrd CktX).
Low Ambient Damper Manual Override	The low ambient damper on the circuit is under manual control. (Low Ambient Damper Manual Ovrd CktX)

Table 13. Circuit operation-top level mode - stopped (continued)

Manual Override Hot Gas Bypass Valve	The hot gas bypass valve on the circuit is under manual control. (Hot Gas Bypass Relay Manual Ovrd CktX).
Liquid Line Manual Override	The liquid line soleniod valve on the circuit is under manual control. (Liquid Line Relay Manual Override CktX)

Table 14. Circuit operation-top level mode - run inhibit

Circuit	
Top Level Mode	**Description**
Run Inhibit	The given circuit is currently being inhibited from starting (and running), but may be allowed to start if the inhibiting or diagnostic condition is cleared.
Run Inhibit Sub Modes	**Description**
Diagnostic Shutdown – Auto Reset	The circuit has been shutdown on a diagnostic that may clear automatically.
No Compressors Available	All compressors on the circuit are currently locked out and unable to start.
Start Inhibited by Low Ambient Temp	The Active Outdoor Air Temperature has fallen below the Low Ambient Lockout Setpoint.
Start Inhibited by Low Suction Pressure	The suction pressure dropped below a pressure threshold. See the IOM for more details.
Running Inhibited by Frost Protection	Compressors on the circuit are inhibited to remove frost on the coil.
Running Inhibited by Frostat	The circuit has been shutdown to remove frost on the coil.
High Suction Saturated Temperature Inhibit	Protection for when the suction saturated temperature nears the operating map design limit. Mode displayed if the limit control integral trips and the inhibit command becomes active.

Table 15. Circuit operation-top level mode - auto

Circuit	
Top Level Mode	**Description**
Auto	The circuit is not currently running but can be expected to start at any moment given that the proper conditions are satisfied.

Table 16. Circuit operation-top level mode - waiting to start

Circuit	
Top Level Mode	**Description**
Waiting to Start	The circuit is going through the necessary steps to allow the lead circuit to start.

Table 17. Circuit operation-top level mode - start

Circuit	
Top Level Mode	**Description**
Starting	The circuit is going through the necessary steps to allow the lead circuit to start.

Table 18. Circuit operation-top level mode - running

Circuit	
Top Level Mode	**Description**
Running	The compressor on the given circuit is currently running.

Table 19. Circuit operation-top level mode - running-limit

Circuit	
Top Level Mode	**Description**
Running – Limit	The circuit is currently running however the operation of the unit/compressors is being actively limited by the controls.
Running – Limit Sub Modes	**Description**
Frost Protection Limit	This is a circuit level protection and is active whenever one or more compressors on a circuit are running. Depending on the severity of the coil frost potential, this protection will limit loading or unload the circuit capacity in an attempt to minimize the frost.
Discharge Pressure Limit	The circuit capacity is prevented from loading or has unloaded due to high discharge pressure.
Compressor Involute Pressure Limit	If compressors on the circuit are energized and the compressor involute pressure differential limit is in the hold region or unload region.
High Discharge Pressure Limit	This circuit-level feature prevents a circuit shutdown when the discharge pressure approaches the high-pressure cutout switch setting by decreasing compressor capacity. Limit control action modifies the normal capacity staging commands to decrease capacity by staging off compressors on circuits with high discharge pressure.
Low Compressor Suction Pressure Limit	This function shall prevent the addition of circuit capacity any time the circuit is running and Compressor Suction Refrigerant Pressure CktX is less than (1.4 * Low Compressor Suction Pressure Cutout Normal CktX).
High Discharge Sat Temp Capacity Limit	This circuit-level feature applies when the discharge saturated temperature approaches the compressor operating map limit for high discharge saturated temperature. On 2-Stage Compressor units, this limit will prevent further loading or reduce capacity to stay within acceptable operating conditions.
2-Stage Discharge Sat Temp Load Limit	Units with 2-stage compressors, this limit will force the second stage active when the discharge saturated temperature approaches the compressor operating map limits.
Low Suction Pressure Limit	This circuit-level feature forces the circuit to unload or hold at current capacity if suction pressure drops below the hold or unload thresholds.
High Compressor Discharge Temperature Limit	This is a circuit level protection and is active whenever the circuit is being prevented from loading or being forced to unload compressors due to high compressor discharge temperature.

Table 20. Circuit operation-top level mode - shutting down

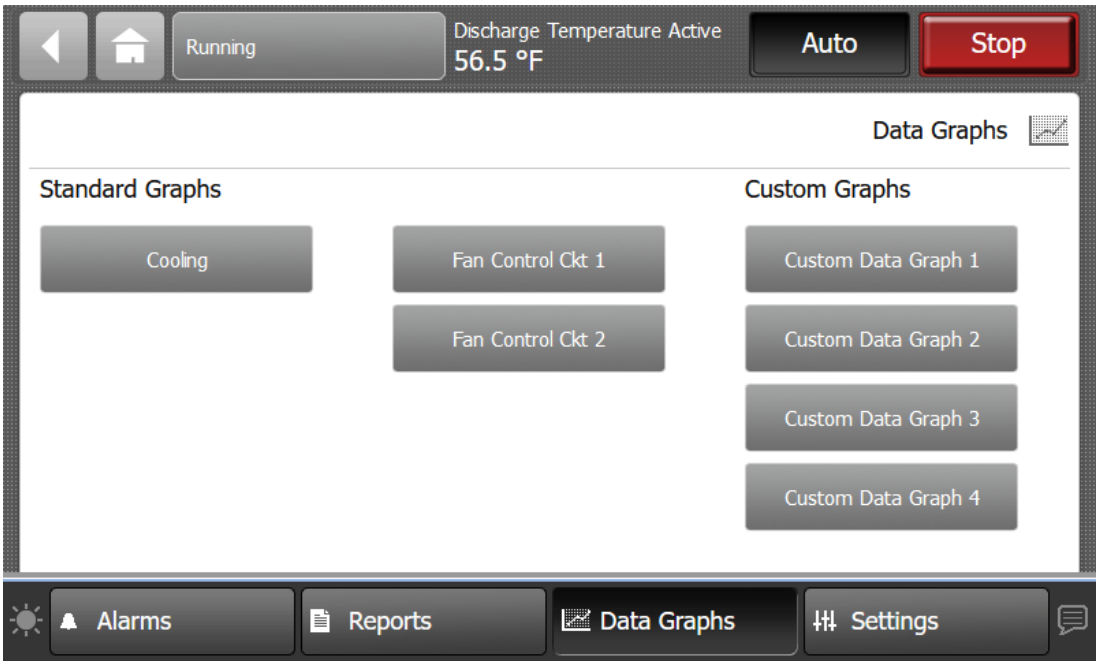
Circuit	
Top Level Mode	**Description**
Shutting Down	The circuit is preparing to de-energize the compressor.
Shutting Down Sub Modes	**Description**
Diagnostic Shutdown – Manual Reset	The circuit has been shutdown on a latching diagnostic.
Front Panel Circuit Lockout	The circuit is manually locked out by the circuit lockout setting – the nonvolatile lockout setting is accessible through either the user interface or Tracer® TU.
Starting is Inhibited by Low Ambient Temperature	The Outdoor Air Temperature Active has fallen below the Low Ambient Lockout Setpoint.

Data Graphs

Data graphs allow users to view trend logs from the controller in graphical format on the TD-7 Display. Up to eight standard data graphs can be viewed. Custom graphs are user defined and can be edited by changing the scale on the left and right Y-axis and choosing the line color.

Touch the **Data Graphs** button in the bottom display area to view the Data Graphs screen. The Data Graphs screen contains eight buttons that allow you to view one of eight standard graphs. Some standard graphs may not exist for your unit.

Figure 28. Data Graphs screen



Viewing Standard Graphs

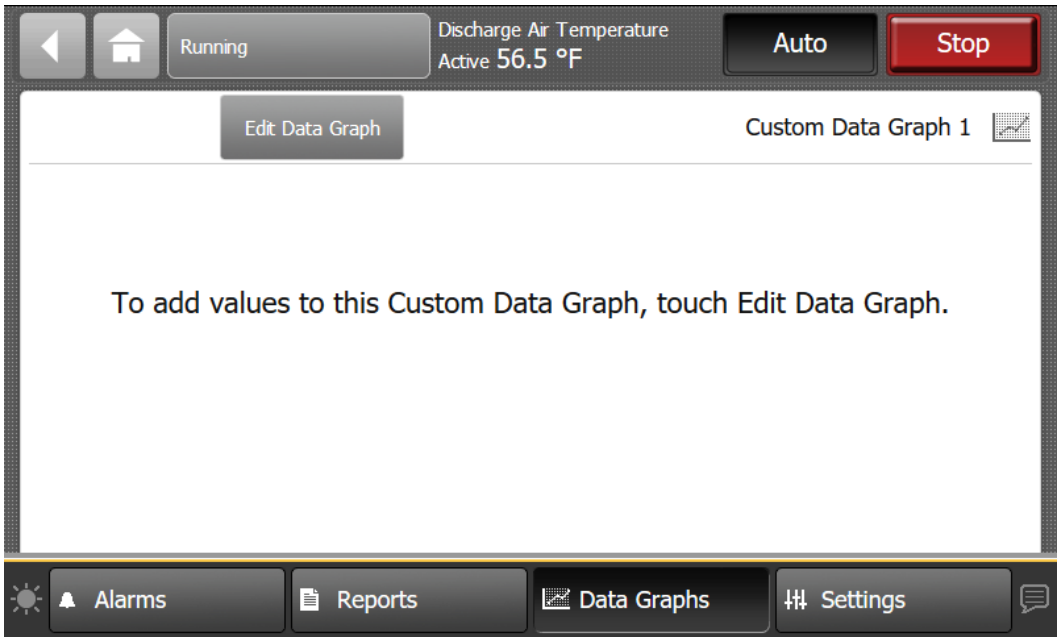
These graphs are predefined and not editable. Some graphs may not be displayed if the function is not supported by the unit configuration, for example: Heating.

Creating a Custom Data Graph

1. Navigate to the Data Graphs screen, then touch one of the four Custom Data Graph buttons in the right column. The Custom Data Graph screen appears.
2. Touch the **Edit Data Graph** button.

   The Edit Data Graph screen appears.

Figure 29. Edit Data Graph screen

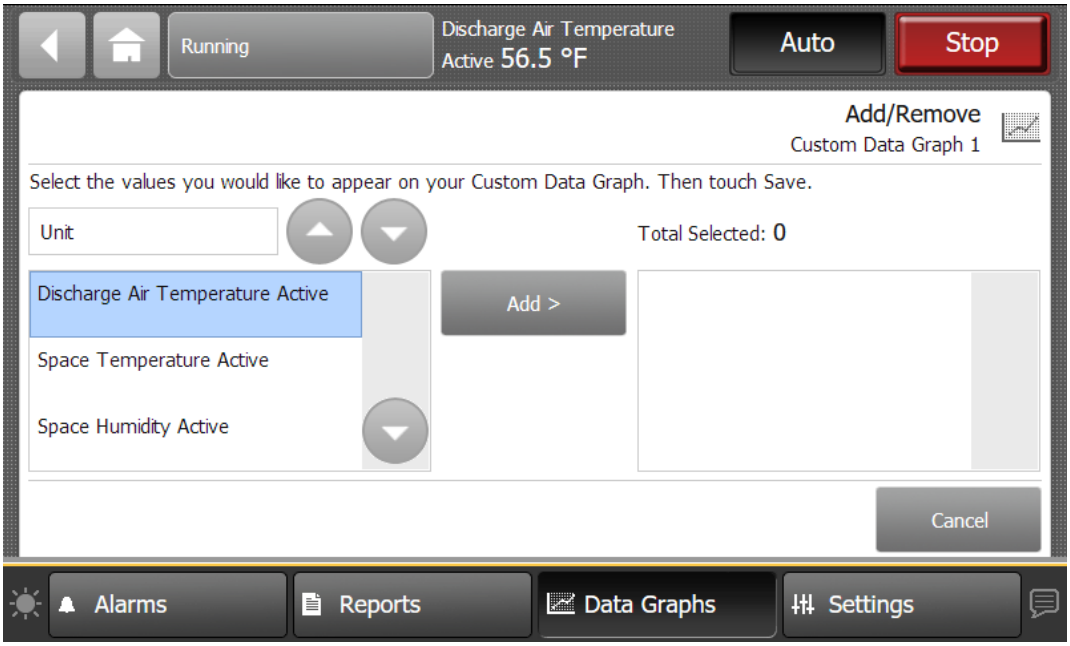


3. Touch the **Add/Remove** button to add values to the custom data graph.

   The Add/Remove screen appears.

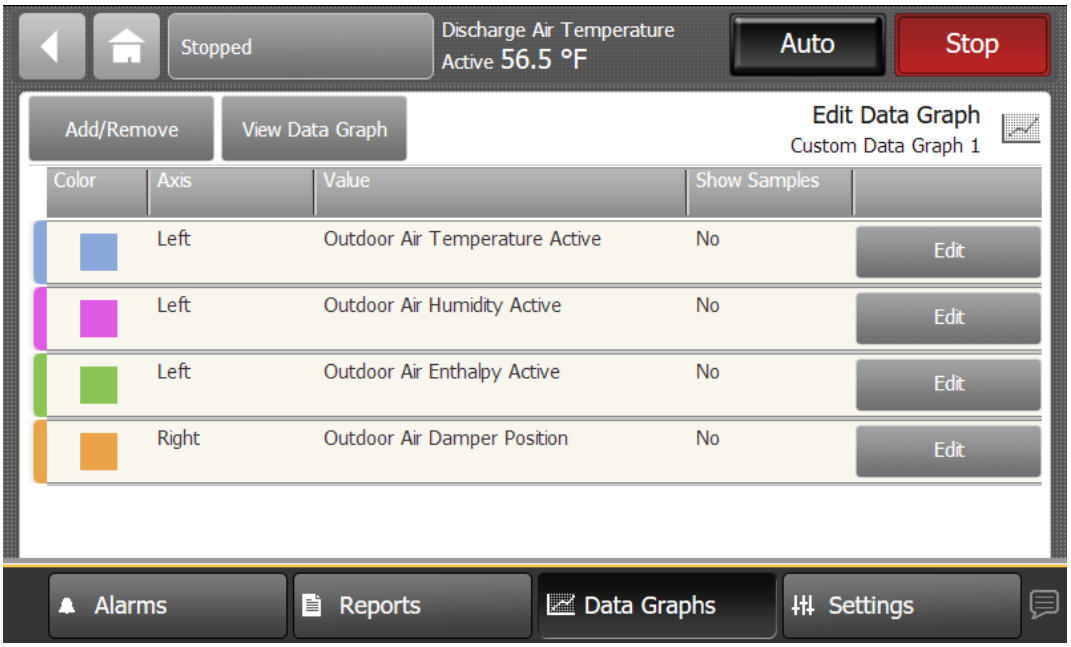
4. Use the arrow buttons to select a datalog type: analog, binary, or multistate, which then populates the box directly below.
5. Select the values, then touch the **Add** button (up to four selections are allowed).
6. Touch the **Save** button. The Edit Data Graph screen appears, which reflects the selected values.

Figure 30. Adding data to the Custom Graph



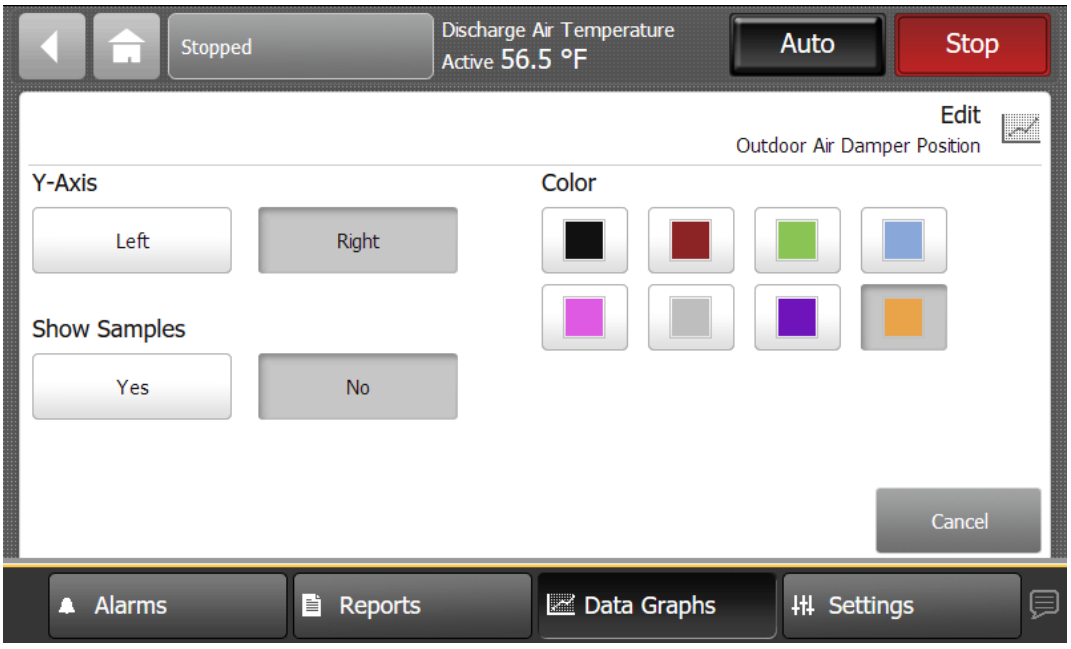
7. Use the Edit Data Graph screen to modify the data graph. Touch the **Edit** button that corresponds with the value that you want to change. Only one value can be edited at a time.

Figure 31. Edit Data Graph screen (after values have been added)



8. From the Edit screen you can choose which Y-axis to display the value, a color, and whether or not to show data samples. Touch the **Save** button when finished. Repeat the process with remaining values.

Figure 32. Customizing the data graph

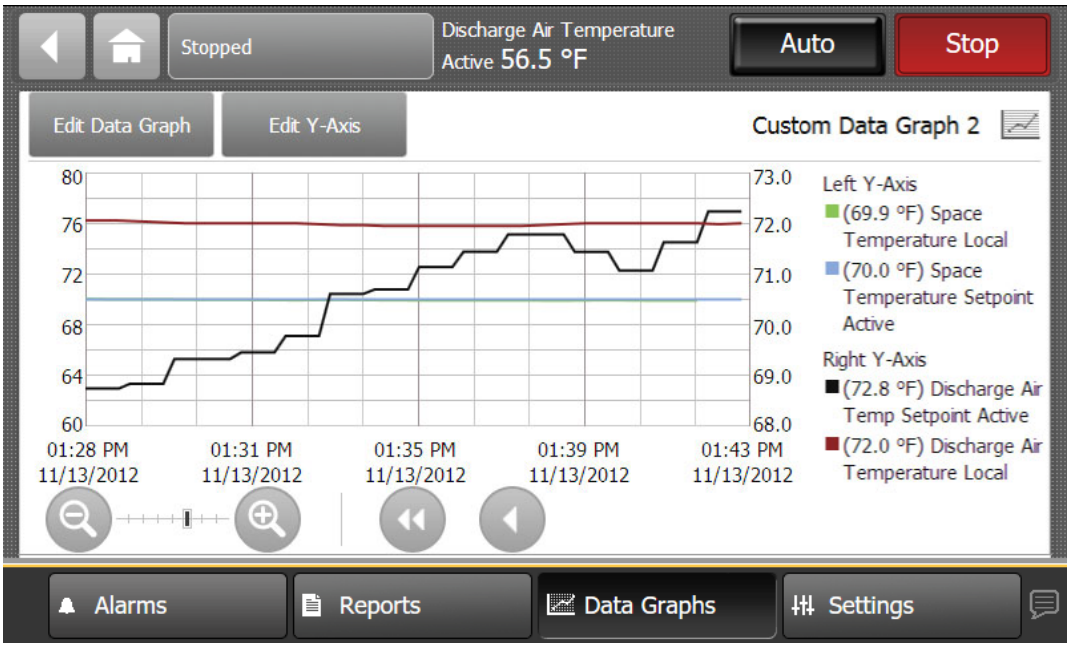


9. Touch the **View Data Graph** button to display the new graph.

Note: *Depending on the sampling rate, the custom data graph may be empty for several hours.*

You can make changes to the way data is presented on the graph at anytime. Touch the zoom-in icon and zoom-out icon to either increase or decrease the viewable time frame. This action also enables back and forward arrows that allow you to view data at various times of the day.

Figure 33. Viewing the data graph

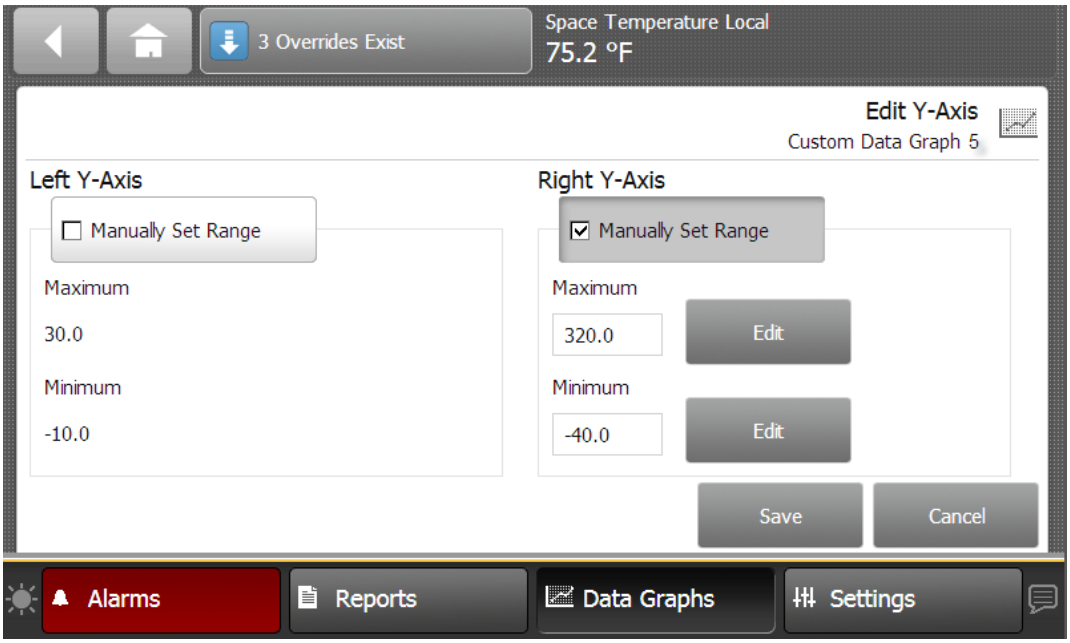


Editing the Y-Axis

The default values on the right and left Y-axes can be changed according to your specifications.

1. Touch the **Edit Y-Axis** button located on the top portion of the Custom Data Graph screen.
   The Edit Y-Axis screen appears.
2. Touch the **Manually Select Range** box for either the left or right Y-axis.
3. Touch the **edit** button next to one of the two value ranges.
   The Keypad screen appears.
4. Select a new value and then touch **Enter** to save.
5. Repeat steps 2 through 4 until all preferred changes have been made.

Figure 34. Editing the Y-Axis



Settings

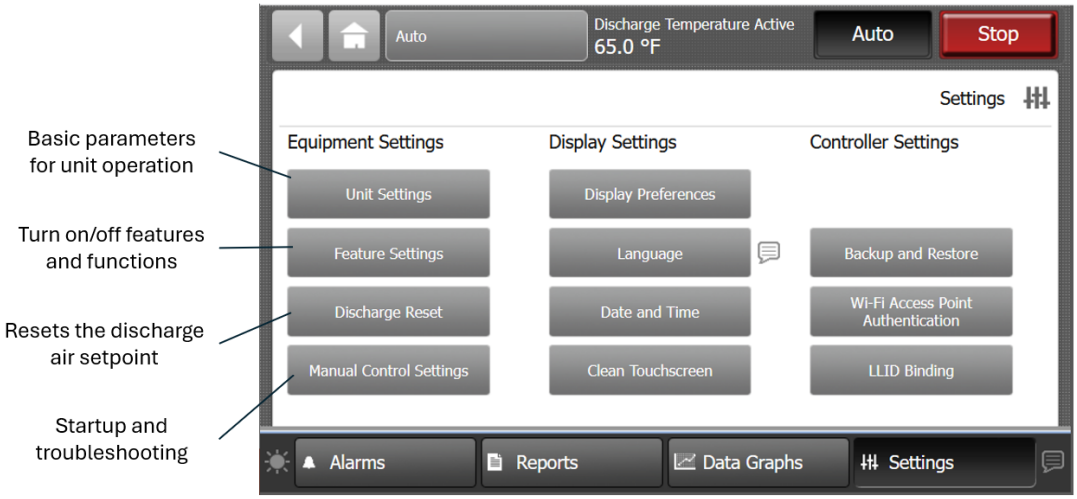
The Settings screen provides options for display settings, language, overrides and security. Touch the **Settings** button in the bottom display area to view the Settings screen.

The data presented in the following tables is unit configuration dependent.

Three categories for settings appear on the screen:

- Equipment Settings
- Display Settings
- Controller Settings

Figure 35. Settings screen



Unit Settings

Unit Settings are the basic parameters for unit operation and provide the default values for setpoints and unit operating modes.

Figure 36. Unit Settings

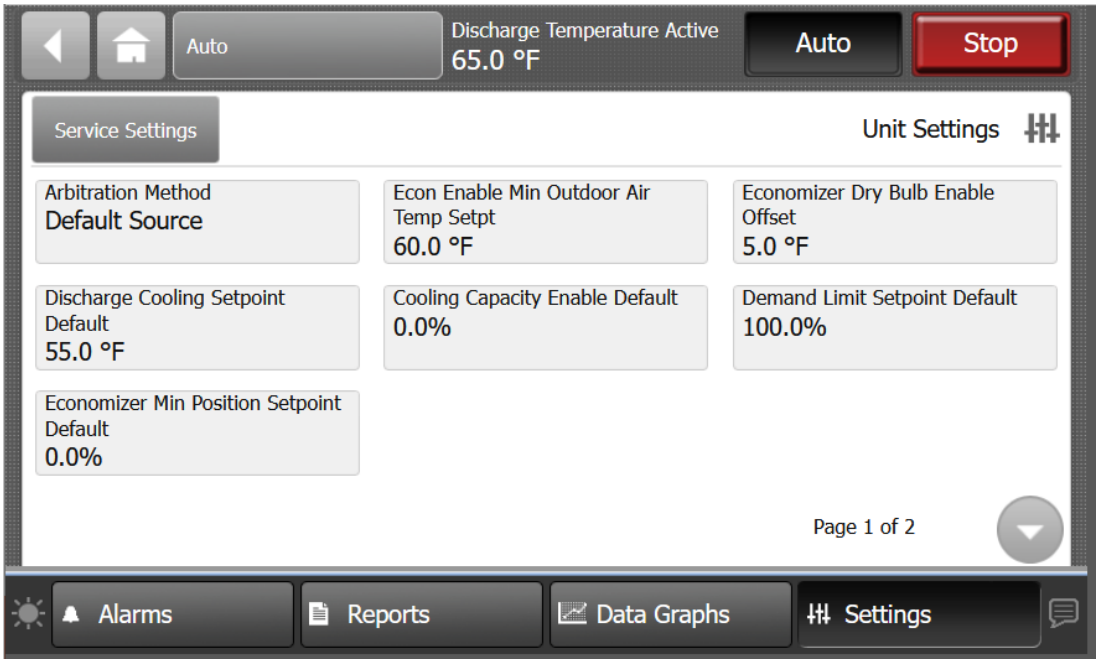


Table 21. Unit settings value

Value	Default (range)	Description
Arbitration Method	Full Source (Full Source, Local Source, Default Source)	Selects if the control will operate with all input sources (Full), Local inputs only (removes BMS inputs), or Default settings (removes BMS and local inputs).
Discharge Cooling Setpoint Default	55.0 °F (40.0 - 75.0) - Supply Air VAV 44.0 °F (10.0 - 70.0) - EVP Control	Discharge cooling setpoint
Economizer Min Position Setpoint Default	0% (0.0 - 100.0)	Economizer damper minimum position setpoint
Econ Enable Min Outdoor Air Temp Setpt	60°F (50.0 - 140.0)	Related to the economizer enable decision, this default value determines the outdoor air temperature below which economizing is enabled.
Economizer Dry Bulb Enable Offset	5.0 °F (2.0 - 10.0)	Related to the economizer enable decision, this value is used to prevent cycling of the economizing decision
Demand Limit Setpoint Default	100.0% (0 - 100.0)	Demand limit setpoint default value. This value is normally provided by the BMS to demand limit the unit.
Cooling Capacity Enable Default	100.0% (0 - 100.0)	Cooling capacity enable default value. This value is normally provided by the BMS to demand limit the cooling capacity.
Manual Overrides Timer Setpoint	1 Hr (1 - 78)	Sets the amount of time Manual Overrides are allowed to be active. Timer resets when an override is applied.

Note: *Ranges are dynamically calculated based on the other setpoint ranges.*

Service Settings

Provides access to low level parameters required for all unit functionality.

Table 22. Service settings

Value	Default (range)	Description
Compressor Discharge Temp Hold Setpt	Configuration Dependant	Contact Trane Technical Support.
Compressor Discharge Temp Trip Setpt	Configuration Dependant	Contact Trane Technical Support.
Compressor Discharge Temp Unload Setpt	Configuration Dependant	Contact Trane Technical Support.
Compressor Minimum Pressure Ratio Ckt1	Configuration Dependant	Contact Trane Technical Support.
Compressor Minimum Pressure Ratio Ckt2	Configuration Dependant	Contact Trane Technical Support.
Compressor Staging Deadband Adjustment	0 °F (-1.8 - 9 °F)	Contact Trane Technical Support.
Cond Fan Control Cool Diff Press Offset	15.00 PSID (5.00 - 25.00)	Contact Trane Technical Support.
Cond Fan Control Cool Diff Press Setpt	90.00 PSID (85.00 - 150.00)	Contact Trane Technical Support.
Cond Fan Control Cool Press Ratio Setpt Ckt1	1.55 (Configuration Dependant)	Contact Trane Technical Support.
Cond Fan Control Cool Press Ratio Setpt Ckt2	1.55 (Configuration Dependant)	Contact Trane Technical Support.
Cond Fan Control Efficiency Check Point	105.0 °F (95.0 - 115.0 °F)	Contact Trane Technical Support.
Condenser Fan Air Coil Correction	11.88 (0.000 - 100.000)	Contact Trane Technical Support.
Condenser Fan Control Feedforward Gain	1.000 (0.000 - 1.000)	Contact Trane Technical Support.
Condenser Fan Control Integral Gain	1.000 (0.000 - 1.000)	Contact Trane Technical Support.
Condenser Fan Damping Coefficient	10.000 (0.000 - 100.000)	Contact Trane Technical Support.
Condenser Fan Staging Deadband	4.5 °F (1.8 - 9.0)	Contact Trane Technical Support.
Cooling Design Delta Temp	20 °F (5.0 - 40.0) - Supply Air VAV 10 °F (1.8 - 21.6) - EVP Control	Contact Trane Technical Support.
Cooling Staging Delay Threshold	180 °F (0 - 300)	Contact Trane Technical Support.
Cprsr Discharge Press Limit Hold Setpt	Configuration Dependant (70.0 - 90.0)	Contact Trane Technical Support.
Cprsr Discharge Press Limit Unload Setpt	Configuration Dependant (80.0 - 105.0)	Contact Trane Technical Support.
Ctrl Box Ventilation Fan Enable Setpoint	105 °F (75 - 125 °F)	Temperature setpoint when fan turns on/ off.
Differential To Start	5 °F (1.8 - 12.6)	Controls the unit start sequence.
Differential To Stop	5 °F (1.8 - 12.6)	Controls the unit stop sequence.
Econ Discharge Air Control Integral Time	75 Sec (1 - 3600)	Contact Trane Technical Support.
Econ Discharge Air Control Prop Gain	3.600 (0.100 - 100.000)	Contact Trane Technical Support.
Electrical Service Type Command	Wye (Delta, Wye)	Used to identify the applied 3-phase power connection to the unit for power met applications.
Evap Coil Frost Delta	8.0 °F (3.0 - 20.0)	Contact Trane Technical Support.
Evap Coil Frost Protection Retry Time	16 minutes (16 - 45 minutes)	Contact Trane Technical Support.
Evap Coil Frost Threshold	28.0 °F (25.0 - 35.0)	Contact Trane Technical Support.
Hot Gas Bypass Enable Setpoint	37 °F (32 - 42 °F)	Control setpoint to determine when the hot gas bypass valve solenoid is energized.

Table 22. Service settings (continued)

Value	Default (range)	Description
Local Atmospheric Pressure	14.7 PSIA (10 - 16)	This entry should reflect the average pressure expected at the unit's geographical elevation.
Loss of Charge Detection Shutdown Threshold	40 °F (25 - 50 °F)	Threshold when circuit will be locked out due to refrigerant loss of charge condition.
Loss of Charge Detection Warning Threshold	30 °F (20 - 40 °F)	Threshold when circuit is indicating loss of charge condition.
Low Ambient Damper Direct/Reverse Ckt1	Direct (Direct/Reverse)	Sets damper position stroke direction.
Low Ambient Damper Direct/Reverse Ckt2	Direct (Direct/Reverse)	Sets damper position stroke direction.
Low Ambient Damper Max Voltage Ckt1	10 volts (.1 - 10 volts)	Contact Trane Technical Support.
Low Ambient Damper Max Voltage Ckt2	10 volts (.1 - 10 volts)	Contact Trane Technical Support.
Low Ambient Damper Min Voltage Ckt1	2 volts (0 - 9.9 volts)	Contact Trane Technical Support.
Low Ambient Damper Min Voltage Ckt2	2 volts (0 - 9.9 volts)	Contact Trane Technical Support.
Low Ambient Damper Stroke Time Ckt1	30 seconds (1 - 255 seconds)	Contact Trane Technical Support.
Low Ambient Damper Stroke Time Ckt2	30 seconds (1 - 255 seconds)	Contact Trane Technical Support.
Low Ambient Lockout Setpoint	Configuration Dependant	Inhibits compressor operation if outdoor temperature drops below this value
Low Evaporator Water Temp Cutout	36 °F (-7 - 40 °F)	Used for evaporator freeze protection.
Low Refrigerant Temperature Cutout	26 °F (-21 - 36 °F)	Used for evaporator freeze protection.
Oil Management Staging Limit Setpoint	110 °F (100.0 - 160.0)	Staging value for 2 stage compressors where the second stage is energized.
Outdoor Air Damper Direct/Reverse Acting	Direct (Direct, Reverse) VERIFY	Sets damper position stroke direction.
Outdoor Air Damper Max Voltage	10 V (0 - 10 volts)	Maximum voltage setting for the applied damper actuator equating to fully open.
Outdoor Air Damper Min Voltage	2 V (0.0 - 9.9)	Minimum voltage setting for the applied damper actuator equating to fully closed.
Outdoor Air Damper Stroke Time	30 Sec (1 - 255)	The time it takes for the actuator to stroke from Pmin to Pmax.
Power-Up Start Delay	0 Sec (0 - 300)	Used to delay unit operation after after a power cycle.
Rapid Restart Control Band Setting	20.0 °F (5.0 - 40.0)	Contact Trane Technical Support.
Rapid Restart Critical Temp Setpoint	90 °F (75 - 95)	Used to determine the compressor stage target during an active Rapid Restart event.
Rapid Restart DX Interstage Time	30 Sec (15 - 50)	Allows adjustment to the compressor interstage time providing an accelerated or delayed staging.
Rapid Restart Minimum Percent Capacity	25.0% (20 - 100)	Used to set the minimum compressor stage regardless of Critical Temp Setpoint target needs.
Rapid Restart Termination Time	180 Sec (120 - 600), 20-60T 240 Sec (120 - 600), 80-120T	Contact Trane Technical Support.
Suction Sat Temp Prevent Loading Timer	960 seconds (300 - 3600 seconds)	Prevents loading for a prescribed time.

Table 22. Service settings (continued)

Value	Default (range)	Description
Superheat High Limit	55 °F (50.0 - 65.0)	Contact Trane Technical Support.
Temp Control Softload Time Cooling	120 Sec (0 - 3600) - Supply Air VAV 900 Sec (0 - 3600) - EVP Control	Contact Trane Technical Support.
Temp Control Staging Deadband Cooling	70% (10.0 - 100.0)	Contact Trane Technical Support.
Temp Control Staging Integral Time Cool	50.0 seconds (0.1 - 3600.0 seconds)	Contact Trane Technical Support.
Temp Control Staging Prop Gain Cooling	6.000 (0.100 - 100.000)	Contact Trane Technical Support.
Temperature Control Modulating Deadband	2.0 °F (0.0 - 180.0)	Contact Trane Technical Support.

Arbitration Method

Allows selection of the active source of setpoints and settings:

- **Full Source** – Result of arbitration from external controls (For example: Tracer® SC+, TGP2, 3rd party system control).
- **Local Source** – Isolates unit setpoints, settings, and sensors to local wired or wireless sources. Removes Full Sources.
- **Default Source** – Isolates unit to TD-7 Display setpoints and settings, and local sensors. Removes Local Source and Full Sources.

Feature Settings

Feature Settings allow you to enable or disable features and functions.

Table 23. Feature settings value

Value	Default (range)	Description
Balanced Compressor Staging	Disable (Disable, Enable)	Disabled by default.
Economizer Airside Enable Default	Auto (Disable, Auto)	Auto, the controller uses sensor values and setpoints to enable and disable economizer operation. Disable, Disables economizer operation.
Evap Coil Frost Limit	(Disable, Enable)	Enabled by default on No Control and Supply Air VAV units.
Hot Gas Bypass Ckt1	Enable (Disable, Enable)	Enabled by default when configured.
Hot Gas Bypass Ckt2	Enable (Disable, Enable)	Enabled by default when configured.
Loss of Charge Detection	Enable (Disable, Enable)	Enabled by default.
Rapid Restart Enable	Enable (Disable, Enable)	Enabled by default when confirgured.
Superheat High Limit Lockout Enable	Enable (Disable, Enable)	Enabled by default.

Discharge Reset

The Discharge Reset button allows edits to Discharge Cooling Reset function. Settings are provided in table below.

Table 24. Discharge reset value

Value	Range (default)	Description
Discharge Cooling Reset	None (None, Outdoor Air)	Selects the type of Discharge Cooling Reset to be performed by the controller. None, disables the function.
Outdoor Air Cooling Reset Start Temp	90.0°F (71.0 - 95.0)	Starting outdoor air temperature at which discharge cooling setpoint will begin reset.
Outdoor Air Cooling Reset End Temp	70.0°F (0 - 89.0)	Ending outdoor air temperature at which discharge cooling setpoint will reset.
Outdoor Air Cooling Reset Amount Max.	5.0°F (0 - 20.0)	The amount the discharge air cooling setpoint will increase over the specified range.

Manual Control Settings

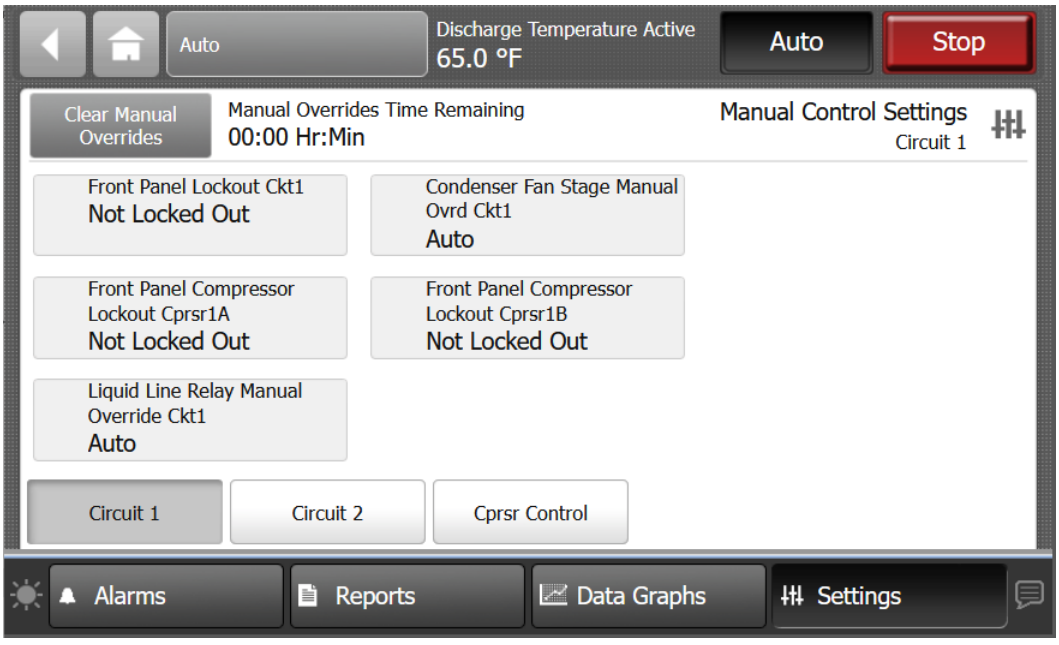
Manual control settings are temporary overrides that are used to setup and test equipment and features. Most components are placed into manual override only after the unit has been placed into **Stop** mode from the TD-7 display. In stop mode certain components are manually controlled while the rest of the unit is prevented from running. Pressing the **Auto** button allows capacity control to run simultaneously with the manually overridden components. Cooling capacity manual overrides must also be setup during stop mode but will only be started after the unit is placed into auto operation. This ensures all normal protections are being met.

Referring to the image below, when a component is placed into manual override, a blue box with a white arrow indicator is shown at the top of the TD-7 display. To determine which components are in manual override control, either press the indicator button from any TD-7 screen, or navigate to the **Settings - Manual Control Settings** screen. Overridden components will display the same indicator.

The **Manual Overrides Time Remaining** indicates the remaining duration of the current set of manual override events. The duration time is adjustable between 1 and 78 hours (default is 1 hr), and is located at the display's screen **Settings - Unit Settings** menu button **Manual Overrides Timer Setpoint**. Each time a component is placed into manual override the override timer restarts. When the override timer times out, all existing manual overrides are terminated and the unit returns to the last mode of operation

Note: *Circuit and Compressor Lockouts will not be terminated when the Manual Overrides Timer times out.*

Figure 37. Manual Control Settings screen



The following tables list all the possible components that can be placed into manual control after selecting the **Unit, Circuit**, or **Compressor Control** button located at the bottom of the **Manual Control Settings** screen shown above.

Immediately following these tables there is an example of placing a component into manual override which is representative of the process for interacting with any of the components from this list.

Table 25. Complete list of manual override selections – unit button

Page 1					
	Ctrl Box Ventilation Fan Manual Override Auto / Off / On		Ctrl Box Ventilation Fan Run Timer Reset HH:MM		Energy Consumption Reset XXXX kWh
	Outdoor Air Damper Manual Override Auto / Manual				

Table 26. Complete list of manual override selections – circuit 1 button

Page 1					
	Front Panel Lockout Ckt1 Not Locked Out / Locked Out		Cond Fan Stage Manual Ovrd Ckt1 Auto / Manual		Low Ambient Damper Manual Ovrd Ckt1 Auto / Manual
	Front Panel Compressor Lockout Cprsr1A[a] Not Locked Out / Locked Out		Front Panel Compressor Lockout Cprsr1B[a] Not Locked Out / Locked Out		Front Panel Compressor Lockout Cprsr1C[a] Not Locked Out / Locked Out
	Liquid Line Relay Manual Override Ckt1 Auto / On		Hot Gas Bypass Relay Manual Ovrd Ckt1 Auto / Manual		

[a] Circuit and Compressor Lockouts will not be terminated when the Manual Overrides Timer times out.

Table 27. Complete list of manual override selections – circuit 2 button

Page 1					
	Front Panel Lockout Ckt2 Not Locked Out / Locked Out		Cond Fan Stage Manual Ovrd Ckt2 Auto / Manual		Low Ambient Damper Manual Ovrd Ckt2 Auto / Manual
	Front Panel Compressor Lockout Cprsr2A[a] Not Locked Out / Locked Out		Front Panel Compressor Lockout Cprsr2B[a] Not Locked Out / Locked Out		Front Panel Compressor Lockout Cprsr2C[a] Not Locked Out / Locked Out
	Liquid Line Relay Manual Override Ckt2 Auto / On		Hot Gas Bypass Relay Manual Ovrd Ckt2 Auto / Manual		

[a] Circuit and Compressor Lockouts will not be terminated when the Manual Overrides Timer times out.

Table 28. Complete list of manual override selections – cprsr control button

Compressor Control Manual[a] Override Auto / Manual				
Manual Enable Cprsr1A [b] Off / On		Manual Enable Cprsr1B[b] Off / On		Manual Enable Cprsr1C[b] Off / On
Manual Enable Cprsr2A Off / On		Manual Enable Cprsr2B[b] Off / On		Manual Enable Cprsr2C[b] Off / On

[a] Compressor Control Manual Override must be set to Manual before compressors are placed in manual override.
[b] Manual Override Control of Compressors are setup in Stop mode, and will only be turned On in Auto mode.

Beginning a Manual Override Event

To begin a manual override event:

1. If necessary, press the **Stop** button on the TD-7 display.
2. Press the **Settings** button.

3. Press the **Manual Control Settings** button.
4. Select the appropriate **Unit, Circuit**, or **Compressor Control** button.
5. Select the component to be overridden, then press the **Manual** button if shown.
6. Make the appropriate change to the component by turning it On/Off or changing its Speed/Position then press the **Enter** button.
7. Once returned to the **Manual Override** screen, press **Apply** or **Save** button to activate the manual override entry.

Note: *The **Current Value** displayed should change from Auto to Manual when the Save or Apply button is pressed. If it reverts back to, or continues to display, **Auto** the manual override event did not activate. Make sure the unit has first been placed into **Stop** mode at the TD-7 display. Some active entries may not start immediately due to protection delays or may not start at all if a unit protection feature is active.*

Terminating a Manual Override Event

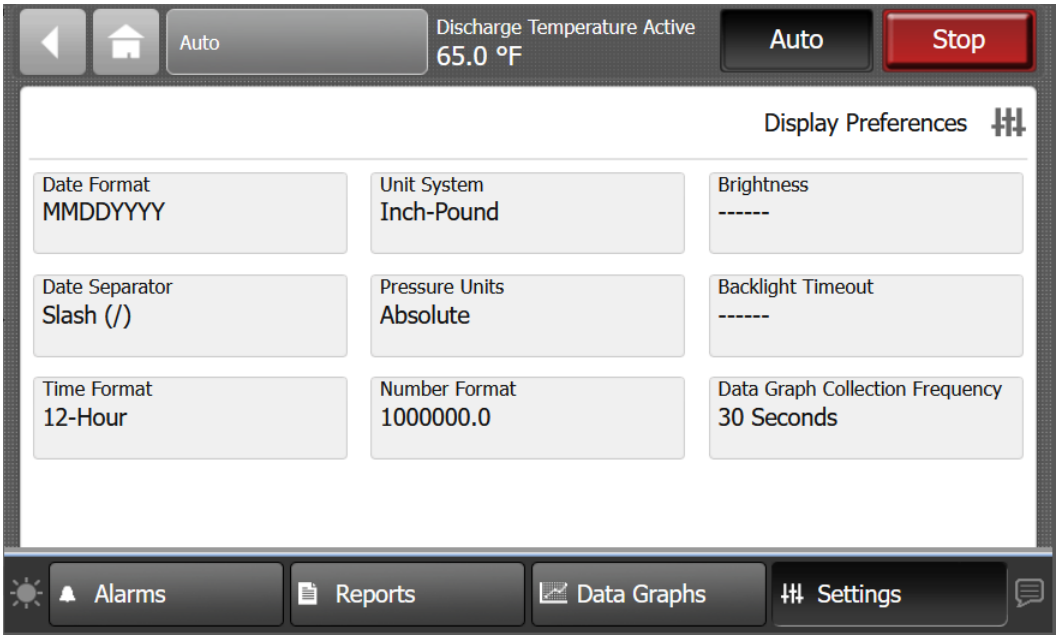
To terminate an active manual override event, do one of the following:

- Allow the **Manual Override Timer** to time out.
- Navigate to the **Manual Control Settings** screen and press the **Clear Manual Overrides** button.
- Select an individual component that is in manual override and press the **Auto** button. Then press **Apply**.
- For manual override events that are active during **Auto** unit operation, press the **Stop** button at the TD-7 display.

Display Preference

Touch **Settings** button from the home screen, then touch the **Display Preferences** button to open the associated screen. On this screen, all available options to display information on the TD-7 screens are available.

Figure 38. Display Preferences screen



- **Date format** — Touch the **Date Format** button to open the associated screen. Three options are available to display the current date: MMDDYYYY, DDMMYYYY, and YYYYMMDD.
- **Date Separator** — Touch the **Data Separator** button to open the associated screen. Five options are available to display separators in the data format: None, Slash (/), Hyphen (-), Period (.), Underscore (_).

- **Time Format** — Touch the **Time Format** button to open the associated screen. Two options are available: 12-Hour format and 24-Hour format (also referred to as “military time”).
- **Unit System** — Touch the **Unit System** button to open the associated screen. Two options are available: SI (system international) or Inch-Pound.
- **Pressure Units** — Touch the **Pressure Units** button to open the associated screen. Two options are available: Absolute and Gauge.
- **Number Format** — Touch the **Number Format** button to open the associated screen. Two options are available: period format (1000.0) or comma format (1000,0).
- **Brightness** — Use the keypad to enter a new brightness number.
- **Backlight Timeout** — Touch the **Backlight Timeout** button to open the associated screen. This value is measured in minutes, with 30 being the maximum limit. Use the keypad to enter a backlight timeout value. This value is the amount of time that the display will remain lit without activity. When the backlight times out, users will be automatically logged off due to inactivity.
- **Data Graph Collection Frequency** — Use the keypad to enter the frequency of data samples for the TD-7 Data Graphs feature. The duration shown is maximum length of time the TD-7 will be able graph.

Language

Touch **Settings** button from the home screen, then touch the **Language button**, or the language icon located at the bottom right of each screen, to open the Language screen. Three languages are available and represented on the selection buttons. Select the language that you want displayed on each TD-7 screen and then touch **Save**.

Figure 39. Home page screen

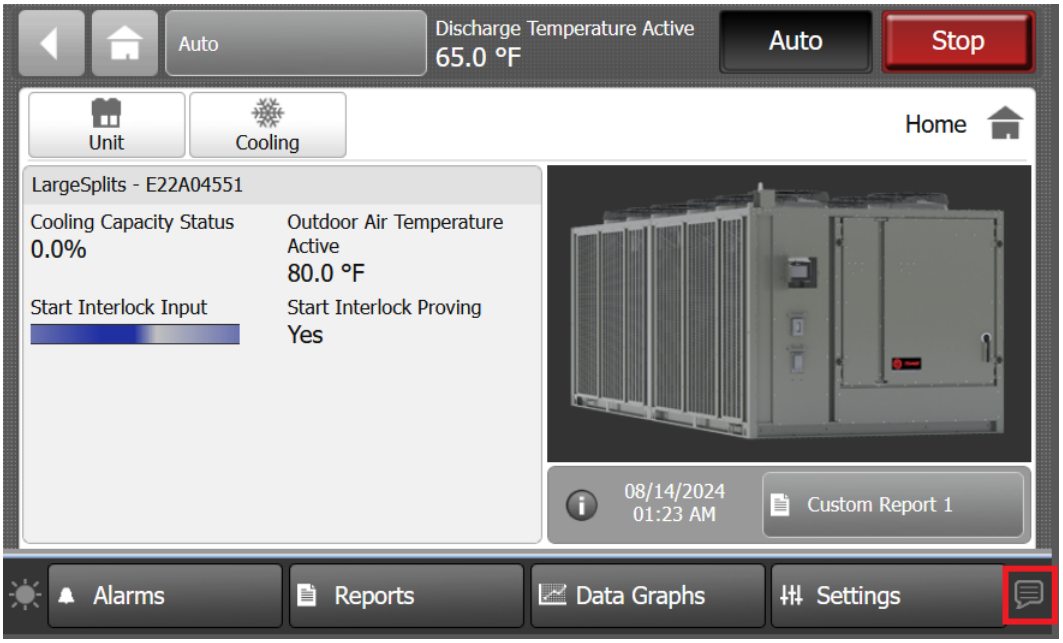
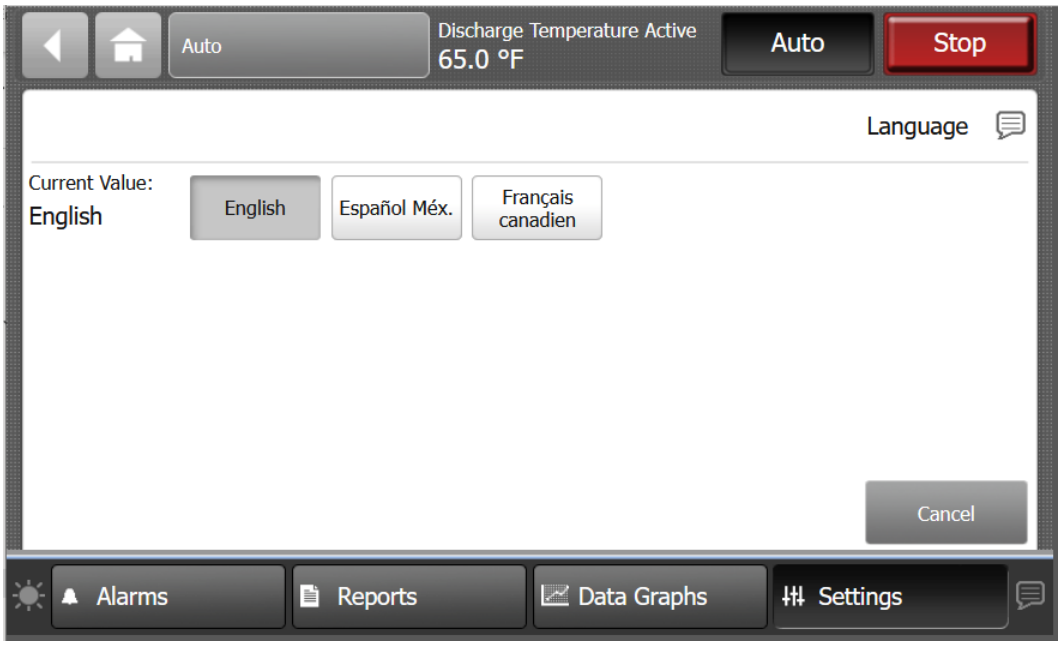


Figure 40. Language screen



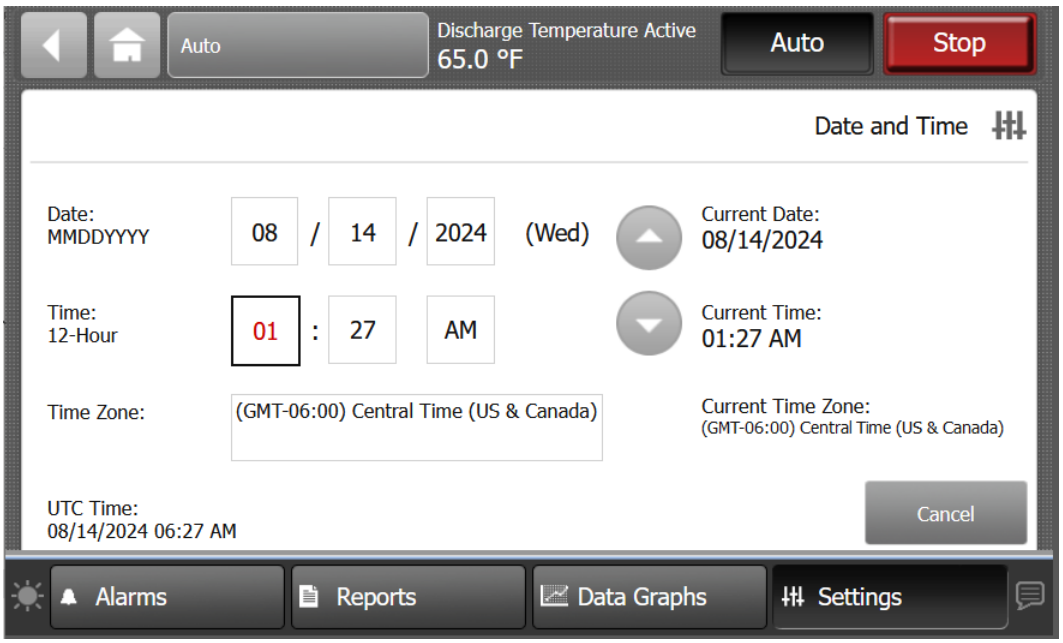
Date and Time

Touch **Settings** button from the home screen, then touch the **Date and Time** button to open the associated screen. To enter a new date or time, touch the digit you want to change. When enabled for editing, the digit will appear red with a black border. when finished, touch **Apply** or **Save**.

Or,

tap the digit twice which opens the keypad screen where you can make date and time entries. When finished, touch **Enter**; you will be returned to the Date and Time screen. Touch **Apply** or **Save**.

Figure 41. Date and Time screen



Clean Touchscreen

Touch **Settings** button from the home screen, then touch the **Clean Touchscreen** button to safely clean the TD-7 touchscreen using any brand of common household glass cleaner. When this button is touched, the screen background color becomes black, allowing dirt and fingerprints to become more visible. It also displays a countdown timer (five to zero seconds).Touch the screen anytime within the 5-second countdown to begin cleaning the screen (each touch resets the 5-second countdown).

Log Out

This button logs out the currently logged in user. Users are automatically logged out after 30 minutes of inactivity.

The button is only displayed when Security is enabled via Symbio™ UI.

Backup and Restore

The Backup and Restore feature allows the user to create a backup, restore a backup, or restore factory defaults via the user interface.

Figure 42. Backup and restore

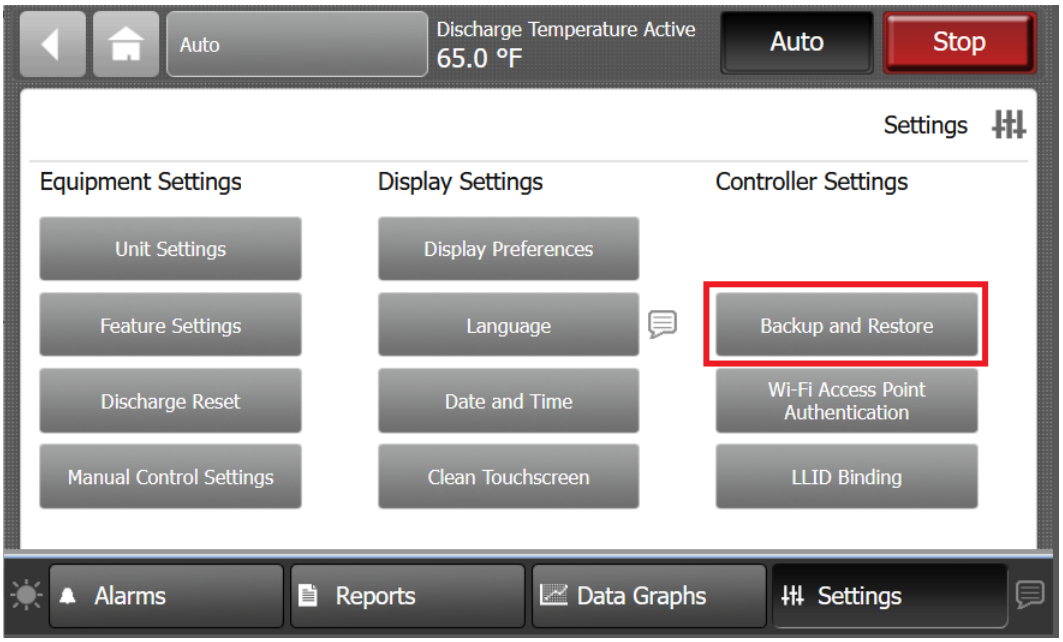
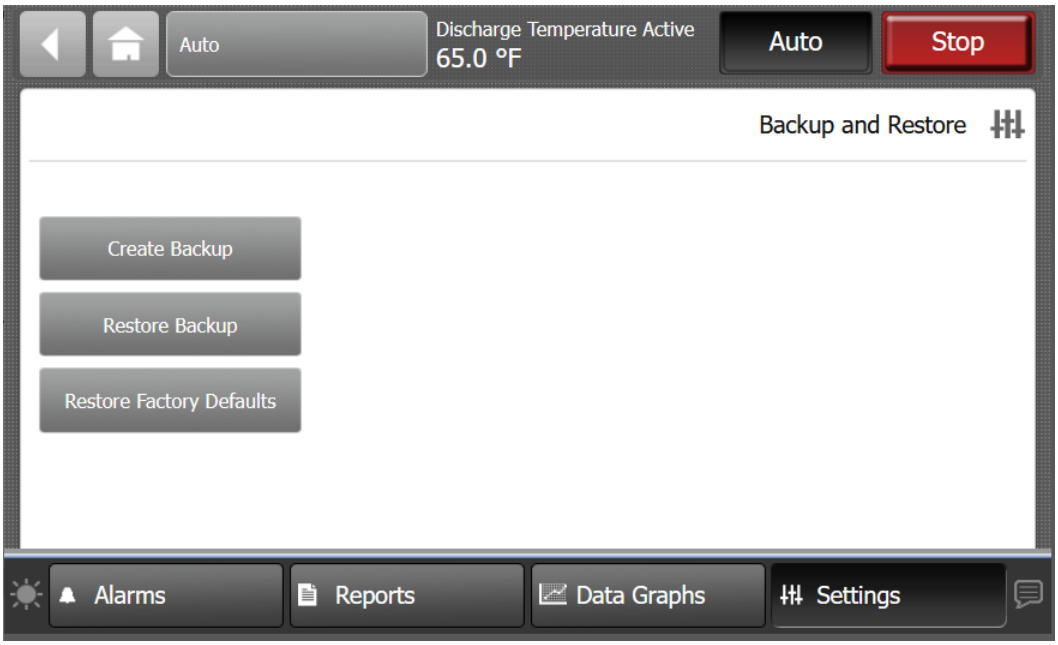


Figure 43. Create backup



Create Backup

To create a backup, touch the **Create Backup** button. If the backup is created successfully, a pop-up indicates the backup completed successfully. If the backup was not successful, a pop-up alerts the user of the failure condition.

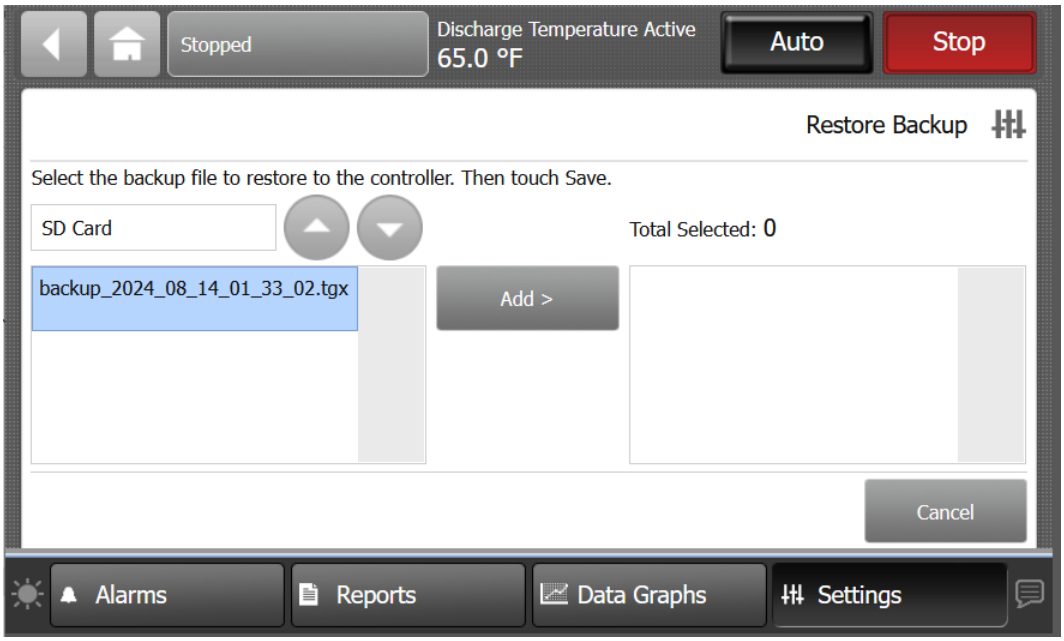
Restore Backup

Note: *The unit must be in Local Stop before restoring a backup.*

To restore a backup:

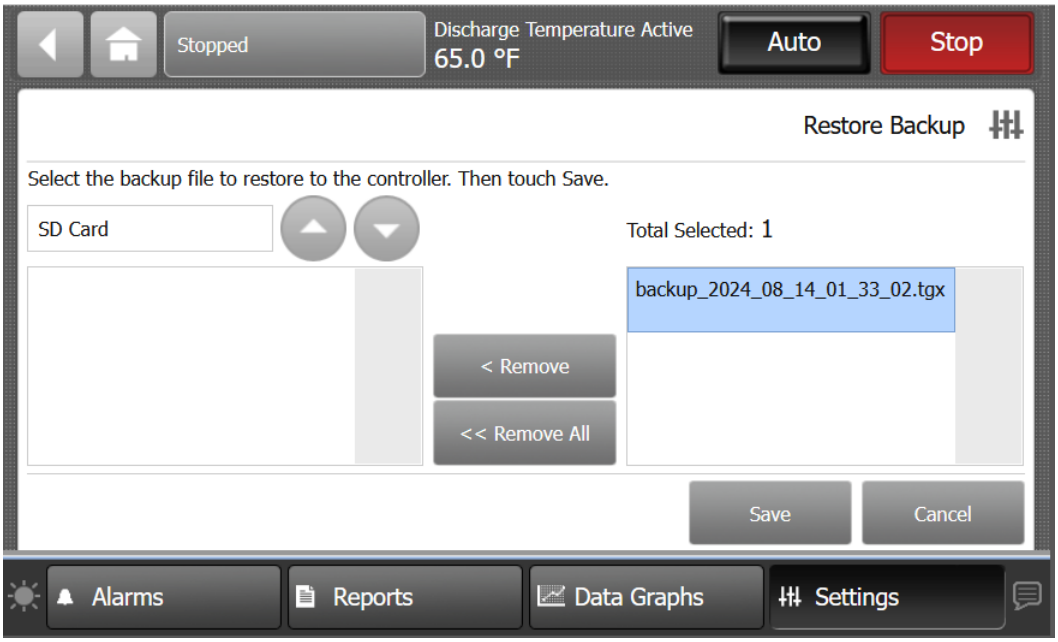
1. Touch the **Restore Backup** button.
2. Select the backup file to be restored. Highlight the file from the list of files and touch **Add**.

Figure 44. Select backup file



3. Touch **Save**.

Figure 45. Save restored file

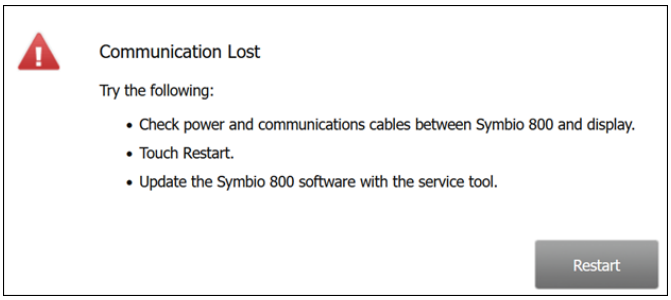


Restoring a backup will write configuration and settings to the values in the backup file. Touch the **Restore** button from the pop-up to start the restore backup process. Once restored, the Symbio 800 and user interface will restart.

The file name in the example “backup_2023_1_13_12_57_20” equates to backup_year_month_day_time_minute_second. So, the back was made on January 13, 2023 at 1:57:20 p.m.

A Communication Lost pop-up will occur as shown below.

Figure 46. Communication Lost screen



Touch the **Restart** button to restart the user interface and restore communication.

Restore Factory Defaults

Note: *The unit must be in Local Stop before restoring factory defaults.*

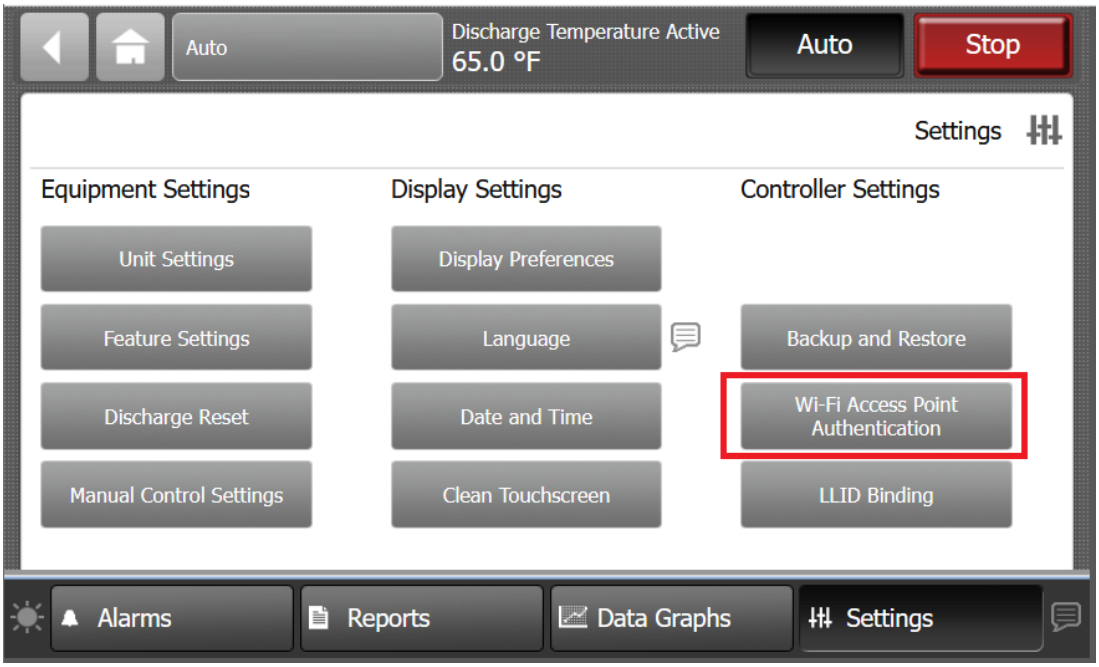
Restoring factory defaults writes configuration and settings to the original factory values. To restore settings to factory defaults:

1. Touch the **Restore Factory Defaults** button.
2. Touch the **Restore** button from the pop up to start the restore backup process.
3. Once restored, the Symbio 800 and user interface will restart.

Wi-Fi Access Point Authentication

Touch **Settings** button from the home screen, then touch **Wi-Fi Access Point Authentication** button to allow the user to temporarily disable Wi-Fi authentication and connect to the Symbio™ 800 controller without providing a user id and password.

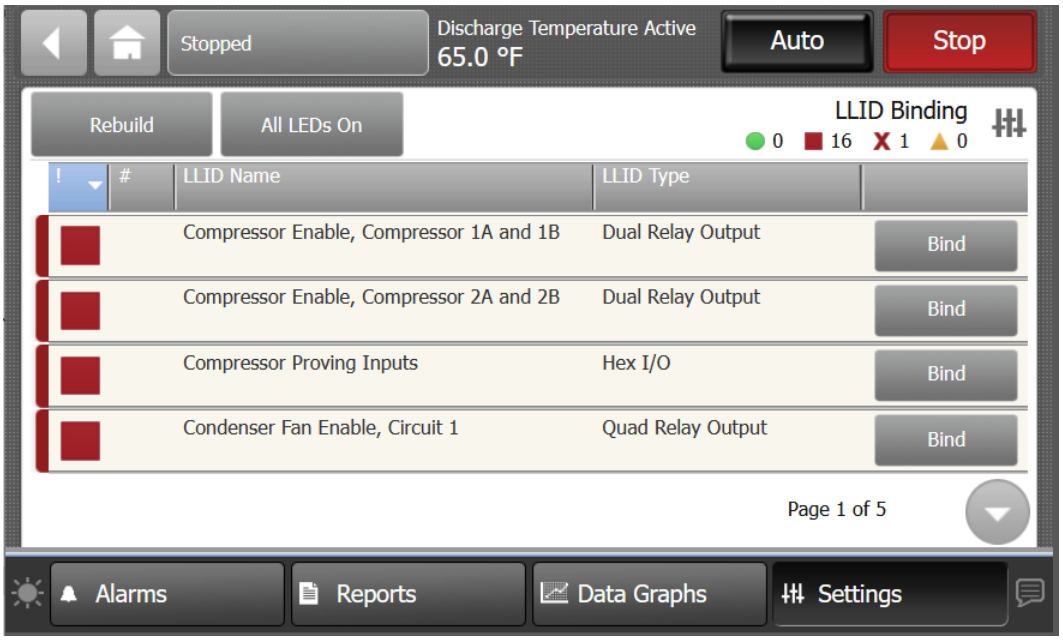
Figure 47. Wi-Fi Access Point Authentication



LLID Binding

Touch **Settings** button from the home screen, then touch **LLID Binding** button to provide access to the machine bus network to bind and unbind devices as needed based on configuration. This feature shall only be used by experienced service technicians.

Figure 48. LLID Binding



Tracer® TU

Tracer® TU Service Tool Version 10.2 or higher is only required for custom programming (TGP2) and modifications done in the field.

Note: *Tracer® TU is not needed for normal operation. If you need to perform configuration changes, add new features, or customize the operation of the equipment, contact your local Trane office.*

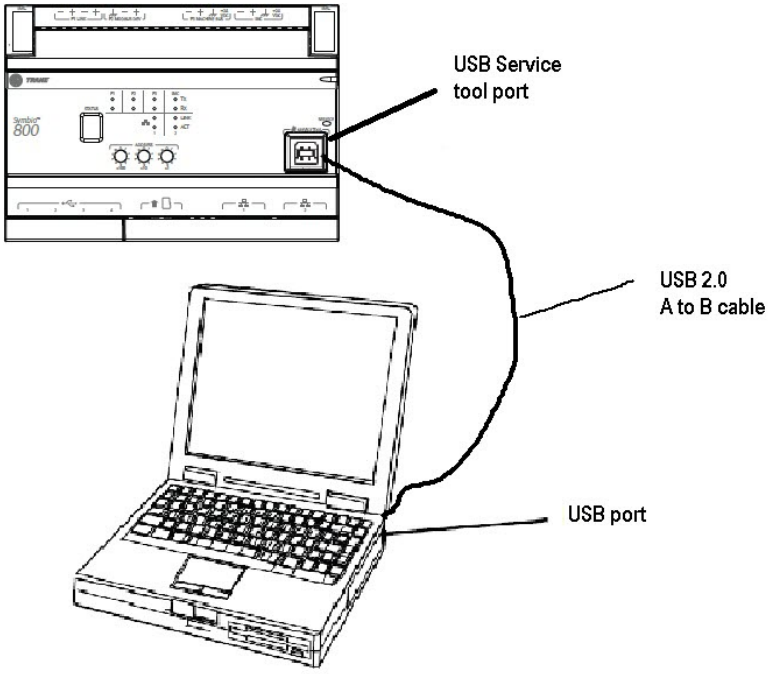
Symbio™ UI

Connecting to the Symbio UI

Use Symbio™ UI to perform firmware updates, setup communication protocols, backup and restore, scheduling, and create users or custom trend views.

1. Connect a laptop to the USB service tool port using a USB 2.0 A to B cable.
2. Open a web browser and connect to http://198.80.18.1 to access Symbio™ UI.

Figure 49. Symbio UI connection



Supported Browsers

Microsoft Windows 10:

- Internet Explorer 11 (no support)
- Microsoft Edge (most recent version)
- Mozilla Firefox (most recent version)
- Google Chrome (most recent version)
- Apple Mac OS (latest version -1)
- Mozilla Firefox (most recent version)
- Google Chrome (most recent version)
- Safari (most recent version)

Admin

An Admin button is provided on the top, global navigation bar for editing and creating Users, Roles, and setting Password Requirements.

Creating a New User

Note: *For more detailed instructions on creating a new user, click the help icon in the global navigation bar within Symbio™ UI.*

To create a new user:

1. From the global navigation bar, select Admin > **Users**.
2. Click the **Create User** button.
3. Enter the user's personal information, and click **Next.**
4. On the Preferences page, determine how certain attributes on the Symbio™ 800 user interface will display. Click **Next**.
5. On the Data Display Units Preference page, determine the unit type in which data will be displayed. Click **Next**.
6. On the Data Display Units Preference page, determine the preferred display units. Click **Next**.
7. On the summary page, review your selections. Click **Finish** to save the new user.

Assigning Roles to Users

1. From the global navigation bar, select Admin > **Users**.
2. Click the role name to open and review details about the role.
3. To assign a role to a user(s), click the box to the left of the user name, then click **Actions**… > **Change Role**.
4. Using the pull down menu select a new role for the user, then click **Change Role**.

Creating a New Role

1. From the global navigation bar, select Admin > **Roles**.
2. Click the role name to review details about existing roles. Click the **Create Role** button to create a new role.
3. Enter role information including Role Name, Description, Base Role, and Maximum Override Priority, and click **Next**.
   a. **Base Role** selection is the starting point for creating a new role.
4. For the **Equipment Permission**, specify the Permission Granted for working with Points. Points are the interface used for BACnet®, MODBUS®, and LonTalk® communication. Click **Next**.
5. **Application Permissions** page provides the ability to customize the new role. When finished, click **Next**.
6. **Function Access** page allow selections the performing Backup, Installation and service, Restore, Audit log. When finished, click **Next**.
7. Use the **Summary** page to review full details of the new role. Click **Previous** to go back and edit selections for new role. Click **Finish** when ready to save the new role. Click **Cancel** to discard role and settings.

Setting Password Requirements

To set password requirements:

1. From the global navigation bar, select Admin > **Security**.
2. Set password requirements:

- **Password Requires Mixed Case** — Must contain at least one lower case or upper case letter.
- **Password Requires Number** — Must contain at least one number.
- **Password Requires Symbol** — Must contain at least one symbol such as %, $, #, @.
- **Password May Not Contain User Information** — Cannot contain the user ID name.
- **Password Minimum Length** — The minimum number of required characters is 6. Use the spinner box to select a number.
- **Number of Previous Passwords Blocked From Reuse** — Users are prohibited from creating a new password by reusing their most previous password. This can be extended beyond the most previous for heightened security. The valid range is 1 to 75. Use the spinner box to select a number.

- **Enforce Password Expiration** — Select this check box to require users to create a new password when their current passwords expire.
- **Days Until Expiration** — Use the spinner box to select the maximum number of days that passwords are valid until a new one must be created. Valid range is 7 to 365.

Security Enable / Disable

To enable security for the display to show User ID and Password:

1. Log in to Symbio™ UI.
2. From the global navigation bar, select Admin > **Security**.
3. Select the **Network Connectivity** tab.
4. If plugged into the Symbio 800 via USB, check **USB Authentication** and **Local Display Authentication**.

Note: *Prior to deleting a user, deselect USB Authentication and Local Display Authentication, then delete the desired user. Deselecting the authentication boxes will also remove the log in and password requirement from the TD-7.*

Summary

In the Symbio™ UI, select **Applications** > **Summary**.

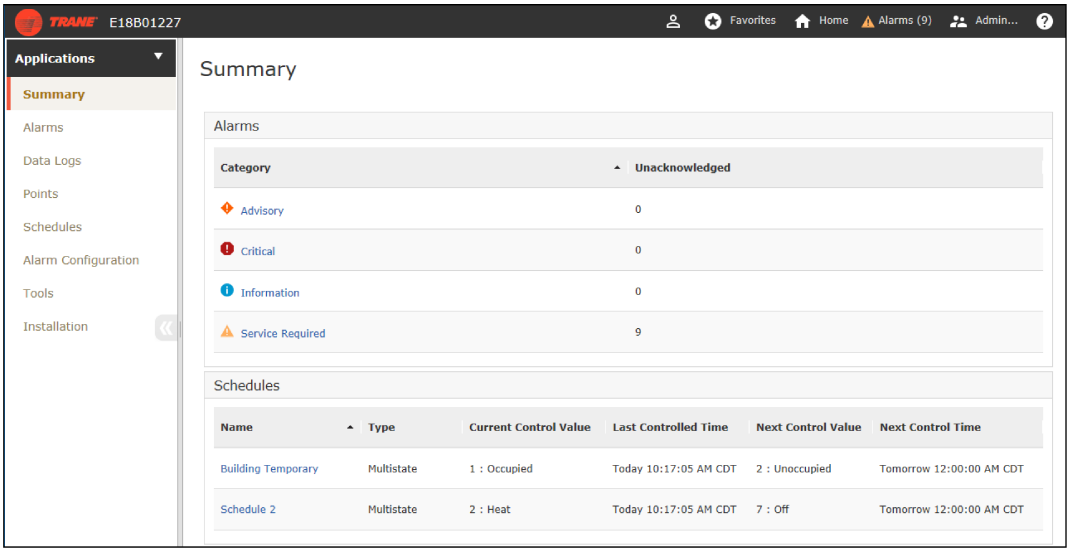
From the Summary screen, you can view the four categories of alarms along with the number of unacknowledged alarms for each.

- Advisory
- Critical
- Information
- Service Required

When Schedules are created they will be shown as well.

Click on the **Alarm Category** or **Schedule Name** to expand it for more information.

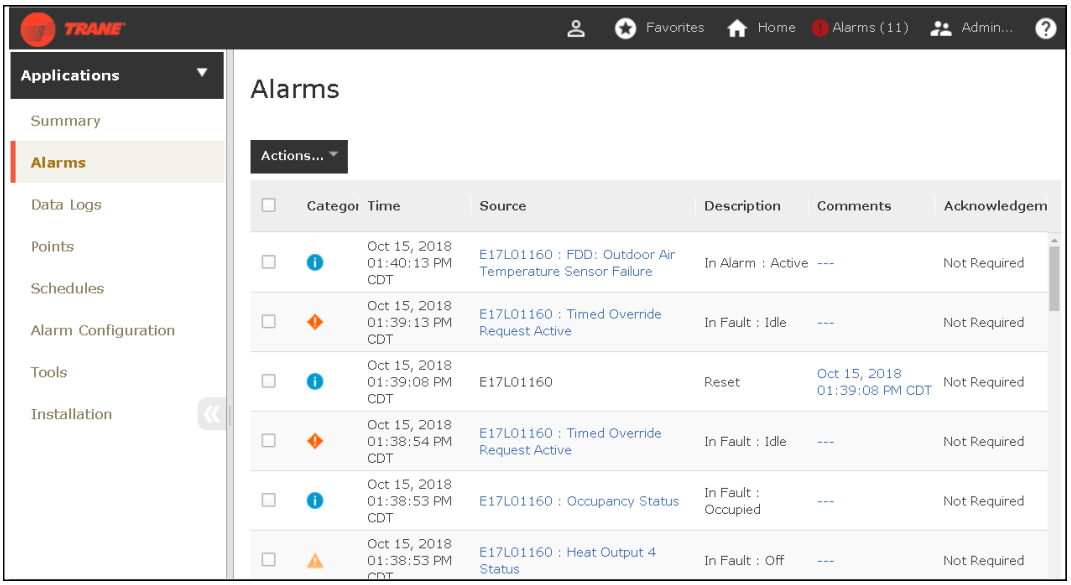
Figure 50. Summary



Alarms

These alarms represent the BACnet® point alarms. BACnet® Alarms correlate closely to the “Active Point Alarms” within Reports from the TD-7 display.

Figure 51. Symbio UI™ Alarms screen



For the alarms to appear in this list, the point must have an alarm notification class selected. Additionally, the point must have entered the appropriate notification (In Alarm, When Failed, Return to Normal, or the notification class set to a value other than None).

Alarm Icons

Alarm icons appear in the left-most column of the alarms screen. They are identifiable by their shape and color.

Table 29. TD-7 alarms

Active Alarm	Notification Class
	Critical
	Service Required
	Warning
	Information
	None

Note: *Notifications classes are configured in point alarm settings section in Tracer® TU.*

Sorting Alarms

To sort alarms by a category other than date and time, touch one of the other column headings in the table. The column heading responds by changing to blue, and the alarms table re-sorts according to the blue column heading. By touching the blue column heading again, the column will change the sort direction.

- Severity (!): Active alarms are at the top, followed by the most severe, followed by the most recent.
- Date and Time (the default sort): Most recent alarms are at the top.

- Point Name: Alphabetical sort based on the point name.
- Description: Alarms are sorted alphabetically by description.

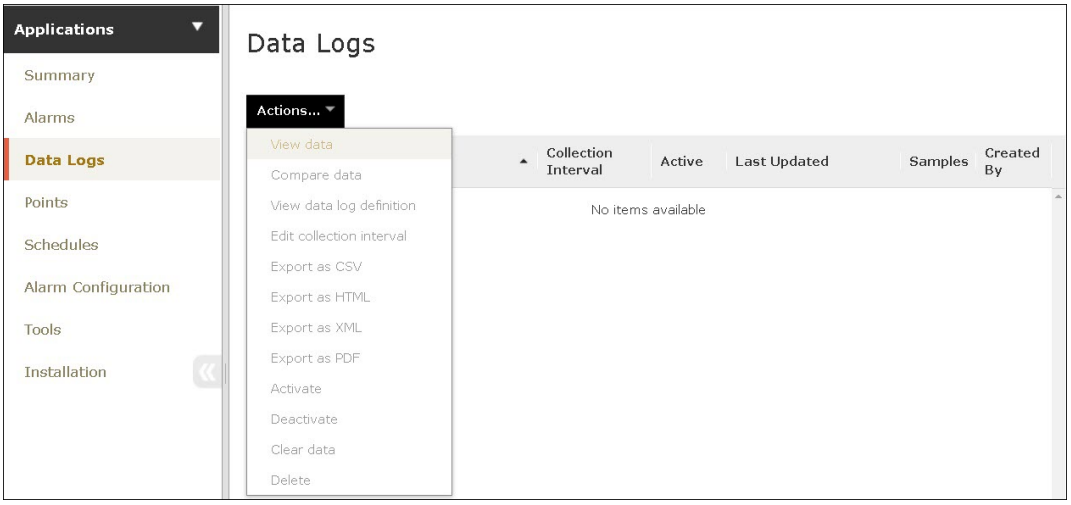
Data Logs

Data Logging, also referred to as trending, records in real-time the value of a data point in the system and the time at which the value was recorded.

By default, Symbio™ 800 automatically generates system-created data logs (for equipment and standard applications) on a 15-minute interval and then stores that data for seven days. Data storage is a continuous window where only the most recent seven days of data are stored. Data older than seven days is discarded to make room for the newest data.

A list of data logs can be accessed by clicking **Data Logs** from the left navigation menu. From this page you can take action on a data log, such as comparing or exporting, by selecting one or more data logs and then clicking the **Actions** button.

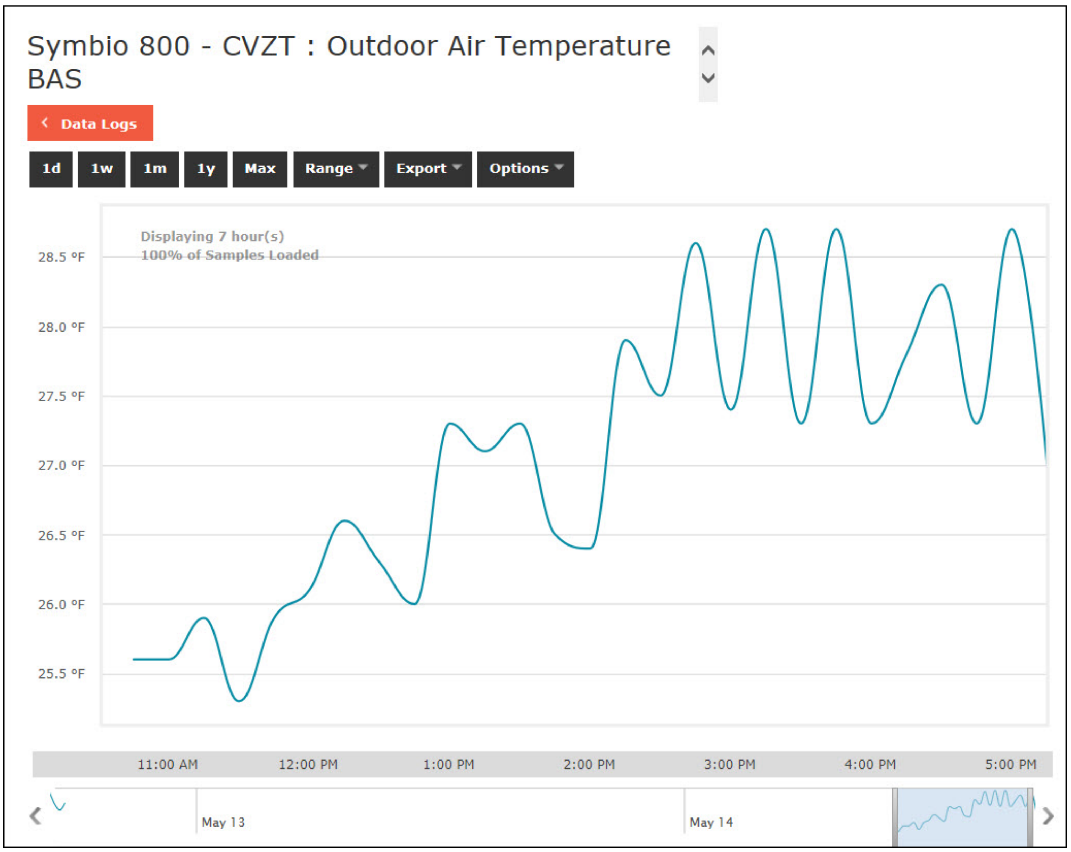
Figure 52. Symbio UI Data Logs



Viewing Data Logs

To view Data logs graphically, select up to six data logs from the Data logs page and then select **View data** from the **Actions** button. The chart capability supports a time comparison mode that allows you to compare trend data at different points in time (day-to-day, month-to-month, year-to-year). A maximum of six data logs are supported (up to two data logs when time comparison mode is enabled). A maximum of two types of dimensionality are supported on the left and right y axis. Samples are plotted on a date/time scale on the x axis. Samples in fault (due to communication loss) are not plotted and will result in an interpolation gap within the plotted line. If all samples are in fault, no line will be displayed.

Figure 53. Symbio UI Data Log



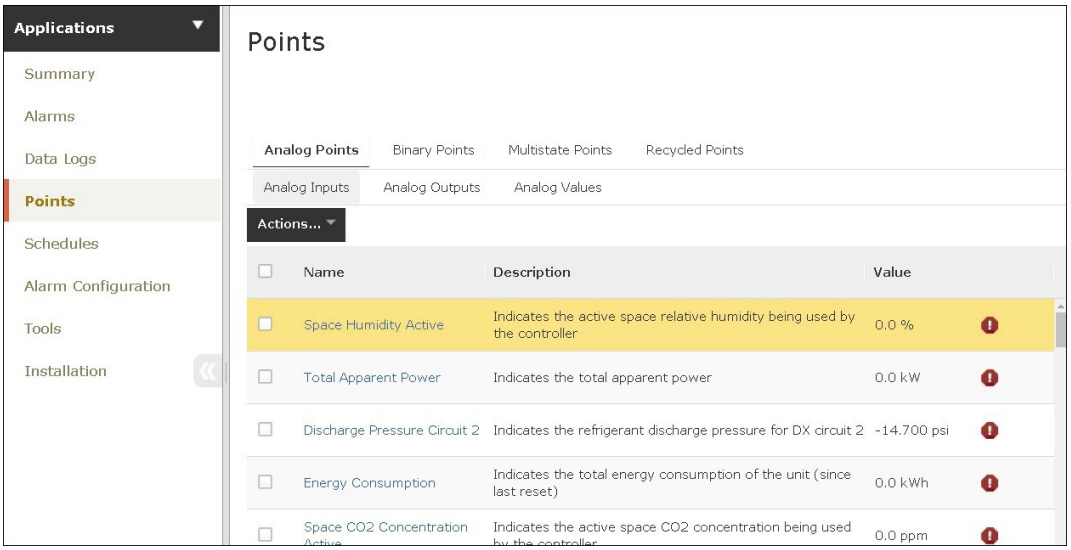
Points

Points are how the controller communicates data and integrates into systems via standard protocols such as BACnet®, Modbus®, and LonTalk. Click left navigation pane **Points** to view all point types supported by the controller for the equipment it is configured. Points can be sorted by Name, Description or Value. Users with permissions can view details, configure, delete and recycle points from the controllers communication interface.

Viewing and editing point information:

1. Click left navigation pane **Points.**
2. Navigate by clicking **Analog Points, Binary Points** or **Multistate Points.**
3. Click on the point name to view and edit point details.

Figure 54. Symbio™ UI Points



Deleting Points

Deleting points is convenient for removing unwanted data from the controller communication interface. The point is not permanently deleted; rather the point is simply moved to **Recycled Points**.

All point overrides, priority array owners, and status are reset to factory settings.

To delete a point:

1. Click **Points** in left navigation pane.
2. Navigate to Analog, Binary, or Multistate points and select the point(s) using check box left of name.
3. Select **Actions** pull-down menu, then **Delete** > **Yes – Delete** to confirm the action. **No – Cancel** to cancel action.

Recycled Points

Points that have been deleted from the controller interface are moved to Recycled Points. In this location the points can be restored to the controller interface and used once again to communicate data via BACnet®, Modbus®, or LonTalk.

To view recycled points and restore points:

Creating a Data Log

1. Click **Points** in left navigation pane.
2. Navigate to Analog, Binary, or Multistate points and select the point(s) using check box left of name.
3. Select **Actions** pull-down menu, then **Log Data** and complete the settings.
4. Select Data Log Type and edit settings for the type.

- **Data collection start on a schedule**, click **Next** to setup schedule information.
- **Data collection starts on a trigger**, click **Next** to setup trigger information**.**
- **Data collection starts now,** set buffering and data collection frequency, click **Finish** when complete.

Points Override

Point overrides are used to allow control of values, such as setpoints used for the operation of the equipment. These can be time based or persist until they are released.

From the Point Override screen you can perform overrides, set them to expire in a user-defined interval, or release a point that is currently overridden. All Point Override screens, (analog, binary, or multistate), are comprised of the same basic components.

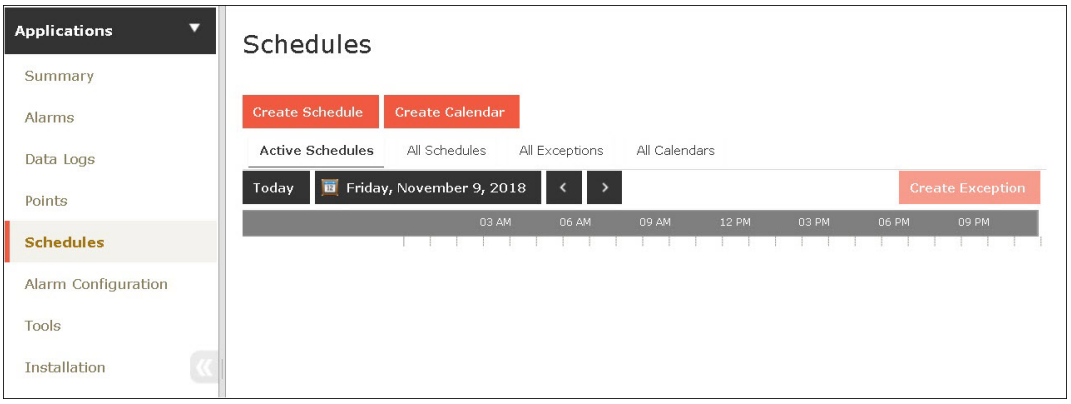
Schedules

Scheduling is based on the BACnet® schedule object implementation. Scheduling is one of a facility's most important energy-saving strategies. It ensures that equipment runs only when needed. Scheduling facilitates the following tasks:

- Creating, editing, and deleting schedules
- Creating, editing, and deleting calendars and exception schedules
- Viewing all effective schedules in a facility

The Schedules page contains four tabs: Active Schedules, All Schedules, All Exceptions, and All Calendars.

Figure 55. Symbio™ UI Schedules



Exceptions and Calendars

Exceptions are temporary modifications to a schedule. Exceptions contain one set of dates or one repeating pattern of dates. If a schedule has an exception applied, a red box outline will appear.

Calendars

For multiple dates and repeating patterns a calendar can be created, which is then applied to the exception.

Calendars are used to group dates, which can then have exceptions applied to these dates on a schedule. For example, a school might create a calendar to group the days that require extended operating hours for after-school meetings.

Release Function

The release function is a predetermined time in which the present schedule or the event releases control over to the next event based on priority. Conceptually, a scheduled release is very similar to a timed override. For example, after the daily schedule ends at 12:00 am (midnight), the schedule releases control over to the next event.

Creating a Schedule

Symbio™ UI leads you through the process of creating a schedule for your Symbio 800. If you need help completing the steps, click the help icon located on each page. You can create a schedule to control the following points and applications based on time and date:

- Binary outputs and values
- Analog outputs and values
- Multistate outputs and values

Points and applications are referred to as members when they are assigned to a schedule. Members can be assigned to only one schedule during the same effective period. Members must be the correct type; that is, a binary point cannot be included in an analog schedule.

To create a schedule:

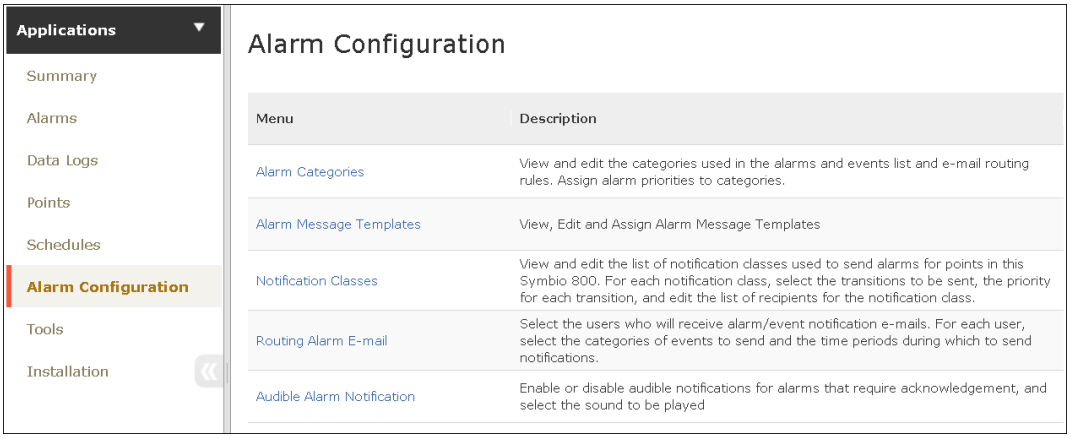
1. Click the **create schedule** button. The **Create Schedule—Schedule Information** page appears.

2. Enter a name for the schedule, and select the schedule type and effective dates.
3. Click **next** to continue. The **Create Schedule—Select Members** page appears.
4. From the **selection tree**, select members (spaces and areas) for the schedule, then click **Add** to move to **selected items**.
5. Click **next** to continue. The **Create Schedule – Schedule Times** page appears.
6. Select a schedule default. Each day is independent of the others and always begins with the **schedule default** value. The schedule default value is applied to each day of the week and is the value that the schedule defaults to at 12:00 a.m. for any given day.
7. Add events to the schedule: click **add event**, which opens the event dialog box.
8. Enter a time for when the event will start and select a value.
9. Select the days of the week to which the event will be applied.
10. Click **Add**. The event appears in the schedule viewer. (To edit or delete an event, click on the event in the schedule viewer.)
11. Click **next** to continue. The **Create Schedule – Summary** page appears.
12. Review the schedule. Click **finish** to save the new scheduled as summarized.

Alarm Configuration

In Symbio™ UI left navigation pane, select **Alarm Configuration**. From the Alarm Configuration screen, you can view and edit alarm categories, alarm message templates, notification classes, routing alarm email, and audible alarm notification.

Figure 56. Symbio™ UI Alarm Configuration screen

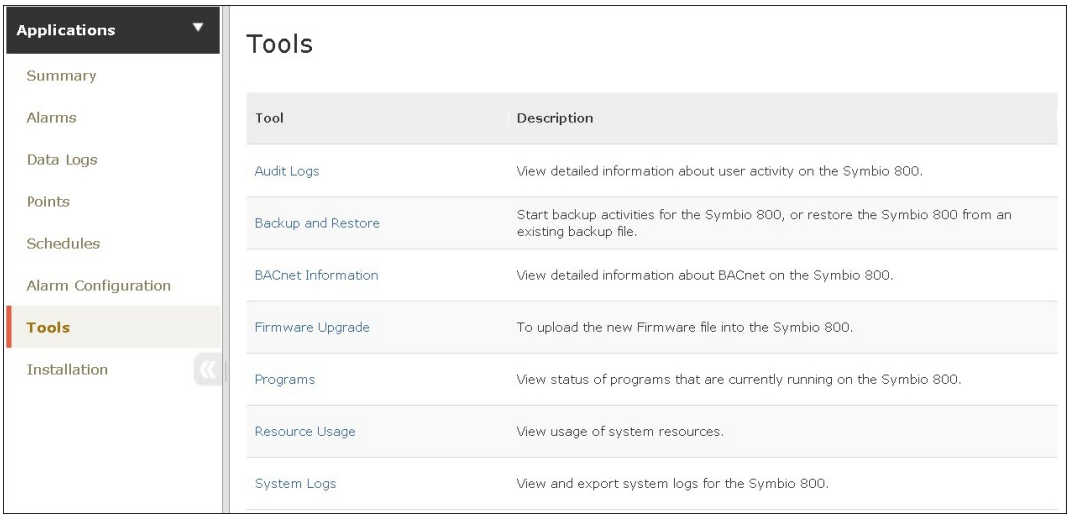


Tools

To effectively manage Symbio 800, a selection of task-based tools are available. The following tools described in this section are accessible from the Tools page:

- Audit Logs
- Backup and Restore
- BACnet® Information
- Firmware Update
- Programs
- Resource Usage
- System Logs

Figure 57. Tools menu



Audit Logs

Audit logs display user activity on the controller. The audit logs can be exported to a file by clicking the Export button. Note, the Audit Logs page requires time to upload and display user activity data.

Backup and Restore

From the left navigation menu click **Tools > Backup and Restore**. Backup and Restore is a process that involves creating an exact duplicate of a Symbio 800, exporting (saving) the duplicate copy, and then restoring that copy at a later time. Use the Restore tool to restore the Symbio 800 configuration file that was produced by the backup tool.

It is important to back up Symbio 800 controllers in the event that a system failure occurs. Backups should also be performed prior to upgrading software, adding devices, or adding new applications.

Follow best practices when implementing a backup and restore procedure plan for your system. Backups do not include license files or device firmware.

Important: *The micro SD card installed at the factory contains an as-built backup. Additionally, the SD card can store approximately 10 more backups on a First-in First-out basis.*

BACnet® Information

Information about the BACnet configuration is shown on this page. This information is typically used by Trane Technical Support.

Firmware Upgrade

Firmware Upgrade allows the user to update the controller from a file located on their PC.

Programs

Tracer® Graphical Programming (TGP2) programs are created and downloaded to Symbio 800 by using the Tracer TU service tool. To view the status of programs after they have been downloaded to Symbio 800, select **Tools > Programs** from the left navigation menu. The **Programs** list page shows the how often programs in Symbio 800 run and the most recent run time.

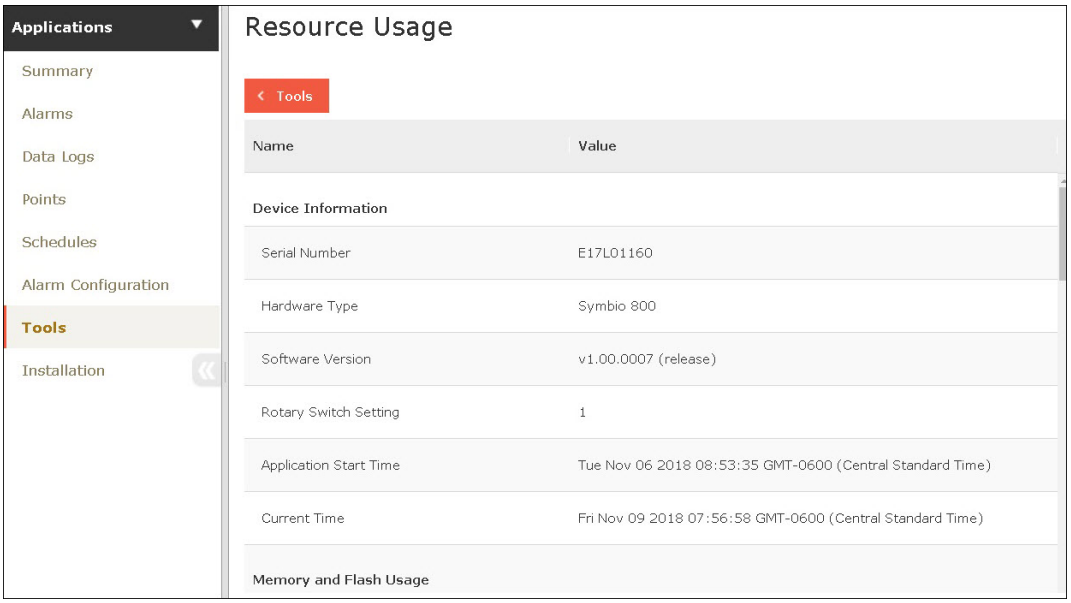
Custom TGP2 routines for installed equipment can now be viewed in real-time. Data points in the routine will reflect present value and gets updated for every 15 seconds, regardless of the program run interval.

Note: *See the Tracer TU Service Tool Getting Started Guide (BAS-SVU046).*

Resource Usage

Resource Usage displays system usage such as applications, memory, micro SD card, communication link, and points. This is primarily used by Trane Technical support.

Figure 58. Symbio UI Resource Usage



System Logs

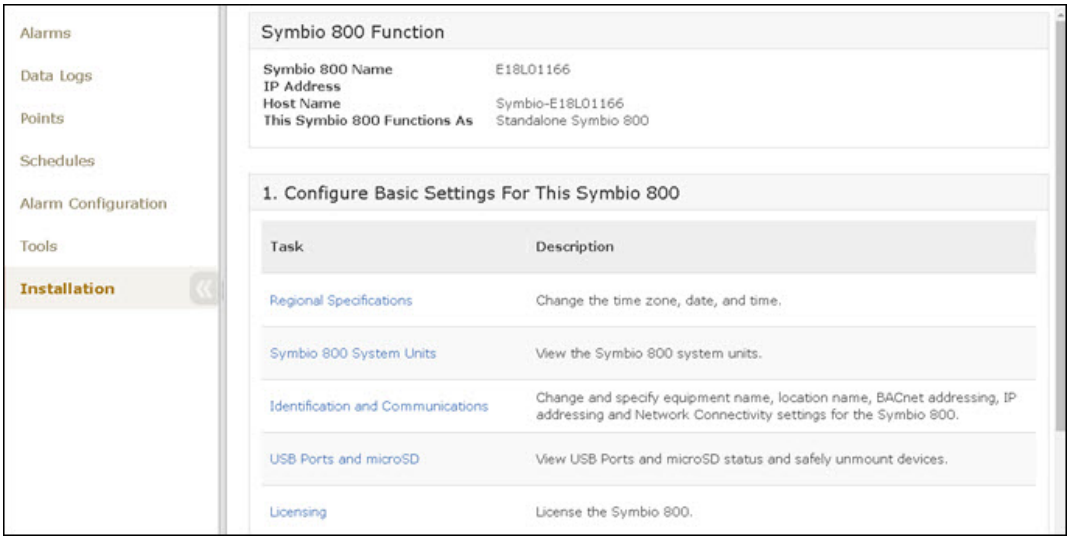
System logs are an advanced informational files that may be requested by Trane Technical Support.

From the left navigation menu click **Tools > System Logs**.

Installation

These settings are for regional specifications, system units, communications, and licensing. These settings were configured during initial configuration at the factory. Some of these settings can be edited.

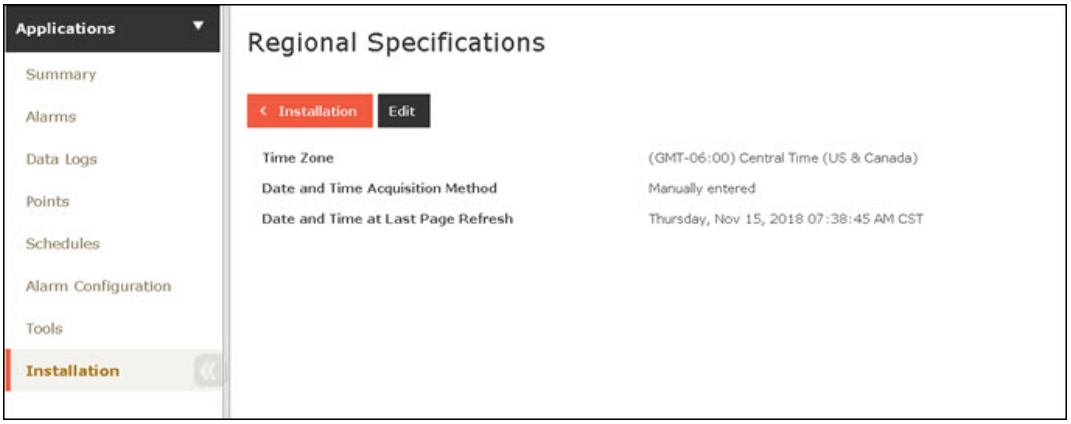
Figure 59. Basic Settings



Regional Specifications

This link contains time zone, and date and time selections that were made during initial configuration.

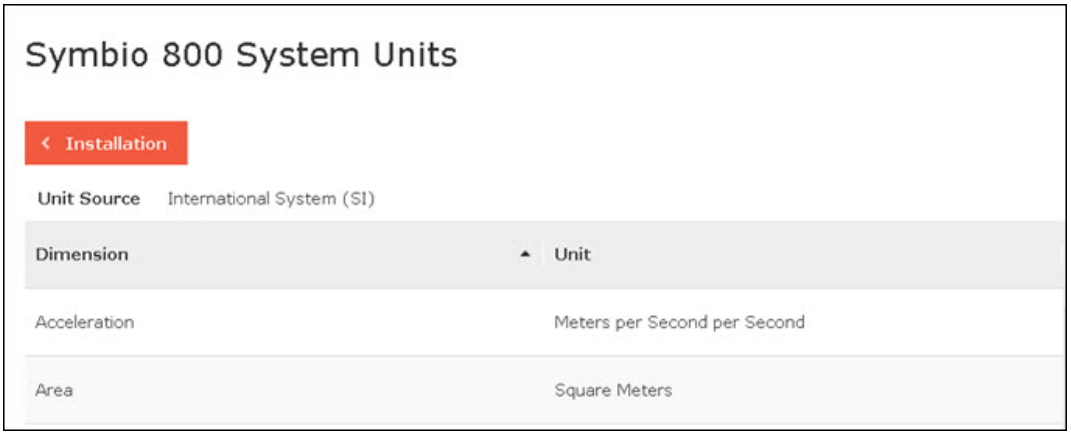
Figure 60. Regional Specifications



Symbio™ 800 System Units

This link enables you to view the system units that were selected for the Symbio 800 during initial installation. They cannot be edited.

Figure 61. Symbio 800 System Units



Identification and Communications

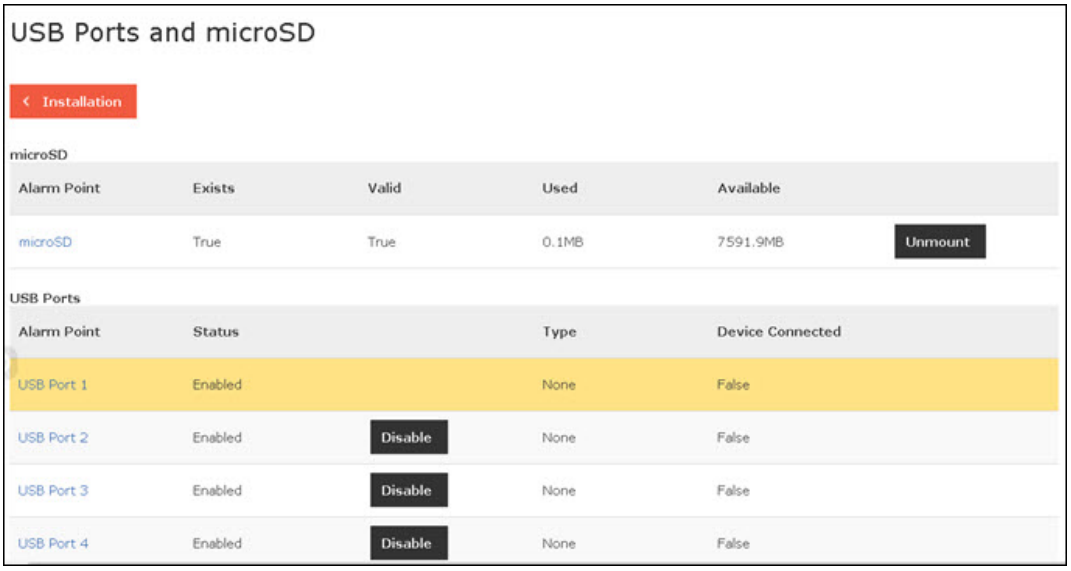
The Identification and Communications page allows you to view and edit configurations for the equipment name, location name, Protocol, IP and network address settings, Air-Fi® configuration, Trane Intelligent Services, and network connectivity. For IT concerns, see *Tracer® Products IT Considerations – Engineering Bulletin* (BAS-PRB017-EN).

Figure 62. Identification and Communications

USB Ports and microSD

On this page, you can view the USB ports and microSD for your Symbio 800. In addition, you can enable and disable individual USB ports and safely unmount mass storage devices from the USB ports and microSD.

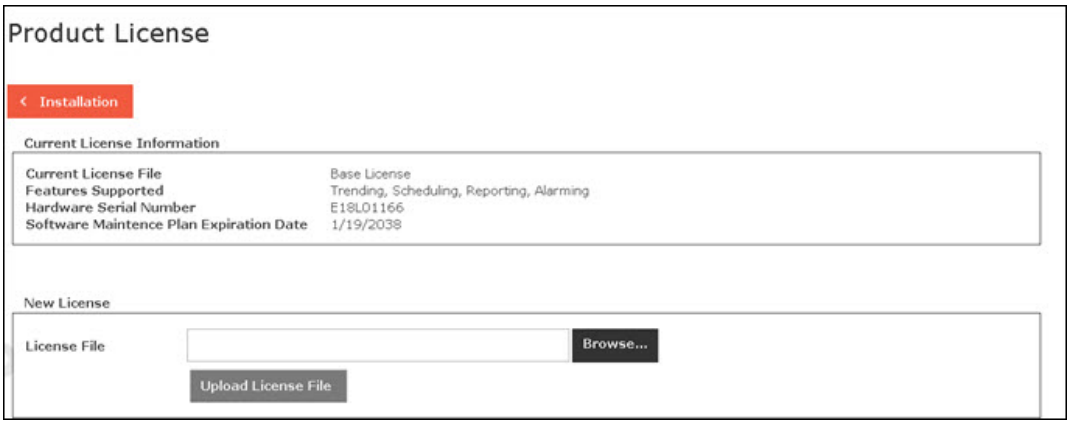
Figure 63. USB Ports and micoSD



Licensing

This link opens the Product License page, which allows you to browse for and install a Symbio 800 license.

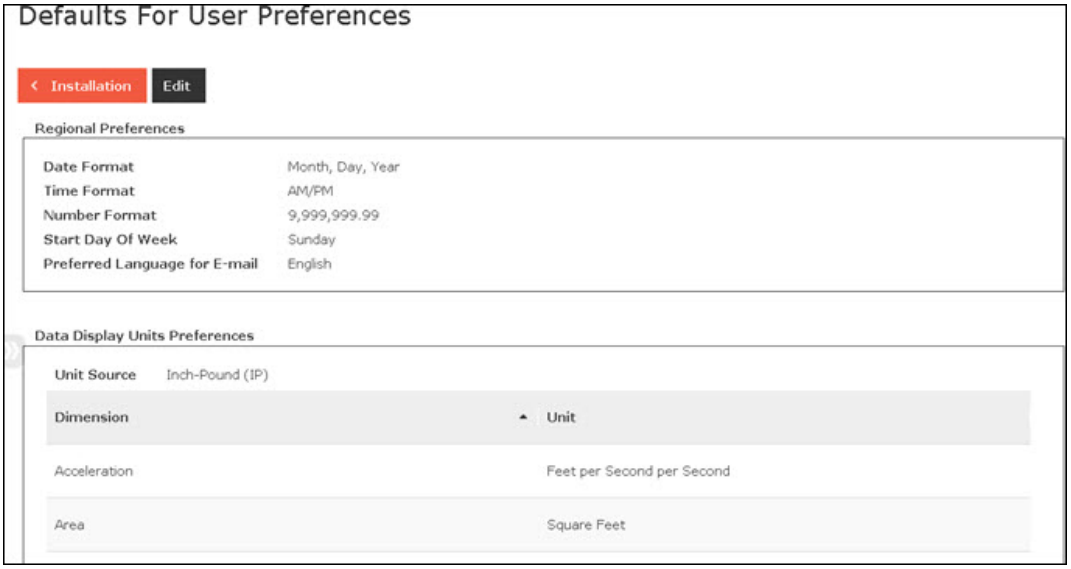
Figure 64. Product License



Defaults for User Preferences

The Defaults page shows the formats in which the system displays data. This page is divided into two sections: Regional Preferences and Data Display Units.

Figure 65. Defaults for User Preferences



Application Defaults

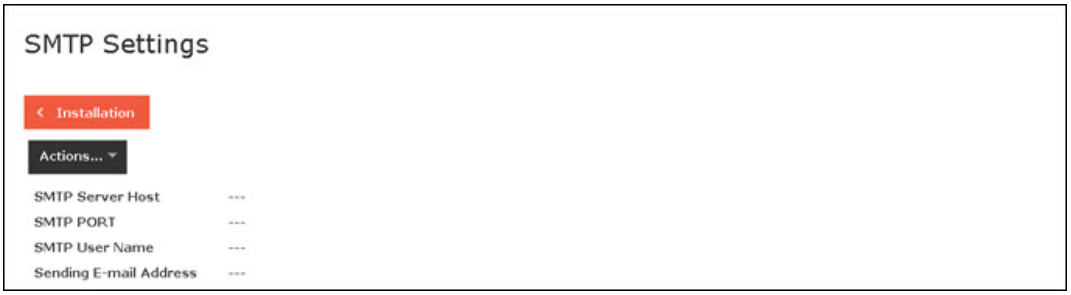
For setting the alarm capacity for Symbio 800 and hardware alarms priority. Valid range is from 100 to 500 events. Default hardware alarms priority is 250: Information.

Figure 66. Application Defaults

SMTP Settings

Use to set up your Simple Mail Transfer Protocol (SMTP) so that events can be routed to users by e-mail.

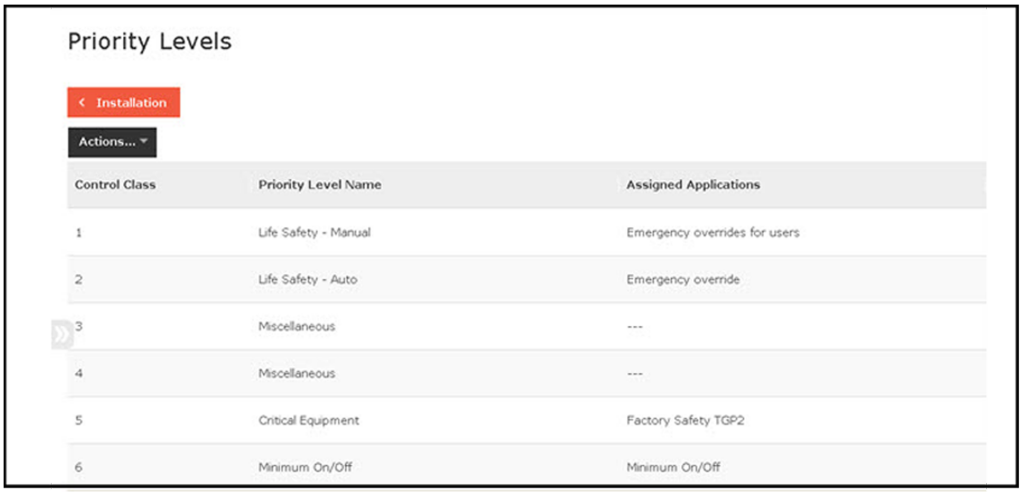
Figure 67. SMTP Settings



Priority Levels

Priority levels establish a strategy used by the system to avoid conflicting control by giving precedence to applications with a higher level of priority. Priority levels are configured from installation. They are numbered 1 through 16, with 1 being the highest and 16 lowest.

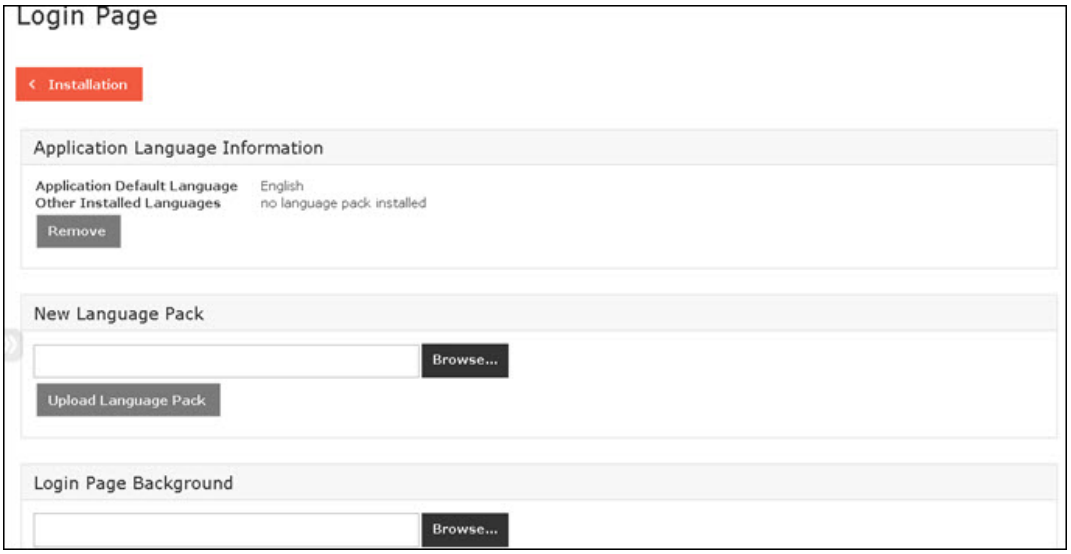
Figure 68. Priority Levels



Login Page

On the Login page you can upload language packs and personalize your login page by adding background images.

Figure 69. Login Page



Troubleshooting

This section describes the possible error messages and other issues that you may encounter while using the TD-7 display.

Column	Description
Diagnostics	The actual text displayed on the Front Panel under Active Alarms and Historic Alarms.
Target	The system or component directly affected by the diagnostic. Either none, partial or total unit functionality is impaired.
Severity	Warnings may or may not affect unit operation. Normal Shutdown will provide an orderly termination of component control. Immediate Shutdown overrides all normal timers and component control and all outputs are turned off. Components may have different responses based on the units mode of operation.
Persistence	Latching diagnostics are not automatically cleared and require manual entry at the user interface and may require troubleshooting. Non-latching diagnostics are typically cleared by normal unit operation.
Condition / Response	This describes the conditions the system or component was experiencing at the time the alarm is generated. The response indicates what the unit, system or component will do during the alarm event.
Reset Level	Local requires manual entry at the Front Panel to clear a diagnostic. Remote can be cleared from other user interfaces or from the Front Panel as well.

Identifying and Diagnosing Issues

Table 30. Diagnostics

Diagnostic Name	Target	Severity	Persistence	Condition / Response	Reset Level
Compressor Failed to Start CprsrXY where X is “1” or “2” where Y is “A”, “B” or “C”	Circuit	Normal Shutdown	Latching	The compressor failed to start when commanded. The controller detected that the input was not proven. This could be the result of a compressor protection module fault.	Local
Compressor Contactor Failure CprsrXY where X is “1” or “2” where Y is “A”, “B” or “C”	Circuit	Immediate Shutdown	Latching	The compressor failed to prove "Off" when commanded to shut down. If a compressor proving input is reporting that the compressor is still running 6 seconds after the Symbio 800 has Commanded it Off; then, this diagnostic shall be active, and the circuit will be shutdown.	Local
Compressor Unexpected Proving CprsrXY where X is “1” or “2” where Y is “A”, “B” or “C”	Circuit	Immediate Shutdown	Non Latching	Generated if the compressor proving contact has been open for 6 continuous seconds and the compressor is commanded off; then, subsequently closes for 6 continuous seconds indicating a compressor has started un-commanded. Circuit X operation will be inhibited.	Local
Condenser Phase Monitor	DX System	Immediate Shutdown	Non Latching	If the three phased wiring is detected out of sequence by the phase monitor, the on-board relay will open causing the binary input to open. The unit will shut down mechanical cooling. The phase monitor will also open its on board relay when there is a loss of a phase or a 20% voltage imbalance between phases.	Remote
Control Box Ventilation Fan Life	Unit	Warning	Non Latching	Control box ventilation fan is at end of life (53,000 hrs / 6 years)	Remote
Discharge Pressure Sensor CktX where X is “1” or “2”	Circuit	Immediate Shutdown	Latching	The discharge pressure sensor for circuit X has failed out of range. Circuit X operation will be inhibited.	Remote
Discharge Temperature Sensor Failure	Unit	Warning	Non Latching	Supply Air VAV System Control option only. The Discharge Temperature Sensor failed (Failure of Local Sensor).	Remote
	Unit	Immediate Shutdown	Latching	EVP Control option only. The Discharge Temperature Sensor failed (Failure of Local Sensor).	Remote
Invalid Active Discharge Temperature	Unit	Normal Shutdown	Latching	Supply Air VAV System Control and EVP Control only. No Valid Input from BAS or Unit. The mechanical cooling and economizer control will be disabled.	Remote
Discharge Cooling Setpoint Remote Input	Unit	Warning	Non Latching	Discharge Cooling Remote Setpoint is out of Range. Only Active once a valid value is established after power up.	Remote

Table 30. Diagnostics (continued)

Diagnostic Name	Target	Severity	Persistence	Condition / Response	Reset Level
Excessive Outdoor Air	Unit	Warning	Non Latching	The unit is in any mode that is not active economizer cooling. The Outdoor Air Damper has been greater than the minimum ventilation command by 10% for 5 continuous minutes. Cooling without Economizer Enabled.	Remote
Emergency Stop	Unit	Immediate Shutdown	Latching	Emergency stop feedback input has Opened. Time to trip from input opening to unit stop shall be 0.1 to 1.0 seconds. Unit operation is inhibited.	Local
Freezestat Active	Unit	Immediate Shutdown	Latching	Freezestat™ Device switch has opened due to water temperature below the device temperature control setpoint. The Freezestat™ Device and Symbio™ 800 require a manual reset to clear the diagnostic.	Local
High Compressor Discharge Temperature CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Non Latching	If the Estimated Compressor Discharge Temperature for the circuit exceeds the Compressor Discharge Temperature Trip the diagnostic triggers and the circuit will immediately shutdown. This diagnostic shall automatically clear 10 minutes after the diagnostic was first generated. Once the diagnostic clears, the circuit will be allowed to restart.	Remote
High Compressor Discharge Temperature Lockout CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	On the 5th occurrence of the Estimated Compressor Discharge Temperature for the circuit exceeds the Compressor Discharge Temp Trip within 210 consecutive minutes, a 'High Compressor Discharge Temperature Lockout CktX' diagnostic is triggered.	Remote
High Compressor Press Differential CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Non Latching	Compressor involute pressure differential exceeded allowable limits. Circuit X is inhibited.	Remote
High Compressor Pressure Differential Lockout CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	Compressor involute pressure differential exceeded allowable limits. Circuit X is inhibited.	Remote
Loss of Charge Detected CktX where X is "1" or "2"	Circuit	Warning	Non Latching	Loss of Charge is detected circuit X, severe enough to warn a technician, but not severe enough to shut down the circuit.	Remote
Loss of Charge Lockout CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	Loss of Charge is detected on circuit X, severe enough to shut down the circuit. Circuit X is inhibited.	Local
Low Suction Pressure CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	The suction pressure on the circuit has dropped below a calculated pressure threshold. Contact Trane Technical Support for further information. Circuit X is inhibited.	Local
Low Evaporator Water Temp (Unit Off)	Unit	Warning	Non Latching	EVP Control Only The Discharge Temperature Local fell below the evaporator water temp cutout setting for 30 °F-seconds while the Unit is in the Stop mode, or in Auto mode with no compressors running. Automatic reset occurs when both temps rise 2°F (1.1°C) above the cutout setting for 30 minutes, or either circuit starts. This diagnostic even while active, does not prevent operation of either circuit.	Remote
Low Evap Water Temp (Unit On)	Unit	Immediate Shutdown	Non Latching	EVP Control Only The Discharge Temperature Local fell below the cutout setpoint for 30° F-Seconds while a compressor was running. Automatic reset occurs when the temperature rises 2 °F above the cutout setting for 2 minutes.	Remote
Low Refrigerant Temperature CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	EVP Control Only The suction saturated refrigerant temperature dropped below the Low Refrigerant Temperature Cutout Setpoint for 16.67°C-seconds (30°F-seconds). See Low Refrigerant Temperature Protection spec for more details.	Local
MP: Invalid Configuration	N/A	N/A	Latching	Symbio 800 has an invalid configuration based on the current software installed.	Remote
MP: Reset Has Occurred	Platform	Warning	Non Latching	The Symbio 800 has successfully recovered from a reset and built its application. A reset may have been due to a power up, installing new software or configuration. This diagnostic is immediately and automatically cleared and thus can only be seen in the Historic Diagnostic List in Tracer TU.	Remote

Table 30. Diagnostics (continued)

Diagnostic Name	Target	Severity	Persistence	Condition / Response	Reset Level
Outdoor Air Damper Not Modulating	Unit	Warning	Non Latching	The unit is in any mode that is not active economizer cooling. The Outdoor Air Damper position has been lower than the minimum ventilation command by 10% for 5 continuous minutes. Cooling without Economizer Enabled.	Remote
Outdoor Air Temp Active is Invalid	DX System	Normal Shutdown	Non Latching	No Valid Input from BAS or Unit.	Remote
Outdoor Air Temperature Sensor	DX System	Warning	Non Latching	Temperature sensor has failed out of range	Remote
Refrigerant Leak Detected Input	Unit	Immediate Shutdown	Non Latching	The refrigerant leak detected input has opened.	Remote
Software High Pressure Detection CktX where X is "1" or "2"	Circuit	Warning	Non Latching	The discharge pressure, as measured from the discharge pressure sensor, has exceeded a percentage of the pressure limit in psia. This warning is generated to give additional information that could be used to determine why all compressors on the circuit shut down due to an *Unexpected Compressor Shutdown* diagnostic or why a Compressor Failed to Start diagnostic is generated. Even if the pressure has dropped below the percent of pressure limit, the historic diagnostics will still indicate that a high pressure was detected.	Local
Suction Pressure Sensor CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	The suction pressure sensor has failed out of range.	Remote
Suction Temperature 1 CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	The suction temperature sensor has failed out of range.	Remote
Superheat High Limit Lockout CktX where X is "1" or "2"	Circuit	Immediate Shutdown	Latching	High superheat is detected on circuit X and severe enough to shut down the circuit. Criteria is defined in Superheat High Limit Lockout functional specification.	Local
Starts/Hours Modified XY where X is “1” or “2” where Y is “A”, “B”, or “C”	Cprsr	Warning	Non Latching	The current value for the cumulative compressor starts and or hours for the given compressor have been modified by a write override from TU.	Remote
Unexpected Compressor Shutdown CprsrXY where X is “1” or “2” where Y is “A”, “B” or “C”	Circuit	Immediate Shutdown	Latching	A non-command shutdown of the compressor occurred. The controller detected that the input was not proven. This could be a result from the following: High pressure cutout or any fault from the compressor protection module.	Local
Unit Not Economizing When It Should	Unit	Warning	Non Latching	The unit is in active economizer cooling. The economizer (Outdoor Air Damper) command has been greater than the economizer position by 10% for 5 continuous minutes. Cooling with Economizer Enabled.	Remote
Unit Economizing When It Should Not	Unit	Warning	Non Latching	The unit is in active economizer cooling. The economizer (Outdoor Air Damber) command has been lower than the economizer position by 10% for 5 continuous minutes. Cooling with Economizer Enabled	Remote
Outdoor Air Damper Input	Unit	Warning	Non Latching	The Outdoor Air Damper Voltage Input has failed out of range for 5 continuous seconds. This voltage is an indication of actual damper position.	Remote

Table 31. Communication lost between Symbio 800 and LLID

Diagnostic Name	Target	Severity	Persis-tence	Condition / Response	Reset Level
Comm Loss: Compressor Proving CprsrXY where X is “1” or “2” where Y is “A”, “B” or “C”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Remote
Comm Loss: Compressor Relay CprsrXY where X is “1” or “2” where Y is “A”, “B” or “C”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Dual Relay Output LLID has occurred for a 30 second period.	Remote
Comm Loss: Compressor Request CprsrXY Where X is either 1 or 2 Where Y is either A, B, or C	Circuit	Immediate Shutdown	Latching	No System Control option only. Continual loss of communication between the Symbio 800 and the High Voltage Binary Input LLID has occurred for a 30 second period.	Remote

Table 31. Communication lost between Symbio 800 and LLID (continued)

Diagnostic Name	Target	Severity	Persis-tence	Condition / Response	Reset Level
Comm Loss: Cond Fan Relay X CktY where X is “1”, “2”, “3” or “4” where Y is “1” or “2”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Quad Relay LLID has occurred for a 30 second period.	Remote
Comm Loss: Condenser Phase Monitor	DX System	Immediate Shutdown	Non Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Remote
Comm Loss: Control Box Ventilation Fan	Unit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 30 seconds period.	Remote
Comm Loss: Discharge Pressure CktX where X is “1” or “2”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 30 second period.	Remote
Comm Loss: Discharge Temperature Sensor	Unit	Warning	Non Latching	Supply Air VAV System Control option only. Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period. Rapid Restart special action: Rapid Restart will terminate.	Remote
	Unit	Immediate Shutdown	Latching	EVP Control option only. Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Remote
Comm Loss: Emergency Stop	Unit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Local
Comm Loss: Equipment Stop	Unit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period. Active Manual Overrides will be terminated.	Remote
Comm Loss: Freezestat Input	Unit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the High Voltage Binary Input LLID has occurred for a 30 second period.	Local
Comm Loss: Frostat Input CktX Where X is “1” or “2”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Local
Comm Loss: Hot Gas Bypass Relay CktX where X is “1” or “2”	Circuit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the Quad Relay Output LLID has occurred for a 30 second period.	Remote
Comm Loss: Liquid Line Relay CktX Where X is “1” or “2”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Local
Comm Loss: Low Ambeint Damper Ckt X Where X is either "1" or "2"	Circuit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 30 second period.	Remote
Comm Loss: Outdoor Air Temperature	DX System	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 30 second period.	Remote
Outdoor Air Temp Active is Invalid	DX System	Normal Shutdown	Non Latching	No Valid Input from BAS or Unit.	Remote
Comm Loss: Power Meter	Unit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 100 second period.	Remote
Comm Loss: Refrigerant Leak Detected Input	Unit	Immediate Shutdown	Non Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Remote
Comm Loss: Discharge Cooling Setpoint Remote	Unit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the Hex I/O LLID has occurred for a 30 second period.	Remote
Comm Loss: Suction Pressure CktX where X is “1” or “2”	Circuit	Immediate Shutdown	Non Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 30 second period.	Remote
Comm Loss: Suction Temperature CktX Where X is “1” or “2”	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the LLID has occurred for a 30 second period.	Remote
Comm Loss: Start Interlock Input	Unit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the High Voltage Binary Input LLID has occurred for a 30 second period.	Remote
Comm Loss: Stage 2 Enable Cprsr 1B	Circuit	Immediate Shutdown	Latching	Continual loss of communication between the Symbio 800 and the Dual Relay Output LLID has occurred for a 30 second period.	Remote
Comm Loss: Stage 2 Request Cprsr 1B	Circuit	Immediate Shutdown	Latching	No System Control option only. Continual loss of communication between the Symbio 800 and the High Voltage Binary Input LLID has occurred for a 30 second period.	

Table 31. Communication lost between Symbio 800 and LLID (continued)

Diagnostic Name	Target	Severity	Persis-tence	Condition / Response	Reset Level
Comm Loss: Outdoor Air Damper	Unit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the Outdoor Air Damper has occurred for a 30 second period. Economizer function will Disable.	Remote
Comm Loss: Outdoor Air Damper Input	Unit	Warning	Non Latching	Continual loss of communication between the Symbio 800 and the Outdoor Air Damper voltage input has occurred for a 30 second period. Economizer function will Disable.	Remote

Time Loss from Power Outage

If the time is lost following a power outage, the Symbio™ 800 battery likely needs to be replaced. The Symbio 800 may retain the time even with a dead battery for power cycles less than several seconds.

Note: *The Symbio 800 coin cell tray should never be taken out unless the Symbio 800 is powered on or the Symbio 800 needs to be powered on shortly after replacing the battery. Failure to do this may shorten the battery life.*

TD-7 Automatic Rediscover and Automatic Hardware Reboot

When performing one or more of the following actions listed below, a message will appear on the screen that the TD-7 is updating data

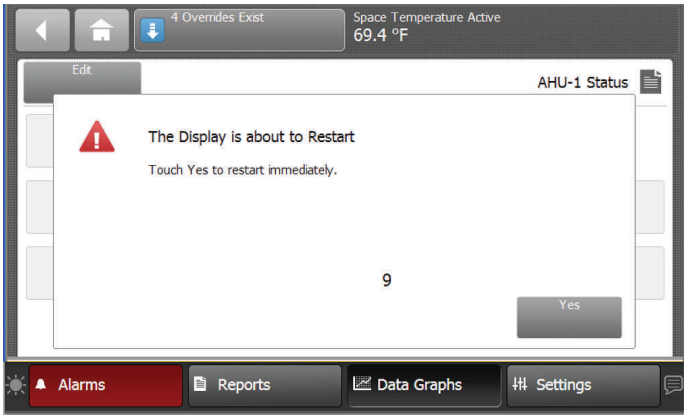
Automatic rediscovery (Updating data):

- Add a new point
- Remove a point
- Rename a point
- Modify Display Preferences or Language (from TU)
- Modify Custom Report or Header Data Point (from TU)

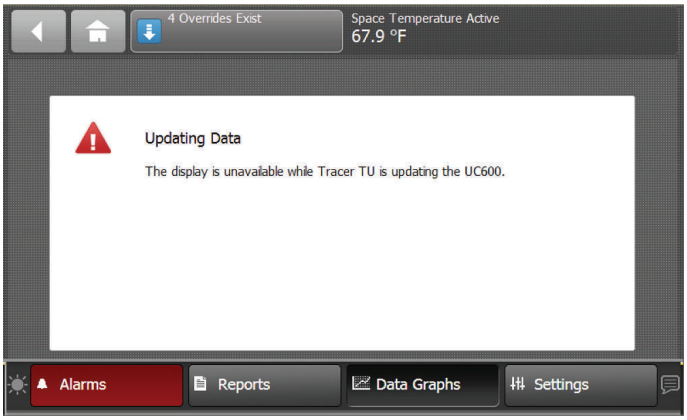
Automatic restart of TD-7:

This will occur when modifying security settings: when a first and last user is added and deleted (enables, disables security), or when the restarts.

Figure 70. Automatic rediscover and automatic restart messages



Automatic rediscover:
This message appears when data is being updated.



Automatic restart:
This message appears whenever a user is added or deleted.

Notes

Trane - by Trane Technologies (NYSE: TT), a global innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

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