



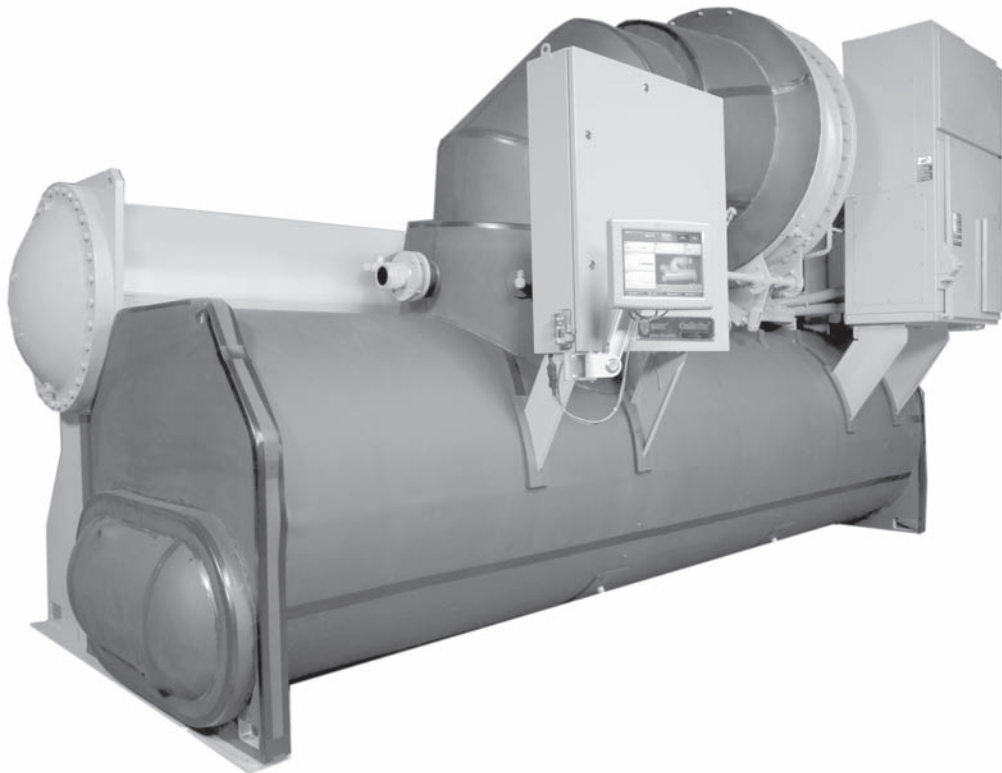
**TRANE®**

## Programming Guide

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# Tracer™ TU Service Tool

*for Water-Cooled CenTraVac™ Chillers with  
Tracer AdaptiView™ Control*



Models: CVHE, CVHF, CVHG, CDHF, and CDHG

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 **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.

**CAUTION:** Indicates a situation that could result in equipment or property-damage only accidents.



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# Preparing for Chiller Configuration

The purpose of this information is to guide an experienced CenTraVac service technician through configuration and setpoint selections for CenTraVac chillers and CenTraVac Duplex chillers that use the Tracer AdaptiView control (UC800). These tasks are performed using the Tracer TU service tool.

## Obtaining and Installing the Tracer TU Service Tool

The Tracer TU service tool provides the necessary Trane CenTraVac (CTV) chiller setup, configuration, and monitoring functions for the Tracer AdaptiView control, which includes the UC800.

You can access the product installation file from the Trane Technicians Community link on the Climate Solutions Home Page.

1. Sign on to the Climate Solutions Home page  
<https://home.ingerrand.com/Our%20Businesses/ClimateSolutions/Pages/Index.aspx>.
2. Click the **Trane Technicians Community** link on the left under the Shortcuts heading.  
The Trane Service Technicians page appears.
3. Click the **Tracer TU Vx.x.x** link under Tools and Downloads (where Vx.x.x indicates a specific build number).  
The Software Service Tools page appears.
4. Read all instructions on the Tracer TU Service Tool page.
5. Click the download link and follow all instructions on subsequent pages.

Before installing and using Tracer TU for the first time, refer to the *Tracer TU Service Tool Getting Started Guide (TTU-SVN01x-EN)*, which you can download from the link under the Literature section of the same Software Service Tools page. It introduces Tracer TU, lists hardware and software requirements, and explains installation and connection procedures.

As you work, also refer to the *Tracer TU Help*, which is included with the Tracer TU service tool application. It provides conceptual information, procedures, and screen descriptions. You can access the *Tracer TU Help* from the application Help menu or directly from the application screens.

## Summary of Major Tasks

Settings are factory set from the end of line (EOL) tester. Some field startup settings are required for units without a unit mounted starter and units with the outdoor temperature sensor. In all cases, Trane recommends that all configuration questions and unit setpoints be checked, verified, and documented before startup.

This document covers the major tasks you need to perform in order:

1. Specify the unit type and configuration variables (Chiller Configuration screen).
2. Verify or set all setpoints for the application and job site conditions (Service Setpoints, Field Startup, and Purge screens under the Tracer TU Equipment (Chiller Settings) tab).
3. Enter manual overrides, such as Evaporator Pump Control, Condenser Pump Control, Oil Pump, and Compressor Control Signal using the Manual Override dialog box.
4. Monitor settings and datapoints. (Unit Summary and Unit Status screens).

### CenTraVac Reference Documentation

Refer to the CenTraVac library documents intended for your chiller model.

- Use the chiller installation operation, and maintenance manuals to assure proper installation and for reference purposes. Use the forms in the back of the manual to assure readiness for startup. Also, use the startup log sheet. (Be sure you have the appropriate log sheets.)

**Note:** Contact La Crosse CenTraVac Technical Support for the latest Startup Log Sheet.

- Refer to the AFD Operation Maintenance manual as needed, and use the included AFD startup check sheet and Log.
- Refer to the *Tracer AdaptiView Display for CenTraVac Chillers, Operations Guide* (CTV-SVU01x-EN).

### Additional Equipment You Will Need



Have the following tools on hand before you begin work:

- USB cable (Type A/B) to connect your laptop to the UC800
- South pole screwdriver (TOL01343)

### Powering Up the Controls for Checkout

#### **⚠WARNING** **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

#### **Non-AFD Starters**

Perform the following steps for non-AFD starters:

1. With Main STARTER POWER OFF, remove Control power transformer ground from 120 load X2 terminal.

*Note: Aux power "Ground fault" may occur if neutral and ground remain connected.*

2. Remove the 2F2 40 amp control power fuse.
3. In the UCP, connect aux power to 1X1-5(L1) to 1X1-17(L2), and Ground.
4. Turn 120 vac supply ON.

The Tracer AdaptiView display should boot up and display the Home screen within 90 seconds.

#### **AFD Starter**

Pull the AFD Water pump branch fuse. The AFD bus requires power for the controls to interface during binding. Therefore, with the starter door closed, proceed to power up the starter line voltage. If the starter Communications LLID requires binding, after confirming that the starter powers up with no problem, proceed to power down and reapply power with the starter door open to access the AFD LLID for binding.

#### **Prior to Startup**

POWER UP the controls and have the oil heater online for 24 hours prior to startup, or until oil is up to temperature.

# Starting Tracer TU and Connecting to the Controller

After you have connected your laptop to the Tracer AdaptiView control using the chiller panel USB port or the UC800 USB port, you can start Tracer TU and establish the software connection to the UC800.



UC800 USB port

**Notes:**

- Observe existing USB standards for cable length. (For more information go to <http://www.USB.org> and click the “Frequently Asked Questions” link.)
- If you encounter an error condition or message when connecting to the UC800, see “Appendix A: Tracer TU Connection Error Conditions,” p. 87”

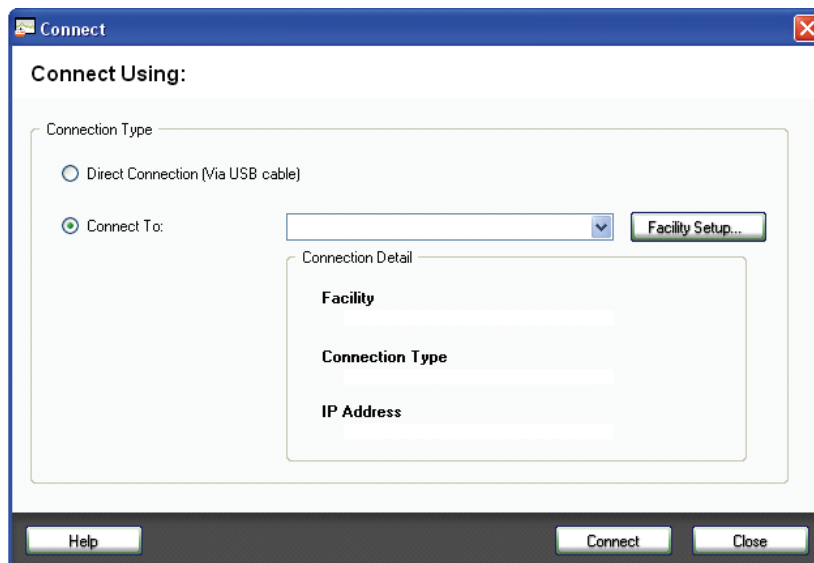
Upon successfully connecting to the UC800, the Unit Summary screen appears (generated for the particular chiller model you are servicing). Refer to the following page to see a figure showing the Unit Summary screen.

You can open Tracer TU and connect to the chiller controller as follows:

1. Click the desktop icon or the **Tracer TU** program item under the **Tracer TU** group on the **Start** menu.

The Tracer TU window opens and the Connect dialog box appears.

**Figure 1. Connect Dialog Box**



2. Select the **Direct Connection (via USB cable)** radio button, if it is not already selected.
3. Click **Connect**.

The Unit Summary screen appears.

## Starting Tracer TU and Connecting to the Controller

The following figure shows the CVHE, CVHF, and CVHG version of the Unit Summary screen. (The CDHF and CDHG version is slightly different as it contains some dual entries.)

**Figure 2. CVHE, CVHF, and CVHG Version of the Unit Summary Tab Screen**

The Status Utility has a set of corresponding horizontal tabs.

The gray alert boxes at the top right display the number of active alarms, the chiller status, and the existence of manual overrides.

The Tracer TU screens are subdivided using group boxes rather than tabs.

Connected to: UC800  
Model: Tracer UC800 © CenTraVac © Build

Current Mode: Stopped  
Immediate Shutdown: 61 Active Alarms  
Manual Override Active: False

**1. Evaporator Status**  
44.1 °F Active Chilled Water Setpoint  
..... Entering Water Temperature  
..... Leaving Water Temperature  
..... Saturated Refrigerant Temperature  
..... Refrigerant Pressure  
..... Approach Temperature  
Off Water Pump [Control]  
..... Water Flow Switch Status

**2. Condenser Status**  
..... Entering Water Temperature  
..... Leaving Water Temperature  
..... Saturated Refrigerant Temperature  
..... Refrigerant Pressure  
..... Approach Temperature  
Off Water Pump [Control]  
..... Water Flow Switch Status

**3. Compressor Status**  
Stopped Compressor Status  
0.0% Chiller Control Signal  
Off Oil Pump Command  
..... Oil Differential Pressure

**4. Setpoints Status**  
44 °F Front Panel Chilled Water Setpoint  
BAS/Ext/FP Setpoint Source  
100 %RLA Front Panel Current Limit Setpoint

**5. Motor Status**  
100.0% Active Current Limit Setpoint  
..... Average Line Current  
..... Starter Current L1  
..... Starter Current L1  
..... Starter Current L2  
..... Starter Current L2  
..... Starter Current L3  
..... Starter Current L3

**6. Purge Status**  
Adaptive Purge Top Level Mode  
Auto Purge Regen Cycle  
00:00 Min:Sec Daily Pumpout:24 Hours  
00:00 Min:Sec Average Daily Pumpout:7 Days  
10 Min Daily Pumpout Limit  
00:00 Min:Sec Time Until Next Purge Run

Save Cancel

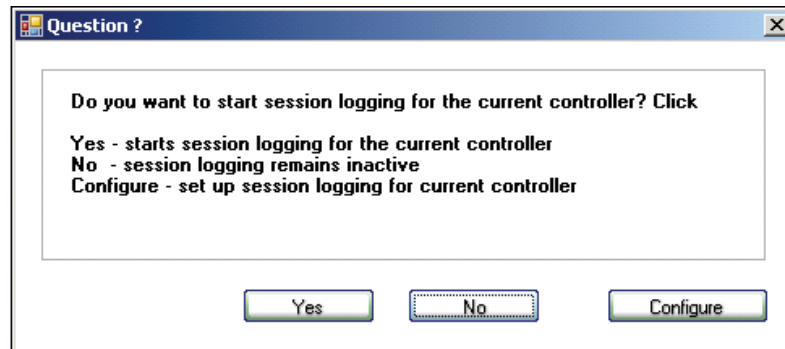
The Unit Summary screen provides a common presentation format for all chiller models. (See [“The Status Utility - Unit Summary Tab Screen,”](#) p. 73 for more information.)

A Question? dialog also appears immediately asking if you want to create a session log configuration specifying the datapoints you want to capture to your hard drive. (See the following page.)

## Starting Tracer TU and Connecting to the Controller

You can respond in one of three ways as shown in [Figure 3](#).

**Figure 3. The Question? Dialog Box**



- Clicking **Yes** starts session logging for the controller to which you are currently connected using the previously saved configuration or a default configuration if no saved configuration currently exists. If you are running the chiller, it is advisable to click Yes in case you encounter an operational condition that you want to review at a later time. Also, click Yes if you are troubleshooting and plan to set up a graph.
- Clicking **No** prevents session logging from starting.
- Clicking **Configure** takes you to the Session Log tab screen of the Data Graphing Utility where you can create a custom session log by specifying which datapoints you want to include in the session log configuration.

*Note: When session logging starts, Tracer TU creates a log file to store the operating data. Occasionally, you may need to perform file maintenance tasks on your laptop hard drive to eliminate old files. A message appears when your hard drive approaches its storage capacity.*

You can now navigate to the Chiller Settings screens as described in the subsection that follows.

# Navigating to the Chiller Settings Screens

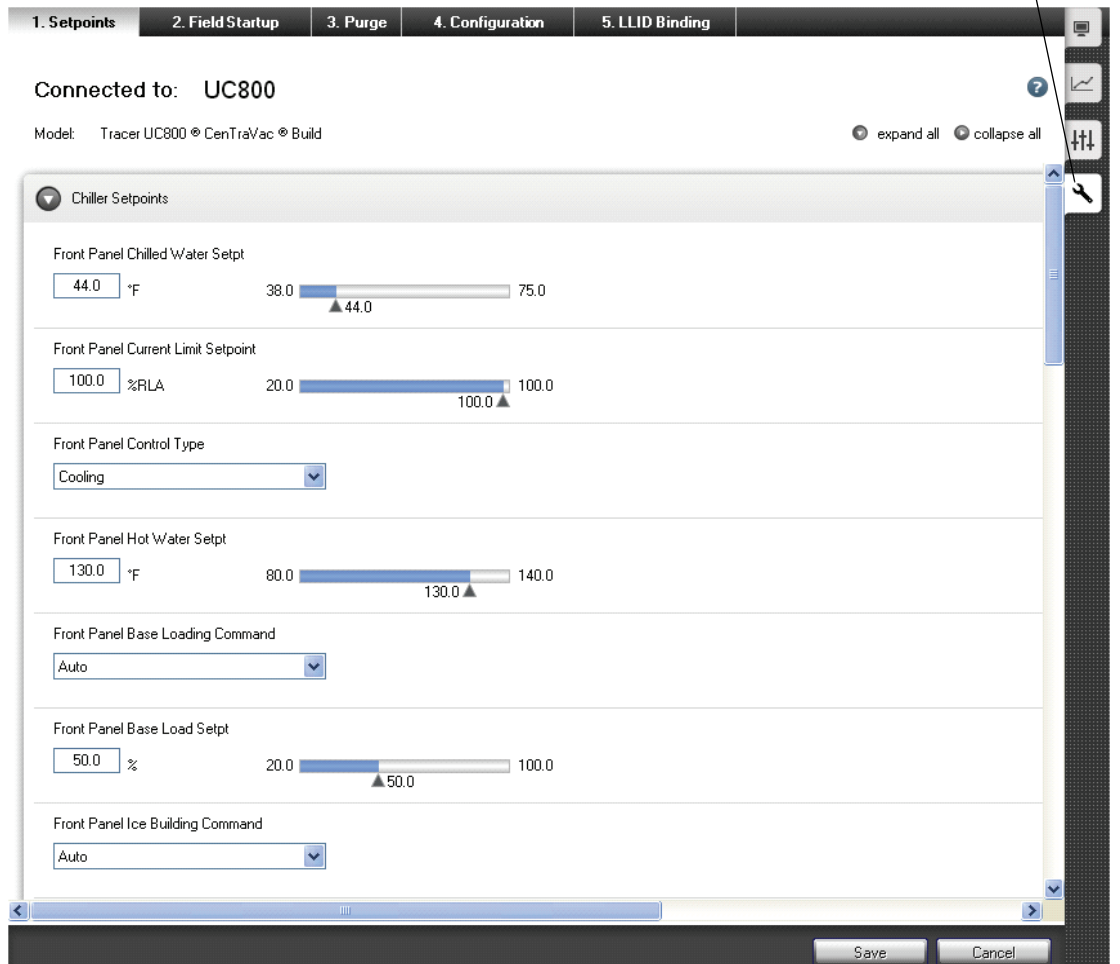


To navigate to the Chiller Settings screens in the Equipment Utility, perform the following steps:

1. Click the **Equipment Utility** tab (icon shown at left), which is located on the right side of the Tracer TU window.

Initially, you will see the **Setpoints** screen shown in the following figure. (The Setpoints screen is the first of five Chiller Settings screens, which also include **Field Startup**, **Purge**, **Configuration**, and **LLID Binding** screens.)

**Figure 4. Equipment Utility Setpoints Screen**

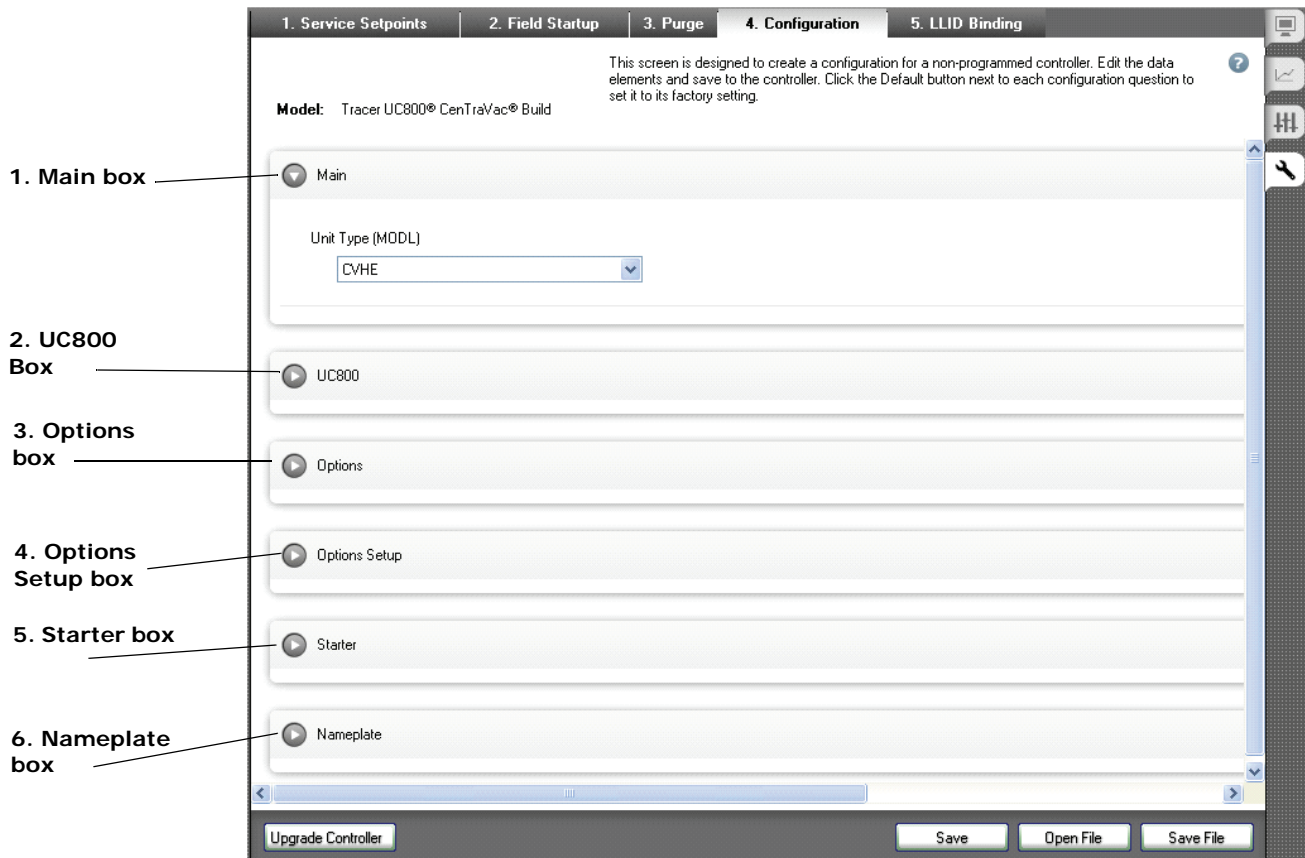


2. Click the **Configuration** tab along the top of the screen. During startup, first verify the configuration. The Configuration tab screen contains the groups of configuration variables or settings you need to work with. The selections you make on the Configuration tab screen cause setpoints to appear or not appear on other Tracer TU screens according to how you specify items as installed or not installed. Therefore, be sure the required items are properly configured.

# The Equipment Utility Configuration Tab Screen

Use the Configuration tab screen on the Equipment Utility tab to verify the unit type, chiller options, starter settings, and Nameplate settings. The CVHE, CVHF, and CVHG version of the Configuration tab screen is shown here.

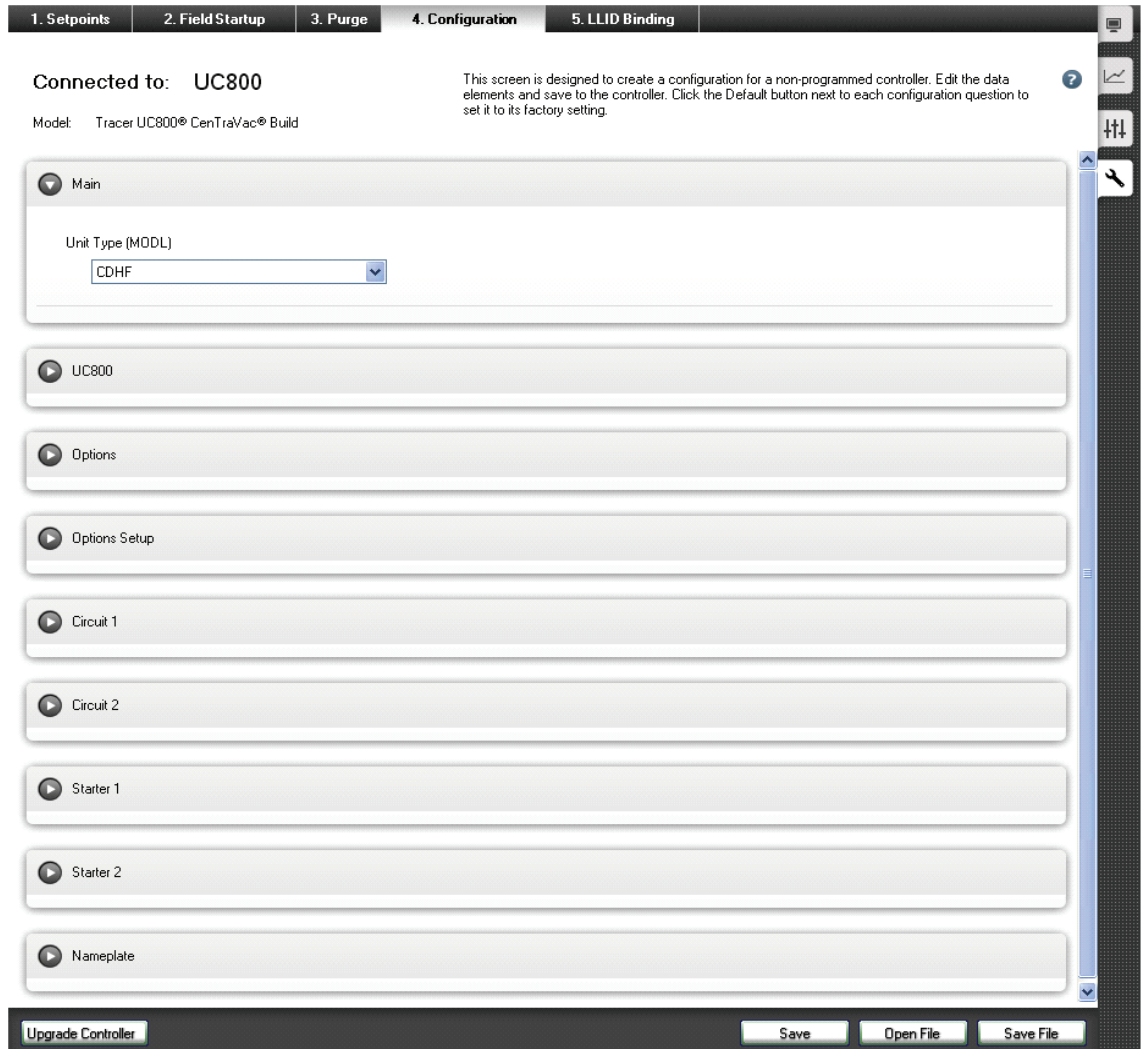
**Figure 5. CVHE, CVHF, and CVHG Version of the Configuration Tab Screen**



## The Equipment Utility Configuration Tab Screen

Figure 6 shows the CDHF and CDHG (Duplex chiller) version of the Equipment Utility Configuration tab screen, which includes the following expanding boxes: Main, UC800, Options, Options Setup, Circuit 1, Circuit 2, Starter 1, Starter 2, and Nameplate.

**Figure 6. CDHF and CDHG (Duplex Chiller) Version of the Configuration Tab Screen**



The reference section that follows ([“Configuration Tab Screen Setpoint Reference Tables for All Models,” p. 15](#)) lists and describes the setpoints for each of the expanding boxes on the Configuration tab screen for both chiller (CVHE, CVHF, and CVHG) and Duplex chiller (CDHF and CDHG) units. (See [Table 1, p. 15](#) through [Table 5, p. 26](#) in this subsection.)

After verifying or modifying settings on the Configuration tab screen, you will verify settings on additional Equipment Utility tab screens including Setpoints, Field Startup, and Purge and on the Status Utility Unit Status screen.

### Configuration Tab Screen Setpoint Reference Tables for All Models

The following tables list and describe the Configuration tab screen (machine configuration) setpoints included in the expanding boxes, which are common to both chiller (CVHE, CVHF, and CVHG) and Duplex chiller (CDHF and CDHG) models. The table columns contain the following information:

- Column 1 on the left identifies the individual Tracer TU screen item.
- Column 2 provides the Tracer TU selection choices and identifies the default value.
- Column 3 instructs the user how to determine the correct Tracer TU selection. (See Column 4 for Help information).

If the item is (type) then use the value as found on the unit control panels printed nameplate, whereas if the table provides a defined number or value then simply enter that number as provided. (For example, given Refrigerant type REFG R123, always select R123 for La Crosse Shipped CVHE,F)

- Column 4 provides Help information about the menu selection item, and indicates which modules are required when the item is installed.

#### 1. MAIN Box: Unit Type Selection

Use the Main box on the Configuration tab screen to verify or enter the chiller model you are configuring. Open the Main expanding box and check the model selection item shown in [Table 1](#). (See the Knowledge Center for related cases.)

1. Click the arrow icon to expand the Main box.
2. Select the unit type (MODL) from the Unit Type drop-down list.  
(Refer to the unit's physical nameplate to confirm the unit type.)

*Notes:*

- After a unit type is selected, Tracer TU adjusts the rest of the configuration entries based on your selection.
- As you work, document all items on the startup test log form 1-23.45, an equivalent form, or save a Chiller Service Report, which contains all configuration settings.

**Table 1. Equipment Utility - Configuration Tab Screen: Main Box**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate Data	Help information
1	2	3	4
<b>1. Unit Type</b>	<p><b>For single compressor units:</b></p> <p><b>Default: CVHE</b> CVHF CVHG CVGF</p> <p>For a Duplex chiller: <b>Default: CDHF</b> CDHG</p>	MODL (type)	Select unit type from model number.

## The Equipment Utility Configuration Tab Screen

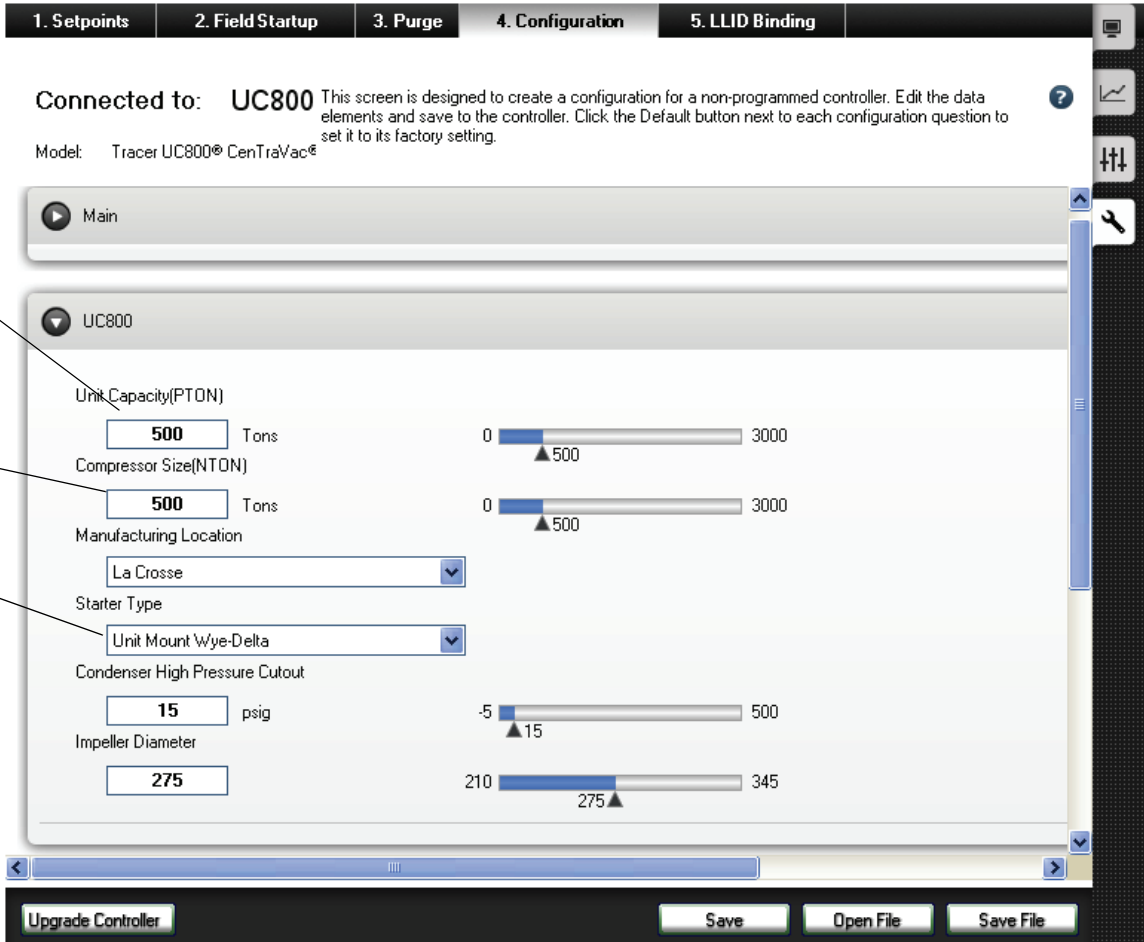
### 2. UC800 Box: Chiller Controller (UC800) Settings

Next, verify or change the chiller controller settings (see [Table 2, p. 17](#)) in the UC800 expanding box on the Configuration tab screen (see [Figure 7](#)).

The controller settings were configured by the end of line [EOL] Factory Tester for sales order-specific machine configuration based on MDP FCAT (VCAT) and FCODs. (See the Knowledge Center for related cases.)

*Note: The selections you make on the UC800 box alter the list of setpoints on the Setpoints screen.*

**Figure 7. The CVHE, CVHF, and CVHG Version of the UC800 Box on the Equipment Utility Configuration Tab Screen**



The screenshot shows the '4. Configuration' tab of the equipment utility configuration screen. The interface is titled 'Connected to: UC800' and includes a model identifier 'Tracer UC800® CenTraVac®'. The 'UC800' configuration box contains the following settings:

- Unit Capacity(PTON):** 500 Tons (range 0 to 3000)
- Compressor Size(NTON):** 500 Tons (range 0 to 3000)
- Manufacturing Location:** La Crosse (dropdown menu)
- Starter Type:** Unit Mount Wye-Delta (dropdown menu)
- Condenser High Pressure Cutout:** 15 psig (range -5 to 500)
- Impeller Diameter:** 275 (range 210 to 345)

Annotations on the left side of the image provide additional context:

- An arrow points to the 'Unit Capacity(PTON)' field with the text: "Set to Chiller Sales Order selection TONS (PTON on Nameplate)."
- An arrow points to the 'Compressor Size(NTON)' field with the text: "Set to COMPRESSOR SIZE (NTON on Nameplate)"
- An arrow points to the 'Starter Type' dropdown menu with the text: "Starter Type selection within this box determines the content of the Starter expanding box. Selection of AFD will change the Starter Tab items."

At the bottom of the screen, there are buttons for 'Upgrade Controller', 'Save', 'Open File', and 'Save File'.

*Note: Screen items may vary slightly depending on the chiller model.*

## The Equipment Utility Configuration Tab Screen

**Table 2. Equipment Utility - Configuration Tab Screen: UC800 Box**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
1	2	3	4
<b>1. Unit Capacity</b>	<b>Default: 500 tons</b> 0 - 3000 tons (CDHF, CDHG: <b>Default: 1250</b> 0 – 4000 tons)	See selection for performance Tons; PTON (value)	Programs the Chiller software to the chiller Sales Order Performance tons.
<b>2. Compressor Size</b>	<b>Default: 500 tons</b> (0 - 3000 tons) CDHF, CDHG: <b>Default: 1250</b> 0 - 4000)	NTON	Selects the proper Compressor Map for Compressor Control signal algorithm. Set to the NTON of the compressor.
<b>3. Manufacturing Location</b>	LaCrosse, Taicang		
<b>4. Starter Type</b> Note: This setting appears here if you are connected to a CVHE, CVHF, or CVHG unit. If you are connected to a CDHF or CDHG it appears in the Circuit 1-2 boxes. (See "1. CIRCUIT 1 and CIRCUIT 2 Boxes," p. 35.)	<b>Default: Unit Mount Wye-Delta</b> (See list in Help Information column.)	USTR, RSTR, CSTR, UXL, RXL, CXL, CVAC, RPIR, CPIR, RATR,CATR,USID,FSID, WSID, CSOL, UAFD, UATR, SRTY (value)	Programs the Chiller software to the correct starter type. Select Unit Starter Type: <ul style="list-style-type: none"> <li>• Unit Mount Wye-Delta</li> <li>• Remote Mount Wye-Delta</li> <li>• High Fault Remote Wye-Delta</li> <li>• Customer Supplied Wye-Delta</li> <li>• Unit Mount Across Line</li> <li>• Remote Mount Across Line</li> <li>• Customer Supplied Across Line</li> <li>• Customer Supplied Vacuum Circuit Breaker</li> <li>• Unit Mount Primary Reactor</li> <li>• Remote Mount Primary Reactor</li> <li>• Customer Supplied Primary Reactor</li> <li>• Unit Mount Auto Transformer</li> <li>• Remote Mount Auto Transformer</li> <li>• Customer Supplied Auto Transformer</li> <li>• Unit Mount Non-comm Solid State</li> <li>• Floor Mount Non-comm Solid State</li> <li>• Wall Mount Non-comm Solid State</li> <li>• Industiral High Fault Remote Solid State</li> <li>• Customer Supplied Non-comm Solid State</li> <li>• Unit Mount AFD</li> <li>• Remote Mount Comm AFD</li> <li>• Remote Mount Non-Comm AFD</li> </ul>

## The Equipment Utility Configuration Tab Screen

**Table 2. Equipment Utility - Configuration Tab Screen: UC800 Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>5. Condenser High Pressure Cutout</b>	<b>Default: 15 psig</b> (5 to 500 psig)	CDTY STD, CDTY ASME	Sets the HPC setting. Nameplate will indicate CDTY STD for 15 setting or CDTY ASME for 25 setting. See also condenser limit setpoint.
<b>6. Impeller Diameter</b> <b>Note:</b> This setting appears here if you are connected to a CVHE, CVHF, or CVHG unit. If you are connected to a CDHF or CDHG it appears in the Circuit 1-2 boxes. (See "1. CIRCUIT 1 and CIRCUIT 2 Boxes," p. 35.)	<b>Default: 275</b> (210 to 345)	CPIM (value) On Duplex use CPD1 (value) And CPD2 (value)	Sets the compressor impeller diameter. This is utilized in control algorithms. Nameplate will indicate CPIM (Value). See the control panel nameplate value. [CPD1 is impeller circuit 1 and CPD2 is impeller circuit 2]

### 3. OPTIONS Box: Features and Options

Verify the features and options settings shown in [Table 3](#), which are listed on the Options expanding box. (See the Knowledge Center for related cases.)

*Note: The options listed here may vary by model.*

**Table 3. Equipment Utility - Configuration Tab Screen: Options Box**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>1. Line Voltage Sensing</b>	<b>Default:</b> Installed <b>Selections:</b> Installed, Not Installed	Not shown on Nameplate	Select Yes for line voltage sensing option being Installed. This must be installed on all units. "INSTALLED" requires potential transformers 2T17, 2T18, and 2T19. Required for momentary power loss (MPL)
<b>2. Free Cooling</b> <b>Note:</b> This setting may not appear here if you are connected to a CDHF or CDHG (Duplex chiller).	<b>Default:</b> Not Installed <b>Selections:</b> Installed, Not Installed	FRCL NO	Installs Free cooling option into the software. Nameplate will indicate FRCL YES when installed on unit. Select installed if unit has Free Cooling Valves 4M12 and 4M13 and binary input 1A20 and output 1A11 module are present.

## The Equipment Utility Configuration Tab Screen

**Table 3. Equipment Utility - Configuration Tab Screen: Options Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>3. Hot Gas Bypass</b> <b>Note:</b> This setting may not appear here if you are connected to a CDHF or CDHG (Duplex chiller).	<b>Default:</b> Not Installed <b>Selections:</b> Installed, Not Installed	HGBP WO	Installs the HGBP function into the Chiller controls. Nameplate will indicate HGBP WITH when installed on unit. Select WITH if unit has HGBP Valve 4M5, and output module 1A12, and HGBP valve closed input module 1A4, and 4R16 Compressor Discharge refrigerant temperature sensor present.
<b>4. Second Condenser</b> <b>Note:</b> This setting may not appear here if you are connected to a CDHF or CDHG (Duplex chiller).	<b>Default:</b> Not Installed <b>Selections:</b> Installed, Not Installed	ACOS NO	Installs the second condenser temperature sensors. Nameplate will indicate ACOS YES when installed on unit. Selecting Installed requires second condenser and entering 4R14 and leaving water temperature 4R15 sensors.
<b>5. Hot Water Control</b>	<b>Default:</b> Not Installed <b>Selections:</b> Installed, Not Installed	Not shown on nameplate	Select INSTALLED to enable hot water control within the software. Enables Hot Water Algorithms and menu features. 1A18 External Hot Water control module required.
<b>6. Outdoor Air Temp Sensor</b>	<b>Default:</b> Not Installed <b>Selections:</b> Installed, Not Installed	CWR YES	Installs Outdoor air temp sensor. Nameplate will indicate CWR YES when installed. Local outdoor air temperature sensor 4R13 required when INSTALLED is selected. Used for chilled water reset outdoor type reset.
<b>7. External Chilled Water Setpoint [ECWS]</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed 4-20 mA, 2-10VDC	GBAS YES	Installs ECWS feature. Nameplate will indicate GBAS YES when factory installed on unit. Analog input Module 1A16 required for this input. Setpoint input is J2-5 (+) to J2-6 (Ground). Part of the GBAS factory package
<b>8. External Current Limit Setpoint</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed 4-20 mA) 2-10VDC	GBAS YES	Installs the ECLS 1A16 feature. Nameplate will indicate GBAS YES when factory installed on unit. Analog input Module 1A16 required for this input. Setpoint input is J2-2 (+) to J2-3 (Ground) Part of the GBAS factory package

## The Equipment Utility Configuration Tab Screen

**Table 3. Equipment Utility - Configuration Tab Screen: Options Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>9. Ice Building</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed Installed without hardware]	ICEB INST or ICEB INSA	Nameplate will indicate ICEB INST or INSA when factory installed on unit. Only select INST (install) if freeze protection evaporator fluid (glycol) is installed in chiller. INSA for front panel control. INST for external binary input control modules. Ice building selection will be NOT INSTALLED AS Shipped. Service must enable at startup. 1A5 Ice Build status relay output, and 1A19 external Ice Building Command input modules are required when selected "With Hardware."
<b>10. Refrigerant Monitor Type</b>	<b>Default:</b> Not Installed <b>Selections:</b> 4-20 mA, 0-100 PPM 4-20 mA, 0-1000 PPM 2-10V, 0-100 PPM 2-10VDC, 0-1000 PPM	EXOP YES	Installs the Refrigerant monitor input feature, defines the input type, and range. Nameplate will indicate EXOP YES when factory installed on unit. Module 1A17 required for this option. Install with appropriate range and signal type if external refrigerant monitor is panel wired to module 1A17 J2-5 to J2- 6.
<b>11. Condenser Pressure Sensor</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	EPRO YES	Installs the Condenser pressure Transducer 4R22. Nameplate will indicate EPRO YES when factory installed on unit. (Std with AFD units)
<b>12. Evap. Differential Wtr Press</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	WPSR WFC	Installs Evaporator Water differential pressure sensing feature which: 1)Displays GPM/Ton., 2) Provides control input to the CHILLER WATER control Algorithm Flow Compensation feature when enabled (Feature settings Item 132). Nameplate will indicate WPSR WFC when factory installed on unit. Select INST when 4B1 Evaporator 4-20 mA pressure sensing transducer and 1A21 analog input module are installed.
<b>13. Condenser Differential Water Pressure</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	WPSR WFC	Installs Condenser differential pressure sensing feature. Nameplate will indicate WPSR WFC when factory installed on unit. Select INST when 4B2 Condenser 4-20 mA pressure sensing transducer and 1A21 analog input module are installed. (Not used in Hot water control Algorithm)

## The Equipment Utility Configuration Tab Screen

**Table 3. Equipment Utility - Configuration Tab Screen: Options Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>14. Enhanced Oil Temperature Protection</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	Not shown on Nameplate	Selects the Enhanced oil protection feature. Select INST, as this is normal mode for units with refrigerant pump. Enables restart inhibit until oil temperature reaches the higher of 100 F (fixed) or the saturated evaporator temperature (F) plus 30F. When installed the Oil temp control is 143F. If not installed then the restart inhibit temp is default to 95F and adjustable from Options expanding box.
<b>15. Chiller Running Oil Temperature Control</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed		Allows oil temperature control when the oil pump is running. Installed adds "Oil Temp Setpoint- Compressor Running" Default is 100F, Range is 100to 140F +/- 2.5 F.
<b>16. Compressors Refrigerant Discharge Temperature Sensor</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	EPRO YES or HGBP WITH	Installs the Compressor discharge temperature sensor 4R16. Nameplate will indication of EPRO YES, or, HGBP WITH when factory installed on unit. Selection of Install requires Compressor discharge temperature sensor 4R16. See also Condenser Limit Setpoint (Table 17) with a default 93% of the High Pressure cutout configuration setting (15 psig default).
<b>17. Bearing Temperature Sensors</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	EPRO YES	Installs the 4R1 Inboard (sleeve) and 4R2 Outboard (thrust) Bearing temperature sensors. Nameplate will indicate EPRO YES when factory installed on unit. Selection of Install requires 4R1 and 4R2 bearing temperature sensors.
<b>18. IGV Actuators</b> (Applies only to chillers configured as CVHF.)	<b>Default:</b> Single <b>Selections:</b> Single Dual Dual2 Dual3	IGVA SNGL, IGVA DUAL if NTON greater than or equal to 1470 • 1470 & 1720 = DUAL • 1070 & 1300 = DUAL2 • 1100 = DUAL3 • Everything else = SNGL	Installs the second actuator for extended capacity units. See nameplate NTON (value). Select Single for units nominal tons of less than 1470 (with one vane actuator). Select Dual for Nominal tons 1470 or larger (with two vane actuators).

## The Equipment Utility Configuration Tab Screen

**Table 3. Equipment Utility - Configuration Tab Screen: Options Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>19. Operating Status Programmable Relays</b>	<b>Default:</b> Not Installed <b>Selections:</b> One Relay Card Installed Two Relay Cards Installed	OPST YES	Nameplate will indicate OPST YES when factory installed on unit. Installed requires Module 1A8 and 1A9 OPST Quad relay output module.
<b>20. BAS Interface</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Comm4 Tracer LCI-C MODBUS Slave BACnet	TRMM TRM4	<ul style="list-style-type: none"> <li>• Installs the Comm4 module 1A14 for Tracer Summit.</li> <li>• Nameplate will indicate TRMM TRM4 when factory installed on unit. Tracer Summit module 1A14 required.</li> <li>• Comm board with TRMM TRM5 Tracer LCI-C LonTalk</li> <li>• Sets Tracer Summit address for 1A14 Comm module.</li> <li>• Select in accordance with Site Tracer defined address. Default is 65</li> </ul>
<b>21. Purge Control</b> <b>Note:</b> This setting may not appear here if you are connected to a CDHF or CDHG (Duplex chiller).	<b>Default:</b> Installed <b>Selections:</b> Not Installed Installed	Not shown on main panel nameplate	Installs the EarthWise Purge into the control system. All Factory shipped CVHE, F, G units have a factory-INSTALLED purge. Select Installed in all applications
<b>22. Compressor Power Source</b> <b>Notes:</b> <ul style="list-style-type: none"> <li>• If you are connected to CDHF or CDHG (Duplex chiller), this setting appears in the Circuit 1-2 boxes. See "1. CIRCUIT 1 and CIRCUIT 2 Boxes," p. 35)</li> <li>• Not available if Starter Type is AFD.</li> </ul>	<b>Default:</b> Utility <b>Selections:</b> Utility Engine / Generator	GENR YES	Selects special control Algorithms when power source is generator to be interfaced to the control system. If Yes then 2A7 Pilot relay for Start/stop, and 2A8 up to speed/frequency and Starter Drive Fault, and 2A9 Speed signal output modules are required. Select Not installed for Utility source power and for std on site backup generators

## The Equipment Utility Configuration Tab Screen

**Table 3. Equipment Utility - Configuration Tab Screen: Options Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>23. %RLA and Condenser Refrigerant Pressure Output</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed	CDRP YES or GBAS YES	Installs the External Output [VDC only] modules 1A15 for A) refrigerant pressure output, and B) % compressor RLA signal. Nameplate will indicate CDRP YES or GBAS YES when factory installed on unit. Requires 1A15 Dual analog output module if installed. 1A15 J2- 1 to J2-3 (Grd) for percent RLA output. 1A15 J2-4 to J2-5 (Grd) for Refrigerant pressure output.
<b>24. Max Capacity Relay Filter Time</b>	<b>Default:</b> 10 minutes <b>Range:</b> 1 to 60 minutes	OPST YES	Defines time to energize or de-energize Maximum capacity relay once in or out of the condition. Nameplate will indicate OPST YES when factory installed on unit. Time to be in mode or time to be out of the mode before relay activates, or deactivates.
<b>25. Head Relief Relay Filter Time</b>	<b>Default:</b> 10 minutes <b>Range:</b> 1 to 60 minutes	OPST YES	Defines time to energize or de-energize Head Relief request relay once in or out of the condition. Nameplate will indicate OPST YES when factory installed on unit. Time to be in mode or time to be out of the mode before relay activates, or deactivates.
<b>26. Base Loading</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed 2 - 10 Vdc 4 - 20 mA	BSLD NIST	Installs the Base Loading feature into the chiller control system. Installed creates Base load menu items on the Tracer AdaptiView display, and requires the external control modules 1A18 and 1A17 for external base load control.

## The Equipment Utility Configuration Tab Screen

### 4. OPTIONS SETUP Box: Settings Supporting Specified Options

The settings presented on the Options Setup expanding box are generated based on selections made in the Options expanding box. Therefore, the settings listed in this box will vary depending on your selections in the Options box. The listed items in [Table 4](#) are only examples. (See the Knowledge Center for related cases.)

**Table 4. Equipment Utility - Configuration Tab Screen: Options Setup Box**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
1	2	3	4
<b>1. ECWS Minimum Temperature</b>	<b>Default:</b> 34F (0 to 49 F)	GBAS YES	Minimum setting for the ECWS analog signal (item 12) (2 Vdc or 4 mA will equal to this minimum setpoint value.)
<b>2. ECWS Maximum Temperature</b>	<b>Default:</b> 65° F (50 to 75)	GBAS YES	Maximum setting for the ECWS analog signal (item 12). (10 Vdc or 20 mA will equate to this maximum setpoint value.)
<b>3. EHWS Minimum Temperature</b>	<b>Default:</b> 80° F (80 to 100)	EXOP YES	Used with External Hot Water Setpoint (see item 10). <ul style="list-style-type: none"> <li>Nameplate will indicate EXOP YES when factory installed on unit. EHWS Minimum setting for the analog signal.</li> <li>2 Vdc or 4 mA will equal to this minimum setpoint value. Default is 80F.</li> </ul>
<b>4. EHWS Maximum Temperature</b>	<b>Default:</b> 140° F (101 to 140)	EXOP YES	Used with External Hot Water Setpoint (see item 10). <ul style="list-style-type: none"> <li>Nameplate will indicate EXOP YES when factory installed on unit. EHWS Maximum setting for the analog signal.</li> <li>10 Vdc or 20 mA will equate to this maximum setpoint value. Default is 140.</li> </ul>
<b>5. ECLS Minimum % RLA</b>	<b>Default:</b> 40 (20 to 69)	GBAS YES	Minimum setting for the ECLS analog signal (item 15). (2 Vdc or 4 mA will equal to this minimum setpoint value.)
<b>6. ECLS Maximum % RLA</b>	<b>Default:</b> 100 (70 to 100)	GBAS YES	Maximum setting for the ECLS analog signal (item 15). (10 Vdc or 20 mA will equate to this maximum setpoint value.)

## The Equipment Utility Configuration Tab Screen

**Table 4. Equipment Utility - Configuration Tab Screen: Options Setup Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>7. Module 1 &amp; 2 Programmable Status Relays</b>	<ul style="list-style-type: none"> <li>• None</li> <li>• Chiller Running</li> <li>• Chiller Latching Alarm Indicator</li> <li>• Chiller Limit Mode Indicator</li> <li>• Chiller Non-Latching Alarm Indicator</li> <li>• Chiller Maximum Capacity Indicator</li> <li>• Chiller Head Relief Request Indicator</li> <li>• Purge Alarm</li> </ul>	OPSI YES	The schematic diagrams reflect the defaults.
<b>8. ICS Address Comm4</b>	<b>Default:</b> 65 (32 to 100)	(Not shown on Nameplate)	Sets Tracer Summit address for 1A14 Comm module. Select in accordance with Site Tracer defined address.
<b>9. Rfgr Pressure Analog Output Option Type</b>	<b>Default:</b> HPC Setting Delta P HPC Setting Head Pressure Control	Not shown on UCP nameplate	Defines output of External Output Module 1A15 (See the BAS Interface parameter #20 in the Options box.), selection determines whether the Refrigerant output corresponds to the Condenser (HPC) pressure, or the delta (DELP) pressure between the condenser and evaporator. Requires module 1A15.
<b>10. Min Delta Rfgr Press Output Calibration</b>	<b>Default:</b> 0 psid (0 to 30)	Not shown on UCP nameplate	Further defines refrigerant differential pressure (See Purge Control parameter # 21 in the Options box.) Vdc output signal of External output module 1A15 when DELTA PRESSURE output type is selected. <ul style="list-style-type: none"> <li>• This setting is the minimum setting value for the delta analog signal.</li> <li>• 2 Vdc will equate to this minimum value. Default is 0 psid (0 psid is typical setting)</li> </ul>
<b>11. Max Delta Rfgr Press Output Calibration (CDRP)</b>	<b>Default:</b> 30 psid (0 to 30)	Not shown on UCP nameplate	Further defines refrigerant differential pressure (See Purge Control parameter # 21 in the Options box.) Vdc output of External output module 1A15 when DELTA PRESSURE output type is selected. <ul style="list-style-type: none"> <li>• This setting is the maximum setting for the delta analog signal.</li> <li>• 10 Vdc will equate to this maximum value. Default is 30 Psid (6 psid is typical setting)</li> </ul>

## The Equipment Utility Configuration Tab Screen

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**Table 4. Equipment Utility - Configuration Tab Screen: Options Setup Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>12. Evaporator Differential Water Pressure Range</b>	<b>Default:</b> 30 (0 to 50)	Not shown on nameplate.	Default 30 psid for Trane supplied transducer.
<b>13. Condenser Differential Water Pressure Range</b>	<b>Default:</b> 30 (0 to 50)	Not shown on nameplate.	Default 30 psid for Trane supplied transducer.

### 5. NAMEPLATE Box: Chiller Nameplate Values

The Nameplate expanding box contains the Nameplate values listed in [Table 5](#). You can edit these values if you are completing a retrofit or replacing the unit.

**Table 5. Equipment Utility - Configuration Tab Screen: Nameplate Box**

Tracer TU Configuration screen item	Help information
<b>1. Product Model Number</b>	The specific model number of the unit.
<b>2. Product Serial Number</b>	The individual product serial number.
<b>3. Product Sales Order</b>	The sales order number under which the chiller was sold to the customer.

## Configuration Tab Screen Setpoint Reference Tables for CVHE, CVHF, and CVHG

The following options appear in the CVHE, CVHF, and CVHG version of the Starter box in the Equipment Utility Configuration tab screen.

*Note: The Starter 1 and Starter 2 boxes that appear on the Duplex chiller version (CDHF or CDHG) of the Equipment Utility Configuration screen contain nearly the same options, except for RTD Type (item # 22 on the AFD Table) See "2. STARTER 1 and STARTER 2 Boxes," p. 36.*

The items displayed in the boxes differ depending on whether the unit has a non-AFD or AFD starter. (See the Knowledge Center for related cases.)

### 1. STARTER Box (Non-AFD)

Verify the following starter configuration variables in the Starter expanding box. The variables listed in Table 6 appear only if a non-AFD starter is used with the chiller.

**Table 6. Equipment Utility - Configuration Tab Screen: Starter (Non-AFD)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>1. Stop Delay Time (Contactor Interrupt Failure)</b>	<b>[3 seconds default]</b> , 1-30 setting range	SDTM 3	Sets the time period for the main processor to look for current after the stop command is executed. Interpreted as a stuck contactor if current exists after this time period. 3 seconds is the default.
<b>2. Unit Line Voltage</b>	<b>[460 Volts default]</b> , 180-15,000 setting range	VOLT (value)	Use UCP Nameplate Volts
<b>3. Voltage Transformer Ratio (Potential Transformer Ratio)</b>	<b>[20 default]</b> , 0-700 setting range	VTRA (value) Duplex chiller: VTR1 (value) VTR2 (value)	Use UCP Nameplate Value For Starter by Others determine Overall Potential Transformer Ratio. [Need to know primary PT ratio in the starter by others]: ie if 600 volt to 30 volt transformer is used for 480, then $600/30 = 20$
<b>4. Rated Load Amps (RLA)</b>	<b>[500 Amps default]</b> , 0-2500 setting range	PMRA (value)	Use design selection amps which may be less than the nameplate value. <b>Note:</b> USE ONLY WHOLE NUMBERS (no decimals)

## The Equipment Utility Configuration Tab Screen

**Table 6. Equipment Utility - Configuration Tab Screen: Starter (Non-AFD) (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information												
<b>5. CT Meter Scale</b>	<b>[0 Amps default]</b> , 0-2000 setting range	CTMS (value) Duplex chiller: CTM1 (value) CTM2 (value)	Use UCP Nameplate Current Transformer Meter Scale for all but customer supplied starters. CTMS is determined as follows: <b>SINGLE CT with one pass:</b> The CTMS when one CT with one pass (primary turn) is utilized will be equal to the "CT rated AMPS" value. <b>SINGLE CT with multiple passes:</b> When 2,3,4 passes are used then the "CT rated AMPS" value is divided by the number of passes to create the CTMS value. <b>DUAL CT:</b> Dual CT's are not a TV menu choice. If dual CT's are used they must be considered with the above math. When dual* CT's are present the CTMS value must be calculated considering the additional CT. In this case the ("CT rated AMPS / passes) is multiplied by 0.72(or divide by 139) which is then correctly adjusted for the second CT <b>Note:</b> USE ONLY WHOLE NUMBERS (no decimals) *2nd Ct is TRR00975 (x1358-0266-01)												
<p><b>Tracer TU CTV Information Configuration</b> The CT's have a number on them that reflects the ext number of the part number: x1358 0269. Use this table to determine Trane Current Transformer rating (one pass) by extension. (secondary resistance shown for reference)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Ext 01 = 100 Amps (23.5 ohms)</td> <td style="width: 50%;">Ext 07 = 700 (128 ohms)</td> </tr> <tr> <td>Ext 02 = 150 (35)</td> <td>Ext 08 = 1000 (235)</td> </tr> <tr> <td>Ext 03 = 200 (46)</td> <td>Ext 09 = 50 (11.5)</td> </tr> <tr> <td>Ext 04 = 275 (65)</td> <td>Ext 10 = 75 (17)</td> </tr> <tr> <td>Ext 05 = 400 (68)</td> <td>Ext 11 = 1400 (280)</td> </tr> <tr> <td>Ext 06 = 500 (89)</td> <td>Ext 12 = 1800 (340)</td> </tr> </table> <p>With multiple passes: Ext 10 with two passes = 37.5 (set to 38) Ext 09 with three passes = 16.6 (set to 17) Ext 09 with four passes = 12.5 (set to 13)</p>				Ext 01 = 100 Amps (23.5 ohms)	Ext 07 = 700 (128 ohms)	Ext 02 = 150 (35)	Ext 08 = 1000 (235)	Ext 03 = 200 (46)	Ext 09 = 50 (11.5)	Ext 04 = 275 (65)	Ext 10 = 75 (17)	Ext 05 = 400 (68)	Ext 11 = 1400 (280)	Ext 06 = 500 (89)	Ext 12 = 1800 (340)
Ext 01 = 100 Amps (23.5 ohms)	Ext 07 = 700 (128 ohms)														
Ext 02 = 150 (35)	Ext 08 = 1000 (235)														
Ext 03 = 200 (46)	Ext 09 = 50 (11.5)														
Ext 04 = 275 (65)	Ext 10 = 75 (17)														
Ext 05 = 400 (68)	Ext 11 = 1400 (280)														
Ext 06 = 500 (89)	Ext 12 = 1800 (340)														
<p><b>NOTE:</b> The UC800 uses the RLA and CTMS to setup the current overload. These two items are all that are required. (There is no overload setting 1 and 2 as in UCP2)</p>															
<b>6. Current Unbalance Trip Point</b>	<b>[30% default]</b> 15-100 setting range	CITP 30	Set to 30. Allows individual phase current operation up to 30% unbalance from the Average 3 phase RLA.												
<b>7. Current Unbalance Grace Period</b>	<b>[90 Sec default]</b> 10-255 setting range		Time in seconds of unbalance allowed before trip occurs while in above unbalance condition												
<b>8. Maximum Acceleration</b>	<b>[6 Sec default]</b> , 6-64 setting range [Across the line= 6 sec Pri Reactor / Auto Trans = 11 sec Trane Solid state = 15 sec Customer supplied solid state = 20 second Wye delta= 27 sec AFD = 30 sec]	MACT (value)	Sets time in second in which current must drop below 85% of RLA. Setting dependent on starter type. See Nameplate MACT value.												
<b>9. Acceleration Time Out Action</b>	<b>[Shutdown default]</b> (Transition) (Shutdown)	SHDN TRAN	Sets resulting action to occur upon exceeding maximum acceleration timer. Unit will shutdown upon exceeding maximum acceleration time												

## The Equipment Utility Configuration Tab Screen

**Table 6. Equipment Utility - Configuration Tab Screen: Starter (Non-AFD) (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>10. Overload Type</b>	<b>[Linear default]</b> Exponential Linear	LINR, EXPO	Selects the overload algorithm type. Select Linear for all Centrifugal compressor applications
<b>11. Phase Reversal Protection</b>	<b>[Enable default]</b> Enable Disable	ENBL, DSBL	Enables Phase reversal protection. Always select enable.
<b>12. Contactor Integrity Test</b>	<b>[Disable default]</b> Enable Disable	ENBL, DSBL	Enables Contactor integrity test. Disable unless requested to have contactor tested prior to each start.
<b>13. Phase Reversal Grace Period</b>	<b>[700 Milliseconds default]</b> 20-1000	PRGT 700	Sets Time period until trip on Phase reversal. Set to 700 milliseconds. With Phase reversal disabled time is 2.64 seconds
<b>14. Surge Protection</b>	<b>[Enable default]</b> Disable Enable	SRPR ENBL, DSBL	Enables Surge Detection.
<b>15. Momentary Power Loss Protection</b>	<b>[Enable default]</b> Disable Enable	MPLP ENBL, DSBL	Enables Momentary Power Loss (MPL). Potential transformers are required for MPL. For help with troubleshooting MPL at startup see the related Knowledge Center cases.
<b>16. Restart Inhibit Stop to Start Time</b>	<b>[30 Sec default]</b> 0-255 setting range	RISS 30	Starter module configured minimum time between stop to start. Time delay to allow motor to demagnetize. (Note: This is not the "Restart Inhibit Timer" which is a Tracer TU Setpoint screen item and has a 20 minute default value.)
<b>17. Surge Sensitivity</b>	<b>[20% default]</b> 0-100 setting range	SGSY 20	Sets surge sensitivity. Example if surge sensitivity is set to 20%: The surge event has to be a single (or multiple) phase amps rise or drop greater than "20%" of the Average RLA.
<b>18. Power Loss Reset Time</b>	<b>[15 Sec default]</b> 0-255 setting range	PLRT 15	Time delay (in seconds) upon power restoration to clear diagnostic.
<b>19. RTD Type</b> <b>Note:</b> If you are connected to CDHF or CDHG (Duplex chiller), this setting appears in the Circuit 1-2 boxes. (See "1. CIRCUIT 1 and CIRCUIT 2 Boxes," p. 35)	<b>[75 Ohm @ 75° F default]</b> 100 Ohm @ 0C		There are two motor types. Check the chiller Motor nameplate to confirm the RTD value.



## The Equipment Utility Configuration Tab Screen

### 2. STARTER Box (AFD)

#### 2.1. Communicating Rockwell Drives

The variables listed in [Table 7](#) appear only if an AFD starter is used with the chiller.

**Table 7. Equipment Utility - Configuration Tab Screen: Starter (AFD)**

Tracer TU item description	Default, Range	Chiller nameplate	Help information
<b>1. Surge Detection</b>	<b>[Enable default]</b> Disable Enable	SRPR ENBL, DSBL	Enables Surge DIAGNOSTIC upon 7 minutes of surge detection. Drive senses for repetitive surge events. Rapid increase of average current of more than the surge sensitivity (% of RLA setting) within approx. 1 second. With this feature enabled a surge diagnostic will be generated after 7 minutes of this condition.
<b>2. Surge Sensitivity</b>	<b>[20% default]</b> 0-100 setting range	SGSY 20	Example if surge sensitivity is set to 20%: The surge event has to be a single (or multiple) phase amps rise or drop greater than "20%" of the Average RLA. When this is sensed, the displayed mode on the AdaptiView display or Tracer TU shows surge for a minimum of one minute.
<b>3. Power Loss Reset Time</b>	<b>[60 Sec default]</b> 0-255 setting range	PLRT 60	Time Drive waits upon power restoration to clear power loss diagnostic, and from stop to start.
<b>4. Unit Line Voltage</b>	<b>[460 Vac default]</b> , 180-8000	VOLT (value)	Set to Nameplate Volts
<b>5. Motor NP FLA (TVA)</b>	<b>[0 Amps default]</b> , 0-2000	TVA (value)	Set to maximum amps of CTV MOTOR.
<b>6. Motor NP RLA</b>	<b>[1 Amps default]</b> , 1-2000	NMRA (value)	Set to Design RLA at selection.
<b>7. Motor NP Power</b>	<b>[0 kW default]</b> , 0-4000	CPKW (value)	Use Nameplate CPKW (Value) of MOTOR
<b>8. Motor NP Hertz</b>	<b>[60 Hz default]</b> , 5-250	HRTZ (value)	Use Nameplate Hertz Value
<b>9. Motor NP RPM (TRPM)</b>	<b>[3600 RPM default]</b> , 60-24000	TRPM (value)	Use nameplate RPM
<b>10. Stator Resistance</b>	<b>[0 MicroOhms default]</b> , 0- 10,000,000	SRES (value)	Use nameplate SRES value (Stator resistance in micro-ohms)
<b>11. Flux Current Ref.</b>	<b>[0 Amps default]</b> 0-1200	FAMP (value)	Use nameplate FAMP value (Motor no-load amps)
<b>12. Acceleration Time</b>	<b>[30 Sec default]</b> 1-99 setting range	MACT (value)	Set to 10 seconds for AFD. Sets the rate of acceleration for all speed increases

## The Equipment Utility Configuration Tab Screen

**Table 7. Equipment Utility - Configuration Tab Screen: Starter (AFD) (continued)**

Tracer TU item description	Default, Range	Chiller nameplate	Help information
<b>13. Deceleration Time</b>	<b>[30 Sec default]</b> 1 to 99 setting range	DCCT 30	Set to 30 for AFD. Sets the rate of deceleration for all speed decreases
<b>14. Starter Current Limit</b>	<b>[1 Amps default]</b> 1 to 3200	Calculate; STCL NMRA multiplied by 1.12.	Defines the current limit value. Current Limit (STCL) is: Design selection amps multiplied by 1.12. (112% of RLA) (Must set per sales order.).
<b>15. Current Limit Gain</b>	<b>[10 default]</b> 0 to 5000	CRLG 10	Sets the responsiveness of the current limit.
<b>16. Power Loss Mode</b>	<b>[decel default]</b> COST (coast)	PWLM DECL	Selects the action of the Drive upon a power loss
<b>17. Power Loss Time</b>	<b>[0 sec default]</b> 0 to 25	(Not on nameplate)	Time the drive will remain in power loss mode before a fault is issued. If POWER LOSS is encountered raises this setting to 5 seconds.
<b>18. Flying Start Enable</b>	<b>[DSBL (Disable default)]</b> Enable Disable	FLST DSBL, ENBL	Enables / Disables the function which reconnects to a spinning motor at actual motor RPM when a start command is issued. Default is Disabled
<b>19. Flying Start Gain</b>	<b>[2000 default]</b> 20 to 32767,	FLSG 2000	Sets the response of the flying start function. Default is 2000
<b>20. Use Trane Defaults</b>	<b>[YES default]</b> No	UTRD YES	Select YES. Sets all other ADF settings to Trane Defined Defaults. Only select "NO" here when directed to use the Rockwell OIM to set specific defaults differently.
<b>21. RTD Type</b> <b>Note:</b> If you are connected to CDHF or CDHG (Duplex chiller), this setting appears in the Circuit 1-2 boxes. (See "1. CIRCUIT 1 and CIRCUIT 2 Boxes," p. 35)	<b>[75 Ohm @ 75° F default]</b> 100 Ohm @ 0C		There are two motor types. Check the chiller Motor nameplate to confirm the RTD value.
<p><b>Note:</b> IF ANY CHANGES ARE MADE THE LOAD CONFIGURATION BUTTON BECOMES PRESENT. CHANGES WILL NOT TAKE EFFECT UNLESS THIS BUTTON IS PRESSED AFTER ALL ENTRIES ARE CHANGED TO YOUR SATISFACTION</p> <p><b>Note:</b> Document settings on log sheet for future reference.</p> <p><b>Note:</b> THESE SETTINGS ARE ON DOCUMENTED ON THE AFD STARTUP LOG SHEET Starter Configurations. (Selections based on sales order variables.</p>			



## The Equipment Utility Configuration Tab Screen

### 2.2. Non-Communicating Danfoss Drives

Verify the following starter configuration variables in the Starter expanding box. The variables listed in [Table 8](#) appear when a Non-Communicating Danfoss starter is used with the chiller.

**Table 8. Equipment Utility - Configuration Tab Screen: Starter (Non-AFD)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>1. Stop Delay Time (Contactor Interrupt Failure)</b>	<b>[3 seconds default]</b> 1 to 30	SDTM 3	Sets the time period for the main processor to look for current after the stop command is executed. Interpreted as a stuck contactor if current exists after this time period. 3 seconds is the default.
<b>2. Unit Line Voltage</b>	<b>[460 Volts default]</b> 180 to 15,000	VOLT (value)	Use UCP Nameplate Volts
<b>3. Voltage Transformer Ratio (Potential Transformer)</b>	<b>[20 default],</b> 0 to 700	VTRA (value) Duplex chiller: VTR1 (value) VTR2 (value)	Use UCP Nameplate Value For Starter by Others determine Overall Potential Transformer Ratio. [Need to know primary PT ratio in the starter by others]: ie if 600 volt to 30 volt transformer is used for 480, then $600/30 = 20$
<b>4. Rated Load Amps (RLA)</b>	<b>[500 Amps default]</b> 0 to 2500	PMRA (value)	Use design selection amps which may be less than the nameplate value. <b>Note:</b> USE ONLY WHOLE NUMBERS (no decimals)
<b>5. CT Meter Scale</b>	<b>[0 Amps default],</b> 0 to 2000	CTMS (value) Duplex chiller: CTM1 (value) CTM2 (value)	Use UCP Nameplate Current Transformer Meter Scale for all but customer supplied starters. CTMS is determined as follows: <b>SINGLE CT with one pass:</b> The CTMS when one CT with one pass (primary turn) is utilized will be equal to the "CT rated AMPS" value. <b>SINGLE CT with multiple passes:</b> When 2,3,4 passes are used then the "CT rated AMPS" value is divided by the number of passes to create the CTMS value. <b>DUAL CT:</b> Dual CT's are not a TV menu choice. If dual CT's are used they must be considered with the above math. When dual* CT's are present the CTMS value must be calculated considering the additional CT. In this case the ("CT rated AMPS / passes) is multiplied by 0.72(or divide by 139) which is then correctly adjusted for the second CT <b>Note:</b> USE ONLY WHOLE NUMBERS (no decimals) *2nd Ct is TRR00975 (x1358-0266-01)

#### Tracer TU CTV Information Configuration

The CT's have a number on them that reflects the ext number of the part number: x1358 0269. Use this table to determine Trane Current Transformer rating (one pass) by extension. (secondary resistance shown for reference)

Ext 01 = 100 Amps (23.5 ohms)	Ext 07 = 700 (128 ohms)
Ext 02 = 150 (35)	Ext 08 = 1000 (235)
Ext 03 = 200 (46)	Ext 09 = 50 (11.5)
Ext 04 = 275 (65)	Ext 10 = 75 (17)
Ext 05 = 400 (68)	Ext 11 = 1400 (280)
Ext 06 = 500 (89)	Ext 12 = 1800 (340)

With multiple passes:

Ext 10 with two passes = 37.5 (set to 38)
Ext 09 with three passes = 16.6 (set to 17)
Ext 09 with four passes = 12.5 (set to 13)

**NOTE:** The UC800 uses the RLA and CTMS to setup the current overload. These two items are all that are required. (There is no overload setting 1 and 2 as in UCP2)

## The Equipment Utility Configuration Tab Screen

**Table 8. Equipment Utility - Configuration Tab Screen: Starter (Non-AFD) (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>6. Current Unbalance Trip Point</b>	<b>[30% default]</b> 15 to 100	CITP 30	Set to 30. Allows individual phase current operation up to 30% unbalance from the Average 3 phase RLA.
<b>7. Current Unbalance Grace Period</b>	<b>[90 Sec default]</b> 10 to 255		Time in seconds of unbalance allowed before trip occurs while in above unbalance condition
<b>8. Maximum Acceleration</b>	<b>[6 Sec default]</b> 6 to 64 [Across the line= 6 sec Pri Reactor / Auto Trans = 11 sec Trane Solid state = 15 sec Customer supplied solid state = 20 second Wye delta= 27 sec AFD = 30 sec]	MACT (value)	Sets time in seconds in which current must drop below 85% of RLA. Setting dependent on starter type. See Nameplate MACT value.
<b>9. Acceleration Time Out Action</b>	<b>[Shutdown default]</b> Transition Shutdown	SHDN, TRAN	Sets resulting action to occur upon exceeding maximum acceleration timer. Unit will shutdown upon exceeding maximum acceleration time
<b>10. Overload Type</b>	<b>[Linear default]</b> Exponential Linear	LINR, EXPO	Selects the overload algorithm type. Select Linear for all Centrifugal compressor applications
<b>11. Phase Reversal Protection</b>	<b>[Enable default]</b> Disable Enable	ENBL, DSBL	Enables Phase reversal protection. Always select enable.
<b>12. Contactor Integrity Test</b>	<b>[Disable default]</b> Enable Disable	DSBL, ENBL	Enables Contactor integrity test. Disable unless requested to have contactor tested prior to each start.
<b>13. Phase Reversal Grace Period</b>	<b>[700 Milliseconds default]</b> 20-1000	PRGT 700	Sets Time period until trip on Phase reversal. Set to 1000 milliseconds. With Phase reversal disabled time is 2.64 seconds
<b>14. Surge Protection</b>	<b>[Enable default]</b> Disable Enable	SRPR ENBL, DSBL	Enables Surge Detection.
<b>15. Momentary Power Loss Protection</b>	<b>[Enable default]</b> Disable Enable	MPLP ENBL, DSBL	Set to Disable. (Enables Momentary Power Loss (MPL). Potential transformers are required for MPL. For help with troubleshooting MPL at startup see the related Knowledge Center cases.)

## The Equipment Utility Configuration Tab Screen

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**Table 8. Equipment Utility - Configuration Tab Screen: Starter (Non-AFD) (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>16. Restart Inhibit Stop to Start Time</b>	<b>[30 Sec default]</b> 0 to 255	RISS 30	Starter module configured minimum time between stop to start. Time delay to allow motor to demagnetize. (Note: This is not the "Restart Inhibit Timer" which is a Tracer TU Setpoint screen item and has a 20 minute default value.)
<b>17. Surge Sensitivity</b>	<b>[20% default]</b> 0 to 100 setting range	SGSY 20	Sets surge sensitivity. Example if surge sensitivity is set to 20%: The surge event has to be a single (or multiple) phase amps rise or drop greater than "20%" of the Average RLA.
<b>18. Power Loss Reset Time</b>	<b>[15 Sec default]</b> 0 to 255 setting range	PLRT 15	Time delay (in seconds) upon power restoration to clear diagnostic.
<b>19. RTD Type</b> <b>Note:</b> If you are connected to CDHF or CDHG (Duplex chiller), this setting appears in the Circuit 1-2 boxes. (See "1. CIRCUIT 1 and CIRCUIT 2 Boxes," p. 35)	<b>[75 Ohm @ 75° F default]</b> 100 Ohm @ 0C		There are two motor types. Check the chiller motor nameplate to confirm the RTD value.

## Configuration Tab Screen Setpoint Reference Tables for CDHF and CDHG

The following expanding boxes and options appear on the CDHF and CDHG version of the Equipment Utility Configuration tab screen.

### 1. CIRCUIT 1 and CIRCUIT 2 Boxes

The contents of these identical boxes are as follows.

**Table 9. Equipment Utility - CDHF and CDHG Configuration Tab Screen: Circuit 1 and Circuit 2 Boxes**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate Data	Help information
1	2	3	4
<b>1. Starter Type</b>	<b>[Unit Mount Wye-Delta default]</b> (See list in Help Information column.)	SRTY (value) USTR, RSTR, CSTR, UXL, RXL, CXL, CVAC, RPIR, CPIR, RATR,CATR,USID,FSID, WSID, CSOL, UAFD, UATR	Programs the Chiller software to the correct starter type. Select Unit Starter Type: <ul style="list-style-type: none"> <li>• Unit Mount Wye-Delta</li> <li>• Remote Mount Wye-Delta</li> <li>• High Fault Remote Wye-Delta</li> <li>• Customer Supplied Wye-Delta</li> <li>• Unit Mount Across Line</li> <li>• Remote Mount Across Line</li> <li>• Customer Supplied Across Line</li> <li>• Customer Supplied Vacuum Circuit Breaker</li> <li>• Unit Mount Primary Reactor</li> <li>• Remote Mount Primary Reactor</li> <li>• Customer Supplied Primary Reactor</li> <li>• Unit Mount Auto Transformer</li> <li>• Remote Mount Auto Transformer</li> <li>• Customer Supplied Auto Transformer</li> <li>• Unit Mount Non-comm Solid State</li> <li>• Floor Mount Non-comm Solid State</li> <li>• Wall Mount Non-comm Solid State</li> <li>• Industrial High Fault Remote Solid State</li> <li>• Customer Supplied Non-comm Solid State</li> <li>• Unit Mount AFD</li> <li>• Remote Mount Comm AFD</li> <li>• Remote Mount Non-Comm AFD</li> </ul>

## The Equipment Utility Configuration Tab Screen

**Table 9. Equipment Utility - CDHF and CDHG Configuration Tab Screen: Circuit 1 and Circuit 2 Boxes (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate Data	Help information
<b>2. Compressor Power Source</b>	<b>[Utility (Not Installed) default]</b> Utility Engine/ Generator (Installed)	GENR YES	Selects special control Algorithms when power source is generator to be interfaced to the control system. If Yes then 2A7 Pilot relay for Start/stop, and 2A8 up to speed/frequency and Starter Drive Fault, and 2A9 Speed signal output modules are required. Select Utility for Utility source power and Engine/Generator for onsite backup generators.
<b>3. Impeller Diameter</b>	<b>[275 default]</b> 210 – 345	CPIM (value) On Duplex chillers, use CPD1 (value) And CPD2 (value)	Sets the compressor impeller diameter. This is utilized in control algorithms. Nameplate will indicate CPIM (Value). See UCP nameplate value. [CPD1 is impeller circuit 1 and CPD2 is impeller circuit 2]
<b>4. RTD Type</b>	<b>[75 Ohm @ 75° F default]</b> 100 Ohm @ 0C		There are two motor types. Check the chiller motor nameplate to confirm the RTD value.

## 2. STARTER 1 and STARTER 2 Boxes

The Starter 1 and Starter 2 expanding boxes that appear on the CDHF and CDHG version of Configuration tab screen are nearly complete duplicates of the single Starter expanding box on the CVHE, CVHF, and CVHG version of the Configuration tab screen. Therefore, you can use the previous Starter box AFD and non-ADF listings of configuration variables beginning on [p. 27](#) to verify the Starter 1 and Starter 2 expanding boxes. The only change is that the RDT Type setting (item 22 in the Starter expanding box) has been moved to the Circuit 1 and Circuit 2 boxes (see [Table 9](#)).

# Modifying, Saving, and Deploying Chiller Configurations

You can modify the default configuration values that appear on the Equipment Utility - Configuration tab screen, save the modified configuration to your laptop hard drive, retrieve any stored configuration from your hard drive, and send (save) the configuration to the UC800.

## Saving a Configuration To Your Laptop Hard Drive

If you make any changes in any of the expanding boxes on the Configuration tab screen, the Save File button becomes active. To save a configuration to a file on your hard disk

1. Click the **Save File** button.  
A **Browse For Folder** dialog box appears showing the name of the xml file (QuestionRecord.xml) in which the configuration will be stored.
2. Navigate to a folder where you want to store the configuration file.
3. Click **OK**.

*Note: Save each configuration in a separate folder, because the configuration file name is always the same and will overwrite any previous file saved in the same directory.*

## Retrieving a Stored Configuration From Your Laptop Hard Drive

You can retrieve a stored configuration file from your hard drive for use on other chillers. To retrieve a configuration

1. Click the **Open File** button at the bottom of the Configuration screen.  
An **Open** dialog box appears.
2. Use the **Look in** drop-down list to navigate to the folder where you saved the configuration file.
3. Click **Open**.

The configuration is displayed in the Configuration screen. You can either modify the configuration or save it to other chiller controllers.

## Saving a Configuration to the Controller

Saved changes do not take effect until they are transferred to the UC800. To save a configuration to the UC800 after all entries have been changed, click the **Save** button located at the bottom of the Configuration screen.

*Note: Should it be necessary to replace a UC800 in the future, you will need to manually enter the unit model number description and unit performance detail selection data using Tracer TU.*



# Additional Chiller Settings Screens

You can now verify or make changes to setpoints on the other Equipment Utility tab (Chiller Settings) screens: Setpoints, Field Startup, and Purge. Some screens have a CVHE, CVHF, and CVHG version and a CDHF and CDHG version. The different versions of these screens are covered in the following subsections:

- “Equipment Utility - Setpoints Tab Screen for CVHE, CVHF, and CVHG,” p. 38
- “Equipment Utility - Setpoints Tab Screen for CDHF and CDHG,” p. 41
- “Equipment Utility - Field Startup Tab Screen for CVHE, CVHF, and CVHG,” p. 46
- “Equipment Utility - Field Startup Tab Screen for CDHF and CDHG,” p. 57
- “Equipment Utility - Purge Tab Screen,” p. 69

## Equipment Utility - Setpoints Tab Screen for CVHE, CVHF, and CVHG

The Setpoints tab screen that appears when you are connected to a single chiller unit (CVHE, CVHF, or CVHG) contains the active setpoints shown in Table 10 through Table 12. You can modify these setpoint values by entering new values using entry boxes, sliders, and drop-down list boxes, or you can return the value to its default, by clicking the corresponding Default button. (See the Knowledge Center for related cases.)

### 1. CHILLER SETPOINTS Box

The Chiller Setpoints box settings on the CVHE, CVHF, and CVHG version of the Setpoints tab screen appear in the following order.

**Table 10. Equipment Utility - CVHE, CVHF, and CVHG Setpoints Tab Screen: Chiller Setpoints Box**

Setpoint	Default, (Min, Max)	Help Information
1. Front Panel Chilled Water Setpoint	Default: 44°F / 6.67°C 38°F to 75°F (-3.3°C to 23.9°C)	Set to sales order / Job requirements
2. Front Panel Current Limit Setpoint	Default: 100% RLA default (20 to 100)	Use 100% unless otherwise specified
3. Front Panel Control Type	Default: Cooling default (Cooling or Heating)	Optional item, shown when installed
4. Front Panel Hot Water Setpoint	Default: 130°F / 54.44 °C 80°F to 140°F (26.7°C to 60.0°C)	Optional item, shown when installed
5. Front Panel Base Loading Command	Default: Auto default (On or Auto)	Optional item, shown when installed
6. Front Panel Base Load Setpoint	Default: 50% default (20 to 100)	Optional item, shown when installed
7. Front Panel Free Cooling Command	Default: Auto (On or Auto)	Optional item, shown when installed
8. Front Panel Ice Building Command	Default: Auto (On or Auto)	Optional item, shown when installed
9. Differential to Start Setpoint	Default: 5°F / 2.8°C (1F to 10F, 0.6C to 5.6C)	Set to sales order/ Job requirements
10. Differential to Stop Setpoint	Default: 5°F / 2.8°C (1F to 10F, 0.6C to 5.6C)	Set to sales order/ Job requirements
11. Setpoint Source	Default: BAS/Ext/FP (BAS/Ext/FP, Ext/Front Panel, Front Panel),	Sets hierarchy of commands; Building Automation system, External signals, front panel
12. Evaporator Water Flow Point 1	Default: 264 gpm / 1000 lpm (0 to 10568 gpm / 0 to 40000 lpm)	Flow, WFC Option; GPM Flow at point 1. (design GPM, factory set)

## Additional Chiller Settings Screens

**Table 10. Equipment Utility - CVHE, CVHF, and CVHG Setpoints Tab Screen: Chiller Setpoints Box (continued)**

Setpoint	Default, (Min, Max)	Help Information
<b>13. Evaporator Pressure Drop Point 1</b>	<b>Default: 1.45 PSI / 10 kPaD</b> (0 to 210 kPaD)	Diff Pressure, WFC Option; Pressure at flow point 1. (design PD in PSID, factory set)
<b>14. Evaporator Water Flow Point 2</b>	<b>Default: 423 gpm / 1600 lpm</b> (0 to 10568 gpm / 0 to 40000 lpm)	Flow, WFC Option; GPM Flow at point 2. (second point on same flow curve, factory set)
<b>15. Evaporator Pressure Drop Point 2</b>	<b>Default: 4.35 PSI / 30 kPaD</b> (0 to 210 kPaD)	Diff Pressure, WFC Option; Pressure at flow point 2. (second flows PD in PSID, factory set)
<b>16. Evaporator Fluid Specific Gravity</b>	<b>Default: 1</b> (range 0 to 2)	WFC Option Use "1.00" for 100% water
<b>17. Evaporator Fluid Specific Heat</b>	<b>Default: 1</b> (range 0 to 2)	WFC Option Use "1.00" for 100% water
<b>18. Evap Low Water Flow Warning Setpoint</b>	<b>Default: 1 -2 gpm/ton * PTON</b> 0 to 75700.2 lpm	<p>Option: Evap Diff Water Pressure sensing option required. This is a setpoint that takes a gpm value, which sets the point at which the "low flow" warning turns on.</p> <p>Low Flow Warning - The default setpoint is calculated internally at 1.2 gpm/ton. So the default value is 1.2 times the PTON* set in the configuration. Example for 500 performance ton chiller: 1.2 gpm/ton X 500PTON = 600 gpm.</p> <p>The low flow warning needs to be set at startup using the following guidelines:</p> <ul style="list-style-type: none"> <li>• Set the Low Flow setpoint to be above the point where the external proof of flow device "Opens". This allows the warning to be annunciated before the loss of flow occurs.</li> <li>• The proof of flow cutout device should cutout at or above the minimum flow point for the machines particular bundle (See the sales catalog for minimum flows or submittal.)</li> </ul> <p>The reset of the low flow is 0.1 GPM/ton. In the above example, this is 1.3 gpm/ton x 500PTONs = 650 gpm.</p> <p>* PTON is performance tons whereas NTON is nominal tons used to define compressor. Use PTON in this calculation.</p>
<b>19. Condenser Water Flow Point 1</b>	<b>Default: 264 gpm / 1000 lpm</b> (0 to 10568 gpm) / (0 to 40000 lpm)	WFC Option; GPM Flow at point 1. (design GPM, factory set)
<b>20. Condenser Pressure Drop Point 1</b>	<b>Default: 1.45 PSI / 10 kPa</b> (0 to 30.46 psid) / (0 to 210 kPa)	WFC Option; Pressure at flow point 1. (design PD in PSID, factory set)
<b>21. Condenser Water Flow Point 2</b>	<b>Default: 423 gpm / 1600 lpm</b> (0 to 10568 gpm) / (0 to 40000 lpm)	WFC Option; Pressure at flow point 1. (design PD in PSID, factory set)
<b>22. Condenser Pressure Drop Point 2</b>	<b>Default: 4.35 PSID / 30 kPa</b> (0 to 30.46 psid / 0 to 210 kPa / )	WFC Option; Pressure at flow point 2. second flows PD in PSID, factory set)
<b>23. Minimum Capacity Limit</b>	<b>Default: 0%</b> (0 to 79%)	Creates a minimum boundary of the Compressor Load signal. Used to decrease chillers unloading level. Forces chiller to remain loaded to cause machine to reach differential to stop temp. Used frequently on chillers with AFD starters to avoid low end surge.



## Additional Chiller Settings Screens

**Table 10. Equipment Utility - CVHE, CVHF, and CVHG Setpoints Tab Screen: Chiller Setpoints Box (continued)**

Setpoint	Default, (Min, Max)	Help Information
24. Maximum Capacity Limit	Default: 100% (21 to 100%)	Creates a maximum boundary of the Compressor Load Signal.
25. Chiller Start Initial Capacity Command	Default: 0% (0 to 100%)	Sets initial control signal level. Set to 10% for AFDE drives.

## 2. COMPRESSOR SETPOINTS Box

The compressor setpoints shown in [Table 11](#) appear on the Compressor Setpoints expanding box on the CVHE, CVHF, and CVHG version of the Setpoints tab screen.

**Table 11. Equipment Utility - CVHE, CVHF, and CVHG Setpoints Screen: Compressor Setpoints**

Setpoint	Default (Min, Max)	Help Information
1. Oil Temperature - Compressor Stopped	Default: 143°F / 61.67°C (100°, 160°F) (37.8°C to 60°C)	With Enhanced NOT Installed: Oil temperature control point w/comp off. (suppressed w/enhanced protection installed)
2. Oil Temperature -Compressor Running	Default: 100°F (37.78°C) (100°F to 140°F) (37.8°C to 60°C)	Oil heater will come on if temp drops below this temperature -compressor running mode
3. Low Oil Temperature Inhibit Setpoint	Default: 95°F (35.0 °C) (80 °F to 140°F) (26.67 °C to 60.0 °C)	Setting used when enhanced oil protection is disabled.
4. Low Differential Oil Pressure Cutout Setpoint	Default: 12psi / 82.74 kPaD (9 to 35 psi) (62.1 to 241.3 kPaD)	Oil Pressure setting
5. Check Oil Filter Diagnostic	Default: Disable (Enable, Disable)	Issued if the pressure differential drops below the Check Oil Filter Setpoint value during runtime.
6. Check Oil Filter Setpoint	Default: 15 PSID / 103.43 kPaD (9 to 60 psid) 62.06 to 413.7 KPaD)	Oil pressure setting
7. Check Oil Heater Setpoint	Default: 04 Hr (00 to 24 hours)	The oil heater setpoint is used to control the Oil Tank Temperature within +2.5 or - 2.5 F of the setpoint. A value of 1 hour is recommended for Data center and critical applications.
8. Motor Winding Temp Diagnostic Severity	Default: Normal Shutdown Normal Shutdown, Warning	Allows service to set a WARNING for first occurrence, then becomes shutdown upon second occurrence. The "Warning" selection is recommended for Data center and critical applications.
9. High Compressor Refrigerant Discharge Temperature Cutout	Default: 200° F / 93.3° C (170° F min to 220° F max) (76.7° C to 104.4° C)	The discharge refrigerant temperature exceeded the High Discharge Temp Cutout setpoint for 1 second. For CenTraVac units, the High Compressor Refrigerant Discharge Temperature cutout set point is available in Setpoints screen (Equipment tab) in Tracer TU.

### 3. ADJUSTABLE FREQUENCY DRIVE SETPOINTS Box

The AFD control setpoints shown in [Table 12](#) are included in the Adjustable Frequency Drive Setpoints expanding box on the CVHE, CVHF, and CVHG version of the Setpoints tab screen when an AFD starter is used. (See the Knowledge Center for related cases.)

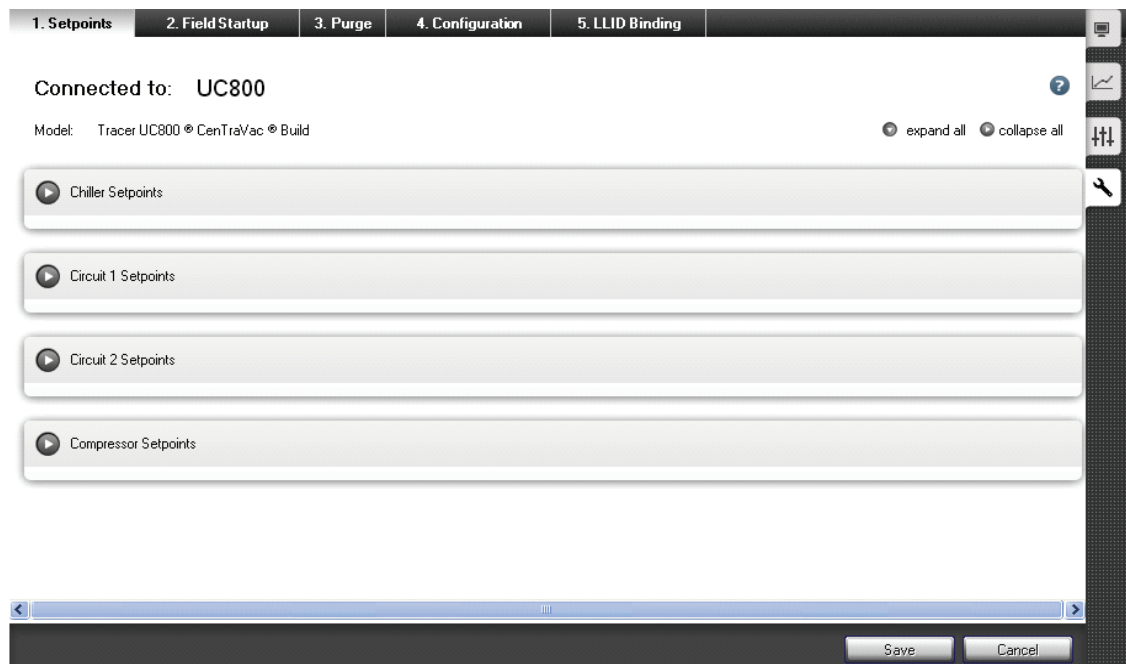
**Table 12. Equipment Utility - CVHE, CVHF, and CVHG Setpoints Tab Screen: Adjustable Frequency Drive Setpoints**

Setpoint	Default, (Min, Max)	Help Information
<b>1. AF Control</b>	<b>Default: Auto</b> (Auto, Fixed),	Allows AFD to be disabled and forced drive to run at 60 Hz., and utilize std LWT control algorithm.
<b>2. Re-Optimization Sensitivity</b>	<b>Default: 20%</b> (0 to 100)	At 30 minute intervals the control algorithm checks the vanes position compared to the position set at the last optimization and; <ul style="list-style-type: none"> <li>• If within the sensitivity setpoint (20% default) then no re-optimization</li> <li>• If the inlet guide vane position has changed more than the sensitivity setpoint amount then re-optimization</li> </ul>

## Equipment Utility - Setpoints Tab Screen for CDHF and CDHG

The Setpoints tab screen that appears when you are connected to a Duplex chiller (CDHF or CDHG) contains the active setpoints shown in [Table 13](#) through [Table 15](#). You can modify these setpoint values by entering new values using entry boxes, sliders, and drop-down list boxes, or you can return the value to its default, by clicking the corresponding Default button. (See the Knowledge Center for related cases.)

**Figure 8. Setpoints Tab Screen for CDHF and CDHG**





## Additional Chiller Settings Screens

### 1. CHILLER SETPOINTS Box

The settings in the Chiller Setpoints expanding box on the CDHF and CDHG version of the Setpoints tab screen appear in the following order.

**Table 13. Equipment Utility - CDHF and CDHG Setpoints Tab Screen: Chiller Setpoints Box**

Setpoint	Default (Min to Max) / (Options)	Help Information
<b>1. Front Panel Chilled Water Setpoint</b>	<b>Default: 44°F / 6.7 °C</b> (38°F to 75°F) (3.3°C to 23.9°C)	Set to sales order / Job requirements
<b>2. Front Panel Current Limit Setpoint</b>	<b>Default: 100% RLA</b> (20 to 100)	Use 100% unless otherwise specified
<b>3. Front Panel Control Type</b>	<b>Default: Cooling,</b> (Cooling or Heating)	Control type as set locally to the unit. Puts the chiller in heating or cooling mode.
<b>4. Front Panel Hot Water Setpoint</b>	<b>Default: 130°F / 54.4 °C</b> (80°F to 140°F) (26.7°C to 60.0°C)	Optional item, shown when installed
<b>5. Front Panel Base Loading Command</b>	<b>Default: Auto</b> (On or Auto)	Optional item, shown when installed
<b>6. Front Panel Base Load Setpoint</b>	<b>Default: 50%</b> (20 to 100)	Optional item, shown when installed
<b>7. Front Panel Ice Building Command</b>	<b>Default: Auto</b> (On or Auto)	Optional item, shown when installed
<b>8. Differential to Start Setpoint</b>	<b>Default: 5°F / 2.8°C</b> (1F to 10F, 0.6C to 5.6C)	Set to sales order/ Job requirements
<b>9. Differential to Stop Setpoint</b>	<b>Default: 5°F / 2.8°C</b> (1F to 10F, 0.6C to 5.6C)	Set to sales order/ Job requirements
<b>10. Setpoint Source</b>	<b>Default: BAS/Ext/FP</b> (BAS/Ext/FP, Ext/Front Panel, Front Panel),	Sets hierarchy of commands; Building Automation system, External signals, front panel
<b>11. Evaporator Water Flow Point 1</b>	<b>Default: 264.2 gpm / 1000 lpm</b> (0 to 10568 gpm/ 0 to 40000 lpm)	Flow, WFC Option; GPM Flow at point 1. (design GPM, factory set)
<b>12. Evaporator Pressure Drop Point 1</b>	<b>Default: 1.45 PSI / 10 kPaD</b> (0 to 30.46) (0 to 210 kPaD)	Diff Pressure, WFC Option; Pressure at flow point 1. (design PD in PSID, factory set)
<b>13. Evaporator Water Flow Point 2</b>	<b>Default: 423 gpm / 1600 lpm</b> (0 to 40000 lpm)	Flow, WFC Option; GPM Flow at point 2. (second point on same flow curve, factory set)
<b>14. Evaporator Pressure Drop Point 2</b>	<b>Default: 4.35 PSI / 30 kPa</b> (0 to 30.46) (0 to 210 kPa)	Diff Pressure, WFC Option; Pressure at flow point 2. (second flows PD in PSID, factory set)
<b>15. Evaporator Fluid Specific Gravity</b>	<b>Default: 1</b> (0 to 2)	WFC Option Use <b>"1.00"</b> for 100% water
<b>16. Evaporator Fluid Specific Heat</b>	<b>Default: 1</b> (0 to 2)	WFC Option Use <b>"1.00"</b> for 100% water

## Additional Chiller Settings Screens

**Table 13. Equipment Utility - CDHF and CDHG Setpoints Tab Screen: Chiller Setpoints Box (continued)**

Setpoint	Default (Min to Max) / (Options)	Help Information
<b>17. Evap Low Water Flow Warning Setpoint</b>	<b>Default: 1 -2 gpm/ton * PTON 1500 gpm / 5677.5 lpm</b> (0 to 20000 gpm) (0 to 75700.2 lpm)	<p>Option: Evap Diff Water Pressure sensing option required. sets point where "low flow" warning turns on "GPM" value.</p> <p>Low Flow Warning - The default setpoint is calculated internally at 1.2 gpm/ton. So the default value is 1.2 times the PTON* set in the configuration. Example for 500 performance ton chiller: 1.2 gpm/ton X 500PTON = 600 gpm.</p> <p>The low flow warning needs to be set at startup using the following guidelines:</p> <ul style="list-style-type: none"> <li>• Set the Low Flow setpoint to be above the point where the external proof of flow device "Opens". This allows the warning to be annunciated before the loss of flow occurs.</li> <li>• The proof of flow cutout device should cutout at or above the minimum flow point for the machines particular bundle (See the sales catalog for minimum flows or submittal.)</li> </ul> <p>The reset of the low flow is 0.1 GPM/ton. In the above example, this is 1.3 gpm/ton x 500PTONS = 650 gpm.</p> <p>* PTON is performance tons whereas NTON is nominal tons used to define compressor. Use PTON in this calculation.</p>
<b>18. Condenser Water Flow Point 1</b>	<b>Default: 264.2 gpm / 1000 lpm</b> (0 to 10568 gpm) (0 to 40000 lpm)	WFC Option; GPM Flow at point 1. <b>(design GPM, factory set)</b>
<b>19. Condenser Pressure Drop Point 1</b>	<b>Default: 1.45 PSID / 10 kPaD</b> (0.00 to 30.46 psid) (0 to 210 kPaD)	WFC Option; Pressure at flow point 1. <b>(design PD in PSID, factory set)</b>
<b>20. Condenser Water Flow Point 2</b>	<b>Default: 423 gpm / 1600 lpm</b> (0 to 10568 gpm / 0 to 40000 lpm)	WFC Option; Pressure at flow point 1. <b>(design PD in PSID, factory set)</b>
<b>21. Condenser Pressure Drop Point 2</b>	<b>Default: 4.35 PSID / 30 kPa</b> (0 to 30.46 psid / 0 to 210 kPa)	WFC Option; Pressure at flow point 2. second flows PD in PSID, factory set)
<b>22. Minimum Capacity Limit</b>	<b>Default: 100%</b> (0 to 100%)	Creates a minimum boundary of the Compressor Load signal. Used to decrease chillers unloading level. Forces chiller to remain loaded to cause machine to reach differential to stop temp. Used frequently on chillers with AFD starters to avoid low end surge.
<b>23. Maximum Capacity Limit</b>	<b>Default: 100%</b> (0 to 100%)	Creates a maximum boundary of the Compressor Load Signal.
<b>24. Staging Off Boundary</b>	<b>Default: 30%</b> (0% to 49%)	When the chiller capacity command drops below the staging off boundary, it will turn off the lag compressor.



## Additional Chiller Settings Screens

**Table 13. Equipment Utility - CDHF and CDHG Setpoints Tab Screen: Chiller Setpoints Box (continued)**

Setpoint	Default (Min to Max) / (Options)	Help Information
25. Staging On Boundary	Default: 40% (0% to 49%)	When the chiller capacity command rises above the staging on boundary, it will turn on the lag compressor.
26. Chiller Start Initial Capacity Command	Default: 0% (0 to 100%)	When the chiller needs to be loaded faster after start, the Start Initial Capacity Command is changed to a value greater than 0. After the compressor has started, the inlet guide vanes will be driven open based on the specified Start Initial Capacity Command value. A value of 10% is recommended for AFDE chillers.

## 2. CIRCUIT 1 and CIRCUIT 2 SETPOINTS Boxes

The setpoints shown in [Table 14](#) are included in the Circuit 1 and Circuit 2 Setpoints expanding boxes included on the CDHF and CDHG version of Setpoints tab screen. (See the Knowledge Center for related cases.)

**Table 14. Equipment Utility - CDHF and CDHG Setpoints Tab Screen: Circuit 1 and Circuit 2 Setpoints**

Setpoint	Default (Min to Max) / (Options)	Help Information
1. Oil Temperature - Compressor Running	Default: 100°F / 37.8°C (100° F to 140°F) (37.8° C to 60° C)	The oil heater comes on if the temperature drops below this temperature -compressor running mode.
2. Oil Temperature - Compressor Stopped	Default: 143°F / 61.7°C (100° to 160°F) (37.8° C to 71.1 °C)	With Enhanced NOT Installed: Oil temperature control point w/comp off. (suppressed w/ enhanced protection installed)
3. Low Diff Oil Pressure Cutout Stpt Ckt x	Default: 12PSID / 82.74 kPaD (9 to 35 PSID) (62.1 to 241.3 kPaD)	Oil Pressure setting
4. Low Oil Temperature Inhibit Setpoint	Default: 95°F / 35.0 °C (80 °F to 140 °F) (26.7 °C to 60.0 °C)	Setting used when enhanced oil protection is disabled.
5. Check Oil Filter Diagnostic Ckt x	Default: Disable (Enable, Disable)	(Either Ckt1 or Ctk2 is displayed depending on which box you are viewing.)
6. Check Oil Filter Setpoint Ckt x	Default: 15 PSID / 103.4 kPaD (9 to 60 psid) (62.1 to 413.7 kPaD)	Diff Pressure (Either Ckt1 or Ctk2 is displayed depending on which box you are viewing.)
7. Check Oil Heater Setpoint Ckt x	Default: 4 hours (0 to 24 hours)	The oil heater setpoint is used to control the Oil Tank Temperature within +2.5 or - 2.5 F of the setpoint. A value of 1 hour is recommended for Date center and critical applications.
8. Front Panel Circuit Lockout (Cktx)	Default: Not Locked Out (Locked Out, Not Locked Out)	When set to 'Locked' the chiller will not run this circuit.

### 3. COMPRESSOR SETPOINTS Box

The compressor setpoints shown in [Table 15](#) appear in the Compressor Setpoints expanding box on the CDHF and CDHG version of the Setpoints tab screen.

**Table 15. Equipment Utility - CDHF and CDHG Setpoints Screen: Compressor Setpoints**

Setpoint	Default (Min to Max)/(Options)	Help Information
<b>1. Motor Winding Temp Diagnostic Severity (Ckt1 and Ckt2)</b>	<b>Default: Normal Shutdown</b> (Normal Shutdown, Warning)	Allows service to set a WARNING for first occurrence, then becomes shutdown upon second occurrence.
<b>2. High Cprsr Rfgt Disch Temp Cutout Ckt1</b>	<b>Default: 200° F / 93.3 ° C</b> (170° F min to 220° F max), (76.7 ° C min to 104 ° C max)	The discharge refrigerant temperature exceeded the High Discharge Temp Cutout setpoint for 1 second. For CenTraVac units, the High Compressor Refrigerant Discharge Temperature cutout set point is available in Setpoints screen (Equipment tab) in Tracer TU.
<b>3. Motor Winding Temp Diagnostic Severity Cutout Ckt2</b>	<b>Default: Normal Shutdown</b> (Normal Shutdown, Warning)	Allows service to set a WARNING for first occurrence, then becomes shutdown upon second occurrence. The "Warning" selection is recommended for Data center and critical applications.
<b>4. High Cprsr Rfgt Disch Temp Cutout Ckt2</b>	<b>Default: 200° F / 93.3 ° C</b> (170° F min to 220° F max), (76.7 ° C min to 104 ° C max)	The discharge refrigerant temperature exceeded the High Discharge Temp Cutout setpoint for 1 second. For CenTraVac units, the High Compressor Refrigerant Discharge Temperature cutout set point is available in Setpoints screen (Equipment tab) in Tracer TU.

### 4. ADJUSTABLE FREQUENCY DRIVE SETPOINTS Box

The AFD control setpoints shown in [Table 16](#) are included in the Adjustable Frequency Drive Setpoints expanding box on the CDHF and CDHG version of the Setpoints tab screen when an AFD starter is used. (See the Knowledge Center for related cases.)

**Table 16. Equipment Utility - CDHF and CDHG Setpoints Tab Screen: Adjustable Frequency Drive Setpoints**

Setpoint	Default (Min to Max)/(Options)	Help Information
<b>1. AF Control Ckt1</b>	<b>Default: Auto</b> (Auto, Fixed)	Allows AFD to be disabled and forced drive to run at 60 Hz., and utilize std LWT control algorithm.
<b>2. AF Control Ckt2</b>	<b>Default: Auto</b> (Auto, Fixed)	Allows AFD to be disabled and forced drive to run at 60 Hz., and utilize std LWT control algorithm.
<b>3. Re-Optimization Sensitivity</b>	<b>Default: 20% (default)</b> (0 to 100), (IGV triggered re-optimization at 30 minute fixed intervals)	At 30 minute intervals the control algorithm checks the vanes position compared to the position set at the last optimization and; <ul style="list-style-type: none"> <li>• If within the sensitivity setpoint (20% default) then no re-optimization</li> <li>• If the inlet guide vane position has changed more than the sensitivity setpoint amount then re-optimization</li> </ul>



## Additional Chiller Settings Screens

# Equipment Utility - Field Startup Tab Screen for CVHE, CVHF, and CVHG

The settings in the (1) Feature Settings, (2) Manual Settings, and (3) Timers expanding boxes that appear on the single unit version of the Field Startup tab screen provide control of chiller hardware functions or features.

## 1. FEATURE SETTINGS Box

The settings shown in [Table 17](#) are displayed in the Feature Settings box of the CVHE, CVHF, and CVHG version of the Field Startup tab screen. (See the Knowledge Center for related cases).

**Table 17. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Feature Settings**

Setpoint	Default, (Min to Max) (Options)	Help Information
<b>1. Chilled Water Reset Type</b>	<b>Default: Disable</b> (Constant, Outdoor Air, Return)	Front Panel Enable/Disable of option
<b>2. Return Reset Ratio</b>	<b>Default: 50%</b> (10% to 120%)	A user adjustable gain.
<b>3. Return Start Reset</b>	<b>Default: 10°F / 5.6°C</b> (4.0 °F to 30.0 °F) (0.0 °C to 11.1 °C)	A user adjustable reference.
<b>4. Return Maximum Reset</b>	<b>Default: 5°F/2.8°C</b> (0 to 20°F / 0.0 to 11.11F)	A user adjustable limit providing the maximum amount of reset. For all types of reset, CWS - CWS < or = Maximum Reset.
<b>5. Outdoor Reset Ratio</b>	<b>Default: 10%</b> (-80 to 80)	A user adjustable gain.
<b>6. Outdoor Start Reset</b>	<b>Default: 90°F/32.22 °C</b> (50 °F to 130 °F) (10.0 °C to 54.4 °C)	A user adjustable reference.
<b>7. Outdoor Maximum Reset</b>	<b>Default: 5°F / 2.8 °C</b> (0 °F to 20°F) (0 °C to 11.1° C)	A user adjustable limit providing the maximum amount of reset. For all types of reset, CWS - CWS < or = Maximum Reset.
<b>8. External Chilled Water Setpoint</b>	<b>Default: Disable</b> (Enable, Disable)	Front Panel Enable/Disable of option
<b>9. External Current Limit Setpoint</b>	<b>Default: Disable</b> (Enable, Disable)	Front Panel Enable/Disable of option
<b>10. Front Panel Ice Termination Setpoint</b>	<b>Default: 27°F / -2.8 °C</b> (20 °F to 32 °F) (-6.7C to 0 °C)	Optional item, shown when installed
<b>11. Evaporator Design Delta Temp</b>	<b>Default: 10°F / 5.6°C</b> (4 °F to 40 °F) (2.2 °C to 22.2 °C)	Set to the Evaporator design delta temp in F/C (typically 10°F). Control algorithm uses entering evaporator temp in the feed forward logic. (Cooling mode use only) - Confirm that actual GPM through machine is at design. Percent of total compressor load is based on the given evap delta T compared to the full load delta T. If design water flow is not attainable, then determine a new full load Design delta temperature at the given GPM provided.
<b>12. Condenser Design Delta Temp</b>	<b>Default: 10°F / 5.6°C</b> (4 °F to 40 °F) (2.2 °C to 22.2 °C)	Set to the Condenser design Delta temp in F/C. Control algorithm use entering temp in feed forward logic. (Heating mode use only)

## Additional Chiller Settings Screens

**Table 17. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Feature Settings**  
(continued)

Setpoint	Default, (Min to Max) (Options)	Help Information
<b>13. Evaporator Leaving Water Temp Cutout</b>	<b>Default: 36°F / 2.2 °C</b> (-10°F to 36°F) (-23.3 °C to 2.2 °C)	Safety trip point for low temp water. (NOTE: With verification for freeze protection, this will be set to 12-14F for Ice Mode)
<b>14. Inlet Guide Vane Max Steps First Stage</b>	<b>Default: 50000 steps</b> (1000 to 53111)	Set to equal number of steps for full vanes stroke (90 degrees rotation). (factory set, <i>advise to document this value</i> )
<b>15. Inlet Guide Vane Max Steps Second Stage</b>	<b>Default: 50000 steps</b> (1000 to 53111)	ext capacity units only. Set to equal number of steps for full vanes stroke (90 degrees rotation). (factory set, <i>advise to document this value</i> )
<b>16. Low Refrigerant Temp Cutout</b>	<b>Default: 32°F / 0.0°C default</b> (-35°F to 36°F) (-37.2°C to 2.2°C)	Safety trip point for low refrigerant temp. For Ice making this must be set at startup. Note: With Verification for Freeze protection, this will be set to "0°F " to make ice.
<b>17. Condenser Limit Setpoint</b>	<b>Default: 93% of the HPC (PSIG)</b> (80 to 120)	Reference point (% of HPC setting) for condenser limit control.
<b>18. Restart Inhibit Diagnostic</b>	<b>Default: Enable;</b> (Enable, Disable)	Enabled diagnostic message
<b>19. Restart Inhibit Free Starts</b>	<b>Default: 3</b> (1 to 5)	# of free starts allowed before Restart Timer begins
<b>20. Restart Inhibit Start to Start</b>	<b>Default: 20 min</b> (10 to 30 min)	Restart Time
<b>21. Local Atmospheric Pressure</b>	<b>Default: 14.7 PSIA / 101.4 kPaA</b> (5.0 to 20.0 psia) (34.5 to 137.9 kPaA)	Set to Jobsite conditions
<b>22. High Evaporator Water Temperature Cutout</b>	<b>Default: 105 °F / 40.6 °C</b> (80 °F to 150 °F) (26.7 °C to 65.6 °C)	Evap pump contacts open if the LCWT reaches this temp.
<b>23. High Evaporator Refrigerant Temperature Warning</b>	<b>Default: 110 °F / 43.3 °C</b> (32 °F to 158 °F) (0.0 °C to 70.0 °C)	Check evaporator pressure and temperature.
<b>24. Ice Building Feature</b>	<b>Default: Disable</b> (Enable, Disable)	Front Panel Enable/Disable of option
<b>25. External Base Loading Setpoint</b>	<b>Default: Disable</b> (Enable, Disable)	Front Panel Enable/Disable of option
<b>26. Current Limit Softload Start Point</b>	<b>Default: 40 %RLA</b> (20 to 100)	Current control setpoint will go to this XX% RLA setpoint at startup then soft load to active current limit setpoint. Note: If using "No LOAD" start sequence, item 52 "Start Sequence Type", setting the Current Limit softload Start point to 100 provides the fastest start time.
<b>27. Phase Unbalance Limit Protection</b>	<b>Default: Enable</b> (Enable, Disable)	When Enabled, the chiller capacity limit feature is active and will de-rates the chiller capacity when the unbalance of one phase is greater than 20%.The limit feature can be disabled however current unbalance protection and ultimate trip, Starter config. Items, remain active as configured.

## Additional Chiller Settings Screens

**Table 17. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Feature Settings**  
(continued)

Setpoint	Default, (Min to Max) (Options)	Help Information
<b>28. Over/Under Voltage Protection</b>	<b>Default: Enable</b> (Enable, Disable)	Enables / disables the under/over voltage protection. Potential Transformers inputs remain required at the Starter module non-AFD) and MPL remains active, only U/o Voltage protection is selectable by this setpoint. Must hold +/-10%, Must Trip +/- 15%.  (Enabled with Unit mounted Starters and later. Run-in stand constraints required disabled with other starter types.)
<b>29. Minimum Capacity Timer</b>	<b>Default: Enable</b> (Enable, Disable)	It may be desirable to cycle the chiller off rather than continue to run at minimum load. This setpoint enables the min capacity timer. It enables the Timer feature for the Time allowed at minimum capacity. The chiller cycles off after the timer period expires. If Disabled, the chiller can run at minimum capacity for lengthy periods.
<b>30. Control Algorithm Flow Compensation</b>	<b>Default: Enable</b> (Enable, Disable)	(Default of Enabled when water flow option is not installed has no control effect). <b>COOLING MODE ONLY: Only with Evap water Differential pressure sensing (GPM/Tons)</b> installed from the Options expanding box (item 22) on the Configuration screen. Enabled: Allows sensed evaporator water flow changes to adjust [compensation] the LWT control when enabled. <i>Therefore</i> when enabled (default) it is imperative that the water flow sensing option is set up properly. See Items 87 to 97. Disabled: Disables the compensation input to the LWT controls.
<b>31. Disable Surge Diagnostic</b>	<b>Default: Disable</b> (Enable, Disable)	Disables/Enables surge diagnostic after surge detection. Drive senses for repetitive surge events. Rapid increase of average current of more than the surge sensitivity (% of RLA setting) within approx. 1 sec. With this feature enabled a surge diagnostic will be generated after 7 minutes of this condition.

### 2. MANUAL SETTINGS Box

The settings shown in [Table 18](#) appear on the Manual Settings expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 18. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Manual Settings**

Setpoint	Default, (Min, Max) (Options)	Help Information
<b>1. Clear Energy Consumption</b>	<b>Default: False</b> (True, False)	Clears recorded starter energy consumption value if resettable option enabled.
<b>2. Purge Regen. Cycle</b>	<b>Default: Auto</b> (Auto, On)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN). (Allows you to manually initiate a regen cycle. Does not disable a partially completed regen cycle in process. See purge setpoint "Disable Pumpout Limit Setpoint")
<b>3. Purge Regen Cycle Setpoint</b>	<b>Default: Auto</b> (Auto, On)	Setting this to 'On' initiates a manual purge carbon tank regeneration cycle.
<b>4. Purge Exhaust Circuit Test</b>	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
<b>5. Clear Restart Inhibit Timer</b>	<b>Default: False</b> (True, False)	Clears the Restart Inhibit Timer
<b>6. Exhaust Circuit Pressure Test</b>	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
<b>7. Exhaust Circuit Pumpout Test</b>	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
<b>8. Exhaust Circuit Vacuum Test</b>	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).

## Additional Chiller Settings Screens

### 3. HEAD PRESSURE CONTROL Box

The settings shown in [Table 19](#) appear on the Head Pressure Control expanding box of the Field Startup tab screen.

**Table 19. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Head Pressure Control**

Setpoint	Default (Min, Max) (Options)	Help Information
<b>1. Actuator Stroke Time</b>	<b>Default: 30 seconds</b> (1 to 1000 seconds)	This adjustable setting provides the time (in seconds) that it takes the flow device to “stroke” from the specified minimum flow position to its maximum flow position. It can be readily calculated from the device’s slew rate or stroke speed, but if the entire range of the device is not used, it would be shortened by prorating.
<b>2. Desired Minimum Flow</b>	<b>Default: 20%</b> (0 to 100% of full flow)	This adjustable setting provides the desired minimum flow in the particular application, expressed as the % of Desired Maximum Flow.
<b>3. Head Pressure Control Setpoint</b>	<b>Default: 3 psid / 20.7 kPaD</b> (3 psid to 10 psid) (20.7 to 68.9 kPaD)	This setting provides the setpoint value used by the control algorithm.
<b>4. Head Pressure Control Initial Valve Position</b>	<b>Default: 50</b> (1 to 100%)	The initial position of the valve.
<b>5. Output Voltage at Desired Maximum Flow</b>	<b>Default: 10 Vdc</b> (0 to 10.0 Vdc)	This adjustable setting provides the voltage in .1 volt increments (or finer) for full desired flow of device to be controlled. During normal operation, this value will set the extreme (lowest or highest output voltage depending on direct or reverse action) of the output range. This value corresponds to 100% flow point of the device to be controlled, but does not necessarily have to be the wide open position of the device.
<b>6. Output Voltage at Desired Minimum Flow</b>	<b>Default: 2.0 Vdc default</b> (0 to 10.0 in 0.1 volt increments)	This adjustable setting provides the control with a single point of the characteristic of the device being controlled (for example, the device’s signal voltage input that corresponds to the Desired Minimum Flow point described in this table). During normal operation, this value sets one of the extremes of the analog output range. Note that this characterization can be estimated, or directly measured in the field with flow instrumentation. However, neither accuracy of this setting, nor linearity of the device’s signal input to flow output characteristic is necessary for reasonably good operation. When in doubt, simply assume linearity in estimating this setting. Setting this value higher than the value for the next item implies a reverse acting device.

## Additional Chiller Settings Screens

**Table 19. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Head Pressure Control**

Setpoint	Default (Min, Max) (Options)	Help Information
<b>7. "Off State" Output Command</b>	<b>Default: 2.0 Vdc</b> (0 to 10 Vdc in 0.1 volt increments or finer)	This parameter sets the voltage that the output assumes after initialization and after the compressor and condenser water pump have been shut off under automatic control.
<b>8. Damping Coefficient</b>	<b>Default: 5</b> (0.1 to 1.8 in .1 increments)	This adjustment can be used to make the control output more or less aggressive for a given system delta pressure error. An initial estimate of the coefficient is the ratio of the incremental flow to the total flow range over the first half of the actuator operating range. For example, assume the device produces 45% flow at 2.0 Vdc, (the set minimum), and 100% flow at 10 Vdc. At half stroke, the voltage would be 6.0 Volts. Further assume that the flow is determined to be approximately 80% flow at that stroke midpoint of 6.0 Vdc. Since the incremental flow is from 45% to 80%, that yields a 35% change to the midstroke position. Dividing this by the total possible change over the full output voltage range (100% - 45% = 55%) gives a result of 35% / 55% or 0.64 for the Damping Coefficient. (A value 1 would in theory be the perfect setting for a linear actuator, but using half the theoretical value is safer. Setting the coefficient too large can cause instability.)

### 4. HOT GAS BYPASS Box

The settings shown in [Table 20](#) appear on the Hot Gas Bypass expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 20. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Hot Gas Bypass**

Setpoint	Default (Min, Max) (Options)	Help Information
<b>1. Hot Gas Bypass Compressor Control Command</b>	<b>Default: 10%</b> (10 % to 90 %)	Compressor control signal upon decreasing loads when HGBP valve begins to open.
<b>2. Hot Gas Bypass Feature</b>	<b>Default: Disable</b> (Enable, Disable)	With HGBP the chiller can be falsely loaded with condenser refrigerant to the compressor suction to prevent the chiller from cycling off at low load periods.
<b>3. Hot Gas Bypass Maximum Timer Enable</b>	<b>Default: Enable</b> (Enable, Disable)	Front Panel Enable/Disable of option Case
<b>4. Hot Gas Bypass Maximum Timer Setpoint</b>	<b>Default: 30 min</b> (0 to 480)	Estimated time for the HGBP valve to travel from closed to the HGBP open position.
<b>5. Hot Gas Bypass Valve Travel Time</b>	<b>Default: 19 sec</b> (5 to 180)	Max time allowed in mode. Will cycle chiller off when time expires.

## Additional Chiller Settings Screens

### 5. ADJUSTABLE FREQUENCY DRIVE Box

The settings shown in [Table 21](#) appear on the Adjustable Frequency Drive expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 21. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Adjustable Frequency Drive**

Setpoint	Default (Min, Max) (Options)	Help Information
1. Maximum Frequency	Default: 60 Hz (38 to 60)	Maximum Operating frequency setpoint
2. Minimum Frequency	Default: 38 Hz (38 to 60)	Minimum Operating frequency setpoint
3. Surge Capacity Increase	Default 1.0 Hz (0.0 to 1.0 hertz)	Amount of hertz increased per 5 seconds intervals while in surge mode. (ie in 60 seconds will raise hertz 12, or until reaches max setting (60 hz). Discuss with tech service prior to using this setpoint.

### 6. TIMERS Box

The settings shown in [Table 22](#) appear on the Timers expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 22. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Timers**

Setpoint	Default (Min, Max) (Options)	Help Information
1. Ice To Normal Cooling Timer	Default: 5 minutes (0 to 10)	Optional item, shown when installed
2. Maximum Time at Minimum Capacity	Default: 30 minutes (1-480 minutes)	When the Minimum Capacity Timer ( <a href="#">Table 17, p. 46</a> ) is enabled, this parameter sets time allowed at minimum capacity until normal shutdown occurs.
3. Power-Up Start Delay	Default: 0 seconds (0-600 seconds)	Time delay to start upon power restoration. Allows multiple chillers to be staged on after a power outage.
4. Condenser Water Pump Off Delay	Default: 1 minute	Time Condenser water pump will remain on after post lube terminates. (Heating mode use only)
5. Evaporator Water Pump Off Delay	Default: 1 minute (0 to 30)	Time chilled water pump will remain on after post lube terminates. (Cooling mode use only)
6. Capacity Control Softload Time	Default: 900 seconds (0 to 7200)	Time for at start or change of water temp setpoint to reach setpoint target. <b>Note:</b> If using "No LOAD" start sequence, item 52 "Start Sequence Type", setting the softload time to 180 provides the fastest start time.
7. Current Limit Control Softload Time	Default: 600 seconds (0 to 7200)	Time for at start or change of current limit setpoint to reach setpoint target. <b>Note:</b> If using "No LOAD" start sequence, item 52 "Start Sequence Type", setting the Current Limits off load time to 0 provides the fastest start time.  A value of 120 seconds is recommended for AFDE starters.

## Additional Chiller Settings Screens

**Table 22. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Timers (continued)**

Setpoint	Default (Min, Max) (Options)	Help Information
<b>8. Re-Optimization Timer</b>	<b>Default: 12 hours</b> (1 to 255)	Background timer triggered re-optimization will occur if this timer expires during a continuous chiller run time. This forces re-optimization if the chiller continues to operate with steady loads for the length of the timer. A chiller "Stop" via stop or system satisfied "waiting for a need to cool", or re-optimization based on the sensitivity, or a surge event, will reset the timer to the "setpoint" amount. (Remaining time shown in Motor report.)
<b>9. Daily Pumpout Limit</b>	<b>Default: 10 minutes</b> (1 to 50)	Used to set the allowable amount of daily Pumpout time permitted by the purge. A base line should be established for a given chiller and if the purge daily rate changes and goes above the setpoint then an alarm is issued. Service needs to then determine why this occurred. The condition may be caused by a leak in the chiller.
<b>10. Disable Daily Pumpout Limit</b>	<b>Default: 0 hours</b> (0 to 72)	For this set points specified time (0 to 72 hr) the user can disable alarms associated with exceeding the daily pumpout limit. Moving this from "0" during a regen cycle will terminate the regen cycle.
<b>11. Starter Power Demand Time Period</b>	<b>Default: 15 minutes</b> (1 to 60 minutes)	Sets time period

## Additional Chiller Settings Screens

### 7. LEVEL 4 GAINS AND START SEQUENCE Box

The settings shown in [Table 23](#) appear on the Level 4 Gains and Start Sequence expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 23. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Level 4 Gains and Start Sequence**

Setpoint	Default (Min, Max) / (Options)	Help Information
<b>1. Start Sequence Type [Level 4]</b>	<b>Default: Normal</b> (Normal or No Load)	Selection of [Normal] means the chiller will begin the start sequence when the evaporator leaving water temperature is equal to or greater than the chilled water setpoint plus the differential to start. Selection of [No load] means the chiller will begin the start sequence when the evaporator leaving water temperature is greater than the chilled water setpoint minus the differential to stop.°
<b>2. Evaporator Pump Control Type [Level 4]</b>	<b>Default: Normal</b> (Normal or Delayed)	Selection of [Normal] means when given a 'stop-to-auto' command, the evaporator water pump will be energized and flow confirmed. Selection of [Delayed] means that the evaporator water pump will be energized and flow confirmed after pre-lube is complete but before the compressor is started. The Evaporator Pump Control Type Setpoint of [Delayed] will only be allowed for Start Sequence Type setpoint set to [No Load]. All other combinations may be set. USE NORMAL unless approved by LaCrosse Technical Service.
<b>3. Chilled Water Control Proportional Gain (Kp)</b>	<b>Default: 50 default</b> (0.0 to 180.0)	Proportional Gain = Kp (error of distance from setpoint) This setting indicates how far from setpoint and how fast move the compressor load signal (vanes, and AFD). The higher the value the faster. <b>Note:</b> Experience has shown that 50 provides better stability for the majority of sites.
<b>4. Chilled Water Control Reset Time</b>	<b>Default: 120 sec</b> (0 to 1000)	Reset time = [Kp / Ki] in seconds. Where Ki is the integral value which "weights" the proportional error by measuring how long the Kp has been off the target. Time it takes integral for to match the proportional. (A higher number results in a longer time (Slower) to converge on the setpoint. Lowering the reset time increases the integral control. This speeds up guide vanes. It may cause instability at some conditions if this is the only parameter that was changed.)
<b>5. Chilled Water Control Gain (Kd)</b>	<b>Default: 0.0</b> (0.0 to 18.0)	Kd = rate of change from, or towards, the target. (Rate of Change. Higher number settles out an oscillating system.)

## Additional Chiller Settings Screens

**Table 23. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Level 4 Gains and Start Sequence (continued)**

Setpoint	Default (Min, Max) / (Options)	Help Information
<b>6. Chilled Water Control Feed Forward Gain</b>	<b>Default: 80 default</b> (0 to 200%)	FF Gain = Forward information from an increasing or decreasing Evap delta temp as compared to the Evap Delta T setpoint setting. (A high number means increased reaction to changes in Entering Evaporator Water Temperature. <b>Note:</b> Experience has shown that 80 provides better stability for the majority of sites.)
<b>7. Evap/Cond Lift Corrections</b>	<b>Default: 25%</b> (0 to 100)	The main purpose of this item is to adjust the algorithm for cool tower water. Adjustment (%) made to the chiller water control algorithm gain when operational conditions are not at nominal 44F/ 85F. (beneficial with leaving chilled water temps above 44 and/or when cooler tower water below 85). <b>Note:</b> Compensation to "control gain" with respect to the evaporator to condenser differential pressure; gain is reduced as the impeller lift is reduced, gain is increased as the impeller lift is increased

### 8. LEVEL 4 STARTS AND RUNTIME BOX

The settings shown in [Table 24](#) appear on the Level 4 Starts and Runtime expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 24. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Level 4 Starts and Runtime**

Setpoint	Default (Min, Max)	Help Information
<b>1. Compressor Starts</b>	<b>Default: 0</b> (0 - 1000000)	Allows settings of starts. (Used to set starts after software download, or with UC800 replacement)
<b>2. Compressor Running Time</b>	<b>Default 00 : 00</b> (Hrs : Min) (00:00 to 455627:13)	Allows settings of starts. (Used to set starts after software download, or with UC800 replacement)
<b>3. Absorptive Capacity</b>	<b>Default: 0%</b> (0.0 to 100.0)	This setpoint allows the user to manually set the Absorptive capacity in the event of a purge replacement, or service.
<b>4. Carbon Regen Cycles</b>	<b>Default: 0</b> (0 to 1000)	This setpoint allows the user to manually set the number of Carbon Regeneration Cycles in the event of a purge replacement, or service.
<b>5. Pumpout Time Since Last Regen</b>	<b>Default: 0:00</b> min:sec (00:00 to 99999:59)	This setpoint allows the user to manually set the Pumpout Time Since Last Regeneration in the event of a purge replacement, or service.
<b>6. Pumpout Total at Last Regeneration</b>	<b>Default: 0:00</b> min:sec (00:00 to 99999:59)	This setpoint allows the user to manually set the Pumpout Total at Last Regeneration in the event of a purge replacement, or service.
<b>7. Pumpout-Life</b>	<b>Default: 0:00</b> min:sec (00:00 to 99999:59)	This setpoint allows the user to manually set the Pumpout Life in the event of a purge replacement, or service.
<b>8. Refrigeratin-Life</b>	<b>Default: 0:00</b> hr:min (00:00 to 99999:59)	This setpoint allows the user to manually set the Refrigeration Life in the event of a purge replacement, or service.

## Additional Chiller Settings Screens

### 9. LEVEL 4 ADJUSTABLE FREQUENCY DRIVE Box

The settings shown in [Table 25](#) appear on the Level 4 Adjustable Frequency Drive expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

**Table 25. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Level 4 Adjustable Frequency Drive**

Setpoint	Default (Min, Max)	Help Information
1. AFD Boundary Pressure Coefficient Y Intercept [level 4]	<b>Default: 0.40</b> (0.000 to 1.000)	Y-intercept point of the pressure coefficient surge boundary. The present value at shutdown is stored for the next startup intercept point. You can temporarily change this item in Tracer TU. The controls are constantly and automatically adjusting this value during operation therefore this value will be changing from this starting point and the value will be changing.
2. AFD Boundary Pressure Coefficient Y Intercept Max - Cprs [level 4]	<b>Default: 2.00</b> (0.01 to 2.00)	Maximum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a maximum Y-intercept boundary point, which it will not be allowed to exceed. Allows the user the ability to limit the boundary.
3. Minimum Surge Boundary Coefficient [level 4]	<b>Default: 0.300</b> (0.010 to 1.000)	Minimum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a minimum Y-intercept boundary point, which it will not be allowed to reach. Allows the user the ability to limit the boundary.

### 10. LEVEL 4 DATA RECORDER Box

The settings shown in [Table 26](#) appear on the Level 4 Data Recorder expanding box on the CVHE, CVHF, and CVHG version of the Field Startup tab screen.

*Note: This expanding box appears only if software part #6200-0456-1.11 is installed.*

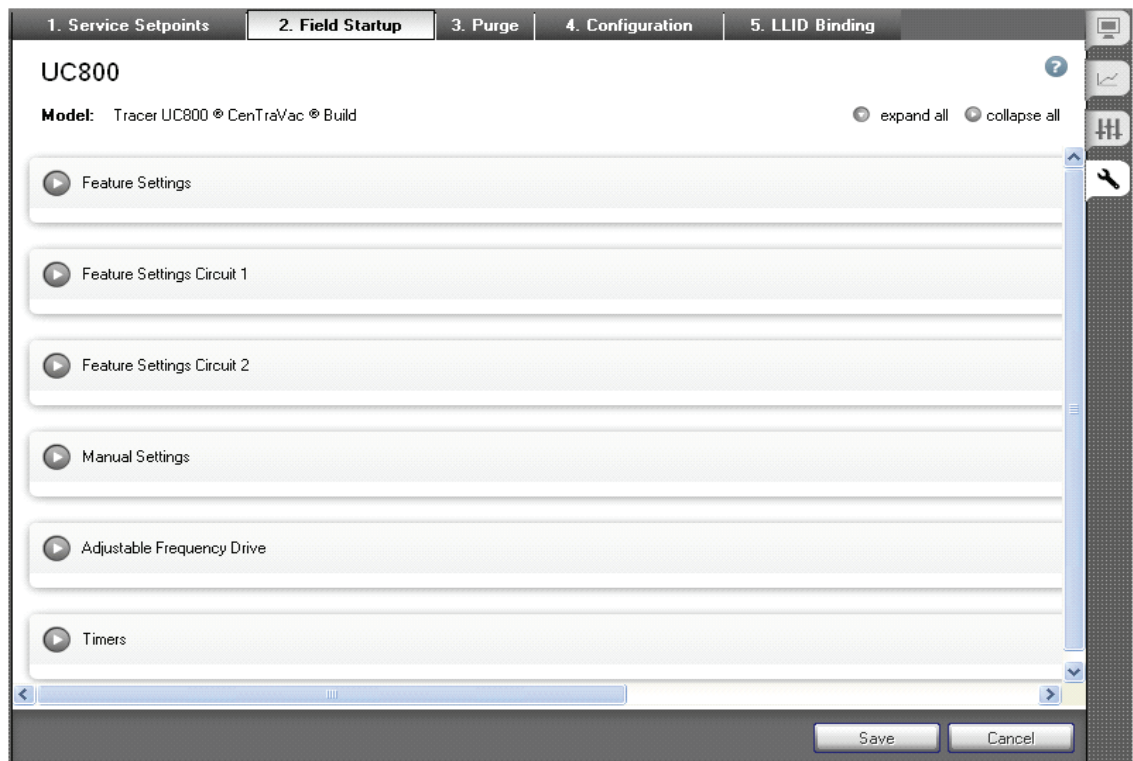
**Table 26. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Level 4 Data Recorder Box**

Setpoint	Default (Min, Max)	Help Information
1. Data Recorder Sample Period	<b>Default: 2 seconds</b> (0 to 3600)	Period of time between samples.
2. Data Recorder Default Change Delta	<b>Default: .5</b> (0 to 0.9)	This is the amount of change that must take place before it is stored in the log.
3. Data Recorder Temperature Change Delta	<b>Default: 1.1 °F</b> (0 to 5)	This is the amount of change that must take place before it is stored in the log.
4. Data Recorder Pressure Change Delta	<b>Default: .5 PSID</b> (0 to 5)	This is the amount of change that must take place before it is stored in the log.
5. Data Recorder Percent Change Delta	<b>Default: 1%</b> (0 to 5)	This is the amount of change that must take place before it is stored in the log.
6. Data Recorder Count Change Delta	<b>Default: 30</b> (0 to 120)	This is the amount of change that must take place before it is stored in the log.

## Equipment Utility - Field Startup Tab Screen for CDHF and CDHG

The settings in the (1) Feature Settings, (2) Feature Settings Circuit 1, (3) Feature Settings Circuit 2, (4) Manual Settings, (5) Adjustable Frequency Drive, and (6) Timers expanding boxes on the CDHF and CDHG version of the Field Startup tab screen provide control of chiller hardware functions or features.

**Figure 9. Field Startup Tab Screen for CDHF and CDHG (Duplex Chiller)**



### 1. FEATURE SETTINGS Box

The settings shown in [Table 27](#) are displayed in the Feature Settings box of the CDHF and CDHG version of the Field Startup tab screen. (See the Knowledge Center for related cases).

**Table 27. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Feature Settings**

Setpoint	Default (Min, Max)	Help Information
1. Chilled Water Reset Type	<b>Default: Disable</b> (Constant, Outdoor Air, Return, Disable)	Front Panel Enable/Disable of option
2. Return Reset Ratio	<b>Default: 50%</b> (10% to 120%)	
3. Return Start Reset	<b>Default: 10 °F / 5.6 °C</b> (4.0 °F to 30 °F) (2.2 °C to 16.7 °C)	



## Additional Chiller Settings Screens

**Table 27. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Feature Settings (continued)**

Setpoint	Default (Min, Max)	Help Information
4. Return Maximum Reset	<b>Default: 5 °F/2.8 °C</b> (0 °F to 20 °F) (0.0 °C to 11.1 °C)	
5. Outdoor Reset Ratio	<b>Default: 10%</b> (-80 to 80)	
6. Outdoor Start Reset	<b>Default: 90 °F/32.2 °C</b> (50 °F to 130°F) (10.0 °C to 54.4°C)	
7. Outdoor Maximum Reset	<b>Default: 5 °F / 2.8 °C</b> (0.0 °F to 20.0 °F) (0.0 °C to 11.1 °C),	
8. External Chilled Water Setpoint	<b>Default: Disable</b> (Enable, Disable)	Front Panel Enable/Disable of option
9. External Current Limit Setpoint	<b>Default: Disable</b> (Enable, Disable)	Front Panel Enable/Disable of option
10. Front Panel Ice Termination Setpoint	<b>Default: 27° F / -2.8 °C default</b> (20°F to 32°F) (-6.7°C to 0.0°C)	Optional item, shown when installed
11. Evaporator Design Delta Temp	<b>Default: 10° F / 5.6° C</b> (4 °F to 40 °F) (2.2 °C to 22.2 °C)	Set to the Evaporator design delta temp in F/C (typically 10°F). Control algorithm uses entering evaporator temp in the feed forward logic. (Cooling mode use only) - Confirm that actual GPM through machine is at design. Percent of total compressor load is based on the given evap delta T compared to the full load delta T. If design water flow is not attainable, then determine a new full load Design delta temperature at the given GPM provided.
12. Condenser Design Delta Temp	<b>Default: 10° F / 5.6° C</b> (40 °F to 4 °F) (2.2 °C to 22.2 °C)	Set to the Condenser design Delta temp in F/C. Control algorithm use entering temp in feed forward logic. (Heating mode use only)
13. Evaporator Leaving Water Temp Cutout	<b>Default: 36° F / 2.2° C</b> (-10°F to /36°F,) (-23.3 °C to 2.2 °C)	Safety trip point for low temp water. (NOTE: With verification for freeze protection, this will be set to 12-14F for Ice Mode)
14. Low Refrigerant Temp Cutout	<b>Default: 32° F/ 0.0° C</b> (-35 °F to 36 °F) (-37.2 °C to 2.2 °C)	Safety trip point for low refrigerant temp. For Ice making this must be set at startup. Note: With Verification for Freeze protection, this will be set to "0°F " to make ice.
15. Local Atmospheric Pressure	<b>Default: 14.7 PSIA / 101.4 kPaA</b> (34.5 to 137.9 kPaA)	Set to Jobsite conditions
16. High Evaporator Water Temperature Cutout	<b>Default: 105° F / 40.6° C</b> 80-150°F / 26.7 to 65.6°C	Evap pump contacts open if the LCWT reaches this temp.
17. Ice Building Feature	<b>Default: Disable</b>	Front Panel Enable/Disable of option
18. External Base Loading Setpoint	<b>Default: Disable</b>	Front Panel Enable/Disable of option

## Additional Chiller Settings Screens

**Table 27. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Feature Settings (continued)**

Setpoint	Default (Min, Max)	Help Information
<b>19. Current Limit Softload Start Point</b>	<b>Default: 40% RLA</b> 20 to 100	Current control setpoint will go to this XX% RLA setpoint at startup then soft load to active current limit setpoint. Note: If using "No LOAD" start sequence, item 52 "Start Sequence Type", setting the Current Limit softload Start point to 100 provides the fastest start time.
<b>20. Control Algorithm Flow Compensation</b>	<b>Default: Enable</b> (Enable, Disable)	(Default of Enabled when water flow option is not installed has no control effect). <b>COOLING MODE ONLY: only with Evap water Differential pressure sensing (GPM/Tons)</b> installed from the Options expanding box (item 22) on the Configuration screen. Enabled: Allows sensed evaporator water flow changes to adjust [compensation] the LWT control when enabled. Therefore, when enabled (default) it is imperative that the water flow sensing option is set up properly. See Items 87 to 97. Disabled: Disables the compensation input to the LWT controls.
<b>21. Over/Under Voltage Protection</b>	<b>Default: Enable</b> (Enable, Disable)	Enabled with Unit mounted Starters and later. (Disabled with other starter types.) Enables / disables the under/over voltage protection. Potential Transformers inputs remain required at the Starter module non-AFD) and MPL remains active, only U/o Voltage protection is selectable by this setpoint. Must hold +/-10%, Must Trip +/- 15%
<b>22. Phase Unbalance Limit Protection</b>	<b>Default: Enable</b> (Enable, Disable)	When Enabled, the chiller capacity limit feature is active and will de-rates the chiller capacity when the unbalance of one phase is greater than 20%.The limit feature can be disabled however current unbalance protection and ultimate trip, Starter config. Items, remain active as configured.

## Additional Chiller Settings Screens

**Table 27. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Feature Settings (continued)**

Setpoint	Default (Min, Max)	Help Information
23. Minimum Capacity Timer	<b>Default: Enabled</b> (Enable, Disable)	
24. Staging Sequence	<b>Default: Balanced</b> (Circuit 1 Lead, Circuit 2 Lead, Combined)	<p>Defines how the compressors are started and stopped.</p> <p>When capacity control has a choice among compressors to start, the preferred compressor to start is called the lead compressor. When capacity control has a choice among compressors to stop, the preferred compressor to stop is called the lag compressor.</p> <p><b>Balanced Starts and Hours:</b> This sacrifices a small efficiency improvement gained with the fixed sequence methods to roughly equalize wear between two compressors.</p> <p><b>Circuit 1 Lead:</b> When running chilled water temperature at selected conditions, compressor 1 is the most efficient compressor to operate at part load. Compressors on Duplex chillers are not sized exactly the same. Because the water paths are connected in series, refrigerant conditions are slightly different and the compressors are sized accordingly. At low loads, where only one compressor is running, and design leaving water temperature settings, compressor 1 will be operating closer to its selection point compared to running only compressor 2. In this situation, the best part load efficiency occurs if compressor 1 is running.</p> <p><b>Circuit 2 Lead:</b> If chilled water reset is used, compressor 2 is the most efficient compressor to operate at part load. If the leaving water temperature is reset and the chiller only needs one compressor, then compressor 2 would be running closer to its selection point and would be the most efficient compressor to operate.</p> <p><b>Combined Start:</b> starts both compressors in close succession to minimize the time it takes for the chiller to reach full load. Some process applications do not need staging as much as they need the chiller to start and generate capacity as fast as possible. This method starts both compressors, slightly staggered to prevent doubling of the current inrush, but generally controls the chiller as if there were only one compressor.</p>

### 2. FEATURE SETTINGS CIRCUIT 1 and CIRCUIT 2 Boxes

The settings shown in [Table 28](#) appear on the Circuit 1 and Circuit 2 expanding boxes on the CDHF and CDHG version of the Field Startup tab screen.

**Table 28. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Circuit 1**

Setpoint	Default (Min, Max)	Help Information
1. IGV 1 Max Steps	<b>Default: 50000</b> (0 to 53111)	
2. IGV 2 Max Steps	<b>Default: 50000</b> (0 to 53111)	
3. Condenser Limit Setpoint	<b>Default: 93% of the HPC (PSIG)</b> (80 to 120)	Reference point (% of HPC setting) for condenser limit control.
4. Restart Inhibit Diagnostic	<b>Default: Enable</b> (Enable, Disable)	Enabled diagnostic message
5. Restart Inhibit Free Starts	<b>Default: 3</b> (1 to 5)	# of free starts allowed before Restart Timer begins
6. Restart Inhibit Start to Start	<b>Default: 20 min</b> (10 to 30 min)	Restart Time
7. High Evaporator Refrigerant Temperature Warning	<b>Default: 110° F / 43.4° C</b> (32° F to 158° F) (0.0 ° C to 70.0 ° C)	Check evaporator pressure and temperature.

### 3. MANUAL SETTINGS Box

The settings shown in [Table 29](#) appear on the Manual Settings expanding box on the CDHF and CDHG version of the Field Startup tab screen.

**Table 29. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Manual Settings**

Setpoint	Default (Options)	Help Information
1. Clear Energy Consumption	<b>Default: False</b> (True, False)	Clears recorded starter energy consumption value if resettable option enabled.
2. Purge Regen. Cycle Ckt1	<b>Default: Auto</b> (Auto, On)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
3. Purge Regen. Cycle Ckt2	<b>Default: Auto</b> (Auto, On)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
4. Exhaust Circuit Pressure Test Ckt1	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
5. Exhaust Circuit Pressure Test Ckt2	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
6. Purge Exhaust Circuit Test Ckt1	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).

## Additional Chiller Settings Screens

**Table 29. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Manual Settings (continued)**

Setpoint	Default (Options)	Help Information
7. Purge Exhaust Circuit Test Ckt2	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
8. Exhaust Circuit Vacuum Test Ckt 1	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
9. Exhaust Circuit Vacuum Test Ckt 2	<b>Default: Disable</b> (Enable, Disable)	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN).
10. Clear Restart Inhibit Ckt1	<b>Disable: False</b> (True, False)	Resets the restart inhibit time to zero.
11. Clear Restart Inhibit Ckt2	<b>Disable: False</b> (True, False)	Resets the restart inhibit time to zero.

## 4. ADJUSTIBLE FREQUENCY DRIVE Box

The settings shown in [Table 30](#) appear on the Timers expanding box on the CDHF and CDHG version of the Field Startup tab screen.

**Table 30. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Adjustable Frequency Drive**

Setpoint	Default (Min, Max)	Help Information
1. Maximum Frequency Ckt 1	<b>Default: 60 Hz</b> (38 to 60)	Maximum Operating frequency setpoint
2. Minimum Frequency Ckt 1	<b>Default: 38 Hz</b> (38 to 60)	Minimum Operating frequency setpoint
3. Surge Capacity Increase Ckt 1	<b>Default: 1 hz</b> (0 to 5 hertz)	Amount of hertz increased per 5 seconds intervals while in surge mode. (ie in 60 seconds will raise hertz 12, or until reaches max setting (60 hz). Discuss with tech service prior to using this setpoint.
4. Maximum Frequency Ckt 2	<b>Default: 60 Hz</b> (38 to 60)	Maximum Operating frequency setpoint
5. Minimum Frequency Ckt 2	<b>Default: 38 Hz</b> (38 to 60)	Minimum Operating frequency setpoint
6. Surge Capacity Increase Ckt2	<b>Default: 1 hz</b> (0 to 5 hertz)	Amount of hertz increased per 5 seconds intervals while in surge mode. (ie in 60 seconds will raise hertz 12, or until reaches max setting (60 hz). Discuss with tech service prior to using this setpoint.

### 5. HEAD PRESSURE CONTROL Box

The settings shown in [Table 31](#) appear on the Head Pressure Control expanding box of the Field Startup tab screen.

**Table 31. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Head Pressure Control**

Setpoint	Default (Min, Max) (Options)	Help Information
<b>1. Actuator Stroke Time</b>	<b>Default: 30 seconds</b> (1 to 1000 seconds)	This adjustable setting provides the time (in seconds) that it takes the flow device to “stroke” from the specified minimum flow position to its maximum flow position. It can be readily calculated from the device’s slew rate or stroke speed, but if the entire range of the device is not used, it would be shortened by prorating.
<b>2. Desired Minimum Flow</b>	<b>Default: 20%</b> (0 to 100% of full flow)	This adjustable setting provides the desired minimum flow in the particular application, expressed as the % of Desired Maximum Flow.
<b>3. Head Pressure Control Setpoint</b>	<b>Default: 3 psid / 20.7 kPaD</b> (3 psid to 10 psid) (20.7 to 68.9 kPaD)	This setting provides the setpoint value used by the control algorithm.
<b>4. Head Pressure Control Initial Valve Position</b>	<b>Default: 50</b> (1 to 100%)	The initial position of the valve.
<b>5. Output Voltage at Desired Maximum Flow</b>	<b>Default: 10 Vdc</b> (0 to 10.0 Vdc)	This adjustable setting provides the voltage in .1 volt increments (or finer) for full desired flow of device to be controlled. During normal operation, this value will set the extreme (lowest or highest output voltage depending on direct or reverse action) of the output range. This value corresponds to 100% flow point of the device to be controlled, but does not necessarily have to be the wide open position of the device.
<b>6. Output Voltage at Desired Minimum Flow</b>	<b>Default: 2.0 Vdc default</b> (0 to 10.0 in 0.1 volt increments)	This adjustable setting provides the control with a single point of the characteristic of the device being controlled (for example, the device’s signal voltage input that corresponds to the Desired Minimum Flow point described in this table). During normal operation, this value sets one of the extremes of the analog output range. Note that this characterization can be estimated, or directly measured in the field with flow instrumentation. However, neither accuracy of this setting, nor linearity of the device’s signal input to flow output characteristic is necessary for reasonably good operation. When in doubt, simply assume linearity in estimating this setting. Setting this value higher than the value for the next item implies a reverse acting device.

## Additional Chiller Settings Screens

**Table 31. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Head Pressure Control**

Setpoint	Default (Min, Max) (Options)	Help Information
7. "Off State" Output Command	<b>Default: 2.0 Vdc</b> (0 to 10 Vdc in 0.1 volt increments or finer)	This parameter sets the voltage that the output assumes after initialization and after the compressor and condenser water pump have been shut off under automatic control.
8. Damping Coefficient	<b>Default: 0.5</b> (0.1 to 1.8 in .1 increments)	This adjustment can be used to make the control output more or less aggressive for a given system delta pressure error. An initial estimate of the coefficient is the ratio of the incremental flow to the total flow range over the first half of the actuator operating range. For example, assume the device produces 45% flow at 2.0 Vdc, (the set minimum), and 100% flow at 10 Vdc. At half stroke, the voltage would be 6.0 Volts. Further assume that the flow is determined to be approximately 80% flow at that stroke midpoint of 6.0 Vdc. Since the incremental flow is from 45% to 80%, that yields a 35% change to the midstroke position. Dividing this by the total possible change over the full output voltage range (100% - 45% = 55%) gives a result of 35% / 55% or 0.64 for the Damping Coefficient. (A value 1 would in theory be the perfect setting for a linear actuator, but using half the theoretical value is safer. Setting the coefficient too large can cause instability.)

## 5. TIMERS Box

The settings shown in [Table 32](#) appear on the Timers expanding box on the CDHF and CDHG version of the Field Startup tab screen.

**Table 32. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Timers**

Setpoint	Default (Min, Max)	Help Information
1. Ice To Normal Cooling Timer	<b>Default: 5 minutes</b> (0 to 10)	Optional item, shown when installed
2. Maximum Time at Minimum Capacity Ckt1	<b>Default: 30 minutes</b> (1 to 480 minutes)	
3. Maximum Time at Minimum Capacity Ckt2	<b>Default: 30 minutes</b> (1 to 480 minutes)	
4. Power-Up Start Delay	<b>Default: 0 seconds</b> (0 to 600 seconds)	
5. Condenser Water Pump Off Delay	<b>Default: 1 minute</b> (Range 0 to 30)	Time Condenser water pump will remain on after post lube terminates. (Heating mode use only)
6. Evaporator Water Pump Off Delay	<b>Default: 1 minute</b> (Range 0 to 30)	Time chilled water pump will remain on after post lube terminates. (Cooling mode use only)
7. Capacity Control Softload Time	<b>Default: 900 sec</b> (0 to 7200)	Time for at start or change of water temp setpoint to reach setpoint target. <b>Note:</b> If using "No LOAD" start sequence, item 52 "Start Sequence Type", setting the softload time to 180 provides the fastest start time. A value of 120 seconds is recommended for AFDE starters.

## Additional Chiller Settings Screens

**Table 32. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Timers (continued)**

Setpoint	Default (Min, Max)	Help Information
<b>8. Current Limit Control Softload Time</b>	<b>Default: 600 Seconds</b> (Range 0 to 7200)	Time for at start or change of current limit setpoint to reach setpoint target. <b>Note:</b> If using "No LOAD" start sequence, item 52 "Start Sequence Type", setting the Current Limits off load time to 0 provides the fastest start time.
<b>9. Starter Power Demand Time Period</b>	<b>Default: Default 15 minutes</b> (Range 1 to 60 minutes)	Sets time period
<b>10. AFD Re-Optimization Timer</b>	<b>Default: 12 hours</b> (1 to 255)	Background timer triggered re-optimization will occur if this timer expires during a continuous chiller run time. This forces re-optimization if the chiller continues to operate with steady loads for the length of the timer. A chiller "Stop" via stop or system satisfied "waiting for a need to cool", or re-optimization based on the sensitivity, or a surge event, will reset the timer to the "setpoint" amount. (Remaining time shown in Motor report.)
<b>11. Daily Pumpout Limit Ckt1</b>	<b>Default: 10 minutes</b> (1 to 50),	
<b>12. Disable Daily Pumpout Limit Ckt1</b>	<b>Default: 0 hours</b> (Range 0 to 72)	For this set points specified time (0 to 72 hr) the user can disable alarms associated with exceeding the daily pumpout limit. Moving this from "0" during a regen cycle will terminate the regen cycle.
<b>13. Daily Pumpout Limit Ckt2</b>	<b>Default: 10 minutes</b> (1 to 50)	
<b>14. Disable Daily Pumpout Limit Ckt2</b>	<b>Default: 0 hours</b> (Range 0 to 72)	For this set points specified time (0 to 72 hr) the user can disable alarms associated with exceeding the daily pumpout limit. Moving this from "0" during a regen cycle will terminate the regen cycle.
<b>15. Starter Power Demand Time Period</b>	<b>Default: 15 minutes</b> (1 to 60 minutes)	Sets time period

## Additional Chiller Settings Screens

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### 6. LEVEL 4 GAINS AND START SEQUENCE Box

The settings shown in [Table 33](#) appear on the Level 4 Gains and Start Sequence expanding box on the CDHF and CDHG version of the Field Startup tab screen.

*Note: Access the Level 4 boxes by clicking in the gray area at the bottom of the Field Startup tab screen.*

**Table 33. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Level 4 Gains and Start Sequence**

Setpoint	Default (Min, Max)	Help Information
<b>1. Start Sequence Type [Level 4]</b>	<b>Default: Normal</b> (Normal or No Load)	Selection of [Normal] means the chiller will begin the start sequence when the evaporator leaving water temperature is equal to or greater than the chilled water setpoint plus the differential to start. Selection of [No load] means the chiller will begin the start sequence when the evaporator leaving water temperature is greater than the chilled water setpoint minus the differential to stop.*
<b>2. Evaporator Pump Control Type [Level 4]</b>	<b>Default: Normal</b> (Normal or Delayed)	Selection of [Normal] means when given a 'stop-to-auto' command, the evaporator water pump will be energized and flow confirmed. Selection of [Delayed] means that the evaporator water pump will be energized and flow confirmed after pre-lube is complete but before the compressor is started. The Evaporator Pump Control Type Setpoint of [Delayed] will only be allowed for Start Sequence Type setpoint set to [No Load]. All other combinations may be set. USE <b>NORMAL</b> unless approved by LaCrosse Technical Service.
<b>3. Chilled Water Control Proportional Gain Kp</b>	<b>Default: 50</b> (0.0 to 180.0)	Proportional Gain = Kp (error of distance from setpoint) This setting indicates how far from setpoint and how fast move the compressor load signal (vanes, and AFD). The higher the value the faster. <b>Note:</b> Experience has shown that 50 provides better stability for the majority of sites.
<b>4. Chilled Water Control Reset Time</b>	<b>Default: 120 sec</b> (0 to 1000)	Reset time = [Kp / Ki] in seconds. Where Ki is the integral value which "weights" the proportional error by measuring how long the Kp has been off the target. Time it takes integral for to match the proportional. (A higher number results in a longer time (Slower) to converge on the setpoint. Lowering the reset time increases the integral control. This speeds up guide vanes. It may cause instability at some conditions if this is the only parameter that was changed.)
<b>5. Chilled Water Control Derivative Gain (Kd)</b>	<b>Default: 0.0</b> (0.0 to 18.0)	Kd = rate of change from, or towards, the target. (Rate of Change. Higher number settles out an oscillating system.)

## Additional Chiller Settings Screens

**Table 33. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Level 4 Gains and Start Sequence (continued)**

Setpoint	Default (Min, Max)	Help Information
<b>6. Chilled Water Control Feed Forward Gain</b>	<b>Default: 80</b> (0 to 200%)	FF Gain = Forward information from an increasing or decreasing Evap delta temp as compared to the Evap Delta T setpoint setting. (A high number means increased reaction to changes in Entering Evaporator Water Temperature. <b>Note:</b> Experience has shown that 80 provides better stability for the majority of sites.)
<b>7. Evap/Cond Lift Corrections</b>	<b>Default: 25%</b> (0 to 100)	The main purpose of this item is to adjust the algorithm for cool tower water. Adjustment (%) made to the chiller water control algorithm gain when operational conditions are not at nominal 44F/ 85F. (beneficial with leaving chilled water temps above 44 and/or when cooler tower water below 85). <b>Note:</b> Compensation to "control gain" with respect to the evaporator to condenser differential pressure; <b>gain is reduced as the impeller lift is reduced, gain is increased as the impeller lift is increased</b>

### 7. LEVEL 4 STARTS AND RUNTIME BOX

The settings shown in [Table 34](#) appear on the Level 4 Gains and Start Sequence expanding box on the CDHF and CDHG version of the Field Startup tab screen.

*Note: Access the Level 4 boxes by clicking in the gray area at the bottom of the Field Startup tab screen.*

**Table 34. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Level 4 Starts and Runtime**

Setpoint	Default (Min, Max)	Help Information
<b>1. Compressor Running Time Ckt1 / Ckt2</b>	<b>Default: 00 : 00</b> (Hr. Min.) (00:00, 455627:13)	Allows settings of starts. (Used to set starts after UC800 replacement)
<b>2. Compressor Starts Ckt1 / Ckt2</b>	<b>Default: 0</b> (0 - 1,000,000)	Allows settings of starts. (Used to set starts after UC800 replacement)
<b>3. Absorptive Capacity</b>	<b>Default: 0%</b> (0.0 to 100.0)	This setpoint allows the user to manually set the Absorptive capacity in the event of a purge replacement, or service.
<b>4. Carbon Regen Cycles</b>	<b>Default: 0</b> (0 to 1000)	This setpoint allows the user to manually set the number of Carbon Regeneration Cycles in the event of a purge replacement, or service.
<b>5. Pumpout Time Since Last Regen</b>	<b>Default: 0:00</b> min:sec (00:00 to 99999:59)	This setpoint allows the user to manually set the Pumpout Time Since Last Regeneration in the event of a purge replacement, or service.
<b>6. Pumpout Total at Last Regeneration</b>	<b>Default: 0:00</b> min:sec (00:00 to 99999:59)	This setpoint allows the user to manually set the Pumpout Total at Last Regeneration in the event of a purge replacement, or service.

## Additional Chiller Settings Screens

**Table 34. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Level 4 Starts and Runtime (continued)**

Setpoint	Default (Min, Max)	Help Information
7. Pumpout-Life	<b>Default: 0:00</b> min:sec (00:00 to 99999:59)	This setpoint allows the user to manually set the Pumpout Life in the event of a purge replacement, or service.
8. Refrigeratin-Life	<b>Default: 0:00</b> hr:min (00:00 to 99999:59)	This setpoint allows the user to manually set the Refrigeration Life in the event of a purge replacement, or service.

### 8. LEVEL 4 ADJUSTABLE FREQUENCY DRIVE Box

The settings shown in [Table 35](#) appear on the Level 4 Adjustable Frequency Drive expanding box on the CDHF and CDHG version of the Field Startup tab screen.

*Note: Access the Level 4 boxes by clicking in the gray area at the bottom of the Field Startup tab screen.*

**Table 35. Equipment Utility - CDHF and CDHG Field Startup Tab Screen: Level 4 Adjustable Frequency Drive**

Setpoint	(Min, Max) Default	Help Information
1. Boundary Pressure Coefficient Y Intercept Ckt1	<b>Default: 0.40</b> (0.01 to 2.00)	Y-intercept point of the pressure coefficient surge boundary. The present value at shutdown is stored for the next startup intercept point. You can temporarily change this item in Tracer TU. The controls are constantly and automatically adjusting this value during operation therefore this value will be changing from this starting point and the value will be changing.
2. Boundary Pressure Coefficient Y Intercept Ckt2	<b>Default: 2.00</b> (0.01 to 2.00)	Maximum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a maximum Y-intercept boundary point, which it is not allowed to exceed. Allows the user the ability to limit the boundary.
3. Boundary Pressure Coefficient Y Intercept Max Ckt 1	<b>Default: 2.00</b> (0.01 to 2.00)	Maximum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a maximum Y-intercept boundary point, which it is not allowed to exceed. Allows the user the ability to limit the boundary.
4. Boundary Pressure Coefficient Y Intercept Max Ckt 2	<b>Default: 2.00</b> (0.01 to 2.00)	Maximum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a maximum Y-intercept boundary point, which it is not allowed to exceed. Allows the user the ability to limit the boundary.
5. Minimum Surge Boundary Coefficient Ckt1	<b>Default: 0.300</b> (0.0 to 1.0)	Minimum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a minimum Y-intercept boundary point, which it will not be allowed to reach. Allows the user the ability to limit the boundary.
6. Minimum Surge Boundary Coefficient Ckt2	<b>Default: 0.300</b> (0.0 to 1.0)	Minimum operating value of the pressure coefficient Y-intercept point for the surge boundary. This is a minimum Y-intercept boundary point, which it will not be allowed to reach. Allows the user the ability to limit the boundary.

## Equipment Utility - Purge Tab Screen

The setpoints shown in [Table 36](#) are specific to the purge unit and are common to both CenTraVac chillers and Duplex CenTraVac chillers. You can modify the settings within their legal range of values. (See the Knowledge Center for related cases.)

*Note: If you are connected to a Duplex unit you see two expanding boxes—Purge 1 and Purge 2. The contents of these expanding boxes are identical except for the Ckt1 and Ckt2 designations at the end of the setting names.*

**Table 36. Equipment Utility - Purge Tab Screen Setpoints for All Models**

Setpoint	Default (Min, Max)/ (Options)	Help Information
1. Purge Operating Mode Ckt1	<b>Default: Adaptive</b> (Auto, On, Stop, Adaptive)	Recommended mode is adaptive. Adaptive operation is greatly improved over previous "adaptive purge modes."
2. Purge Operating Mode Ckt2	<b>Default: Adaptive</b> (Auto, On, Stop, Adaptive)	Recommended mode is adaptive. Adaptive operation is greatly improved over previous "adaptive purge modes."
3. Purge Liquid Temperature Inhibit Ckt1	<b>Default: Enable</b> (Enable, Disable)	Allows user to disable the inhibit feature that prevents purge pumpout if the sensed purge liquid temp. is less than the pumpout inhibit temp.
4. Purge Liquid Temperature Inhibit Ckt2	<b>Default: Enable</b> (Enable, Disable)	Allows user to disable the inhibit feature that prevents purge pumpout if the sensed purge liquid temp. is less than the pumpout inhibit temp.
5. Purge Liquid Temperature Limit Ckt1	<b>Default: 45°F/7.2°C</b> (32° to 50°F / 0.0° C to 10° C)	Defines the setpoint for the purge liquid temp inhibit feature.
6. Purge Liquid Temperature Limit Ckt2	<b>Default: 45°F/7.2°C</b> (32° to 50°F / 0.0° C to 10°C)	Defines the setpoint for the purge liquid temp inhibit feature.

# Manual Override Dialog

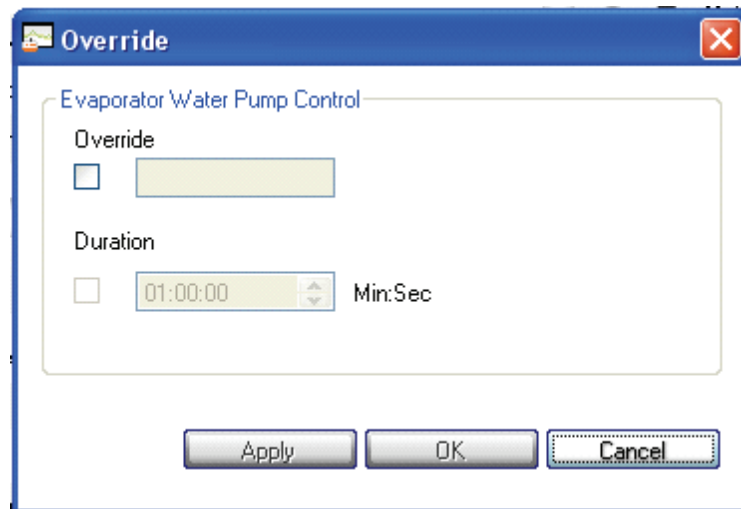


In Tracer TU, you use the Override dialog box to implement overrides for individual outputs. Setting values that you can override are marked with the override icon (shown at left). If the setting is active and has an override icon, you can override it. If a setting does not have an override icon, you cannot override it.

Each of the chiller settings screens presents the setting and default for each setting that you can override.

To override a setting, click the icon. The Override dialog box appears. An example in the following figure shows the Override dialog box for the Manual Capacity Setpoint Enable setting. Notice that the output setting label is displayed as the group box title.

**Figure 10. Override Dialog Box**



When you specify an override, the icon turns blue indicating that the override is in effect.



Some settings allow an override to be in effect only for a predetermined duration. When you override such a setting, a timed override icon with a clock image appears. If you place your cursor over the icon, a text box appears indicating the amount of time remaining for the override to be in effect.

Refer to the “Viewing Equipment Status and Settings (Status Utility)” book in the *Tracer TU Help* for procedures explaining how to use the Status Utility tab screens.

## Chiller Outputs You Can Override

Table 37 lists chiller outputs that you can override. These items are found mainly on the Tracer TU Status Utility screens and are indicated by the override icon described previously

**Table 37. Chiller Outputs That Can Be Overridden**

Output	Options	Location
1. Water Pump Control	On/Off	(Unit Summary - Evaporator Status box)
2. Water Pump Control	On/Off	(Unit Summary - Condenser Status box)
3. Chiller Control Signal	%	(Unit Summary - Compressor box)
4. Oil Pump Command Ckt 1	Auto On	(Unit Summary - Compressor box)
5. Oil Pump Command Ckt 2	Auto On	(Unit Summary - Compressor box)
6. Chiller Control Signal	%	(Unit Status - Chiller box)
7. Evaporator Pump Control	Auto On, Off	(Unit Status - Evaporator box)
8. Condenser Pump Control	Auto On	(Unit Status - Condenser box)
9. IGV 1 Percent Open Ckt1	Auto Manual Target	(Unit Status - Compressor 1 box)
10. IGV 1 Percent Open Ckt 2	Auto Manual Target	(Unit Status - Compressor 2 box)
11. Oil Pump Command Ckt 1	Auto On	(Unit Status - Compressor 1 box)
12. Oil Pump Command Ckt 2	Auto On	(Unit Status - Compressor 2 box)
13. Frequency Command Ckt1 (Unit Status - AF1 box)	38 / 60 Hz	Unit Status - AF 1 box
14. Frequency Command Ckt2 (Unit Status - AF2 box)	38 / 60 Hz	Unit Status - AF 2 box

## Purge Outputs You Can Override

Table 38 lists purge related settings you can override. These items are found mainly on the Tracer TU Status Utility screens and are indicated by the override icon described previously.

**Table 38. Purge Outputs That Can Be Overridden**

Name			Monitor Items	Help information
<b>1. Regen. Cycle</b>	Disable	Enable	Purge Liquid Temp Carbon Tank Temp:	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN). (Allows you to manually initiate a regen cycle. Does not disable a partially completed regen cycle in process. See purge setpoint "Disable Pumpout Limit Setpoint")
<b>2. Exhaust Circuit Pumpout Test</b>	Disable	Enable	Pumpout Relay:	See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN). (Allows you to manually initiate a regen cycle. Does not disable a partially completed regen cycle in process. See purge setpoint "Disable Pumpout Limit Setpoint")
<b>3. Exhaust Circuit Pressure out Test</b>	Disable	Enable		See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN). (Allows you to manually initiate a regen cycle. Does not disable a partially completed regen cycle in process. See purge setpoint "Disable Pumpout Limit Setpoint")
<b>4. Exhaust Circuit Vacuum Test</b>	Disable	Enable		See the <i>EarthWise™ Purge System with Tracer AdaptiView™ Control Operation and Maintenance Guide</i> (PRGD-SVX01A-EN). (Allows you to manually initiate a regen cycle. Does not disable a partially completed regen cycle in process. See purge setpoint "Disable Pumpout Limit Setpoint")

**Note:** Purge must be in "stop" mode for these manual overrides.

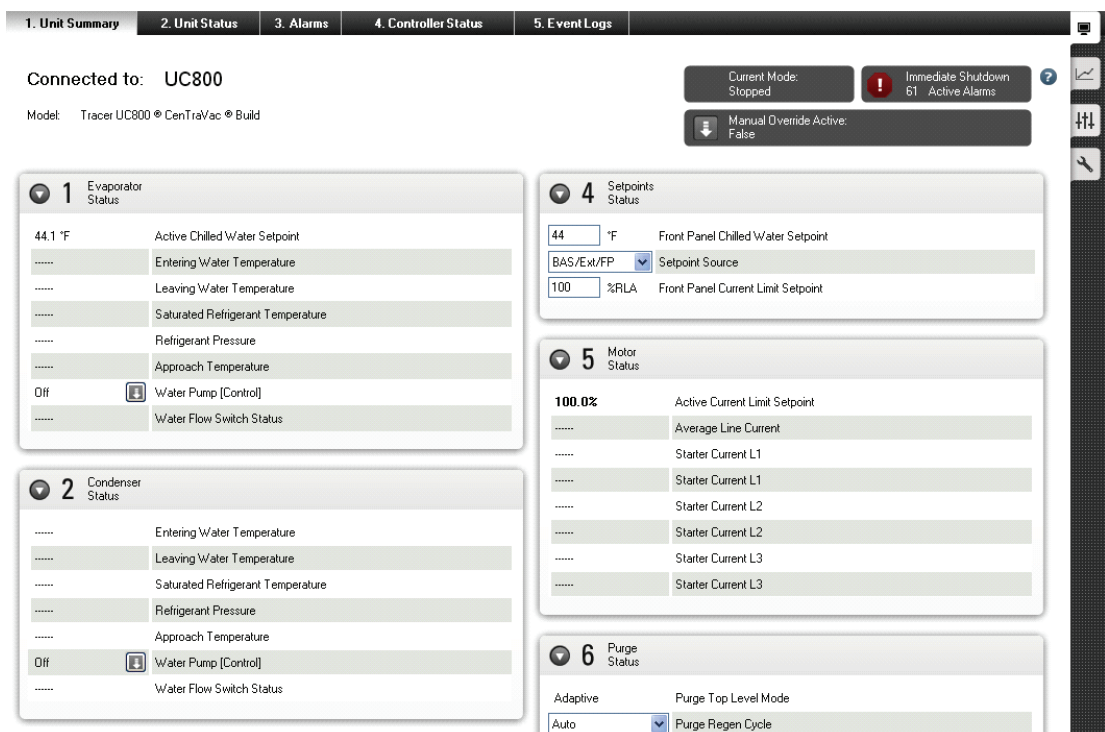
# Status Utility Tab Screens

The Status Utility tab screens provide different sets of information that allow you to monitor the performance of your chillers.

## The Status Utility - Unit Summary Tab Screen

The Unit Summary tab screen shown in the following figure is the first screen presented when you connect to a chiller and the Tracer AdaptiView control through Tracer TU. It presents high priority information to give you a quick idea of a chiller's operating status at a single glance.

**Figure 11. The CDHF and CDHG Version of the Unit Summary Screen**



The data presented on the Unit Summary tab screen is divided into separate categories delimited by expanding boxes, including Evaporator, Condenser, Setpoints, Motor, and so on. (The content of this screen may vary slightly depending upon the type of chiller to which you are connected.)

The gray alert boxes in the screen header (top right) draw your attention to the following information:

- The current top level operating mode and submode
- The presence of any active alarms
- Any currently active manual overrides

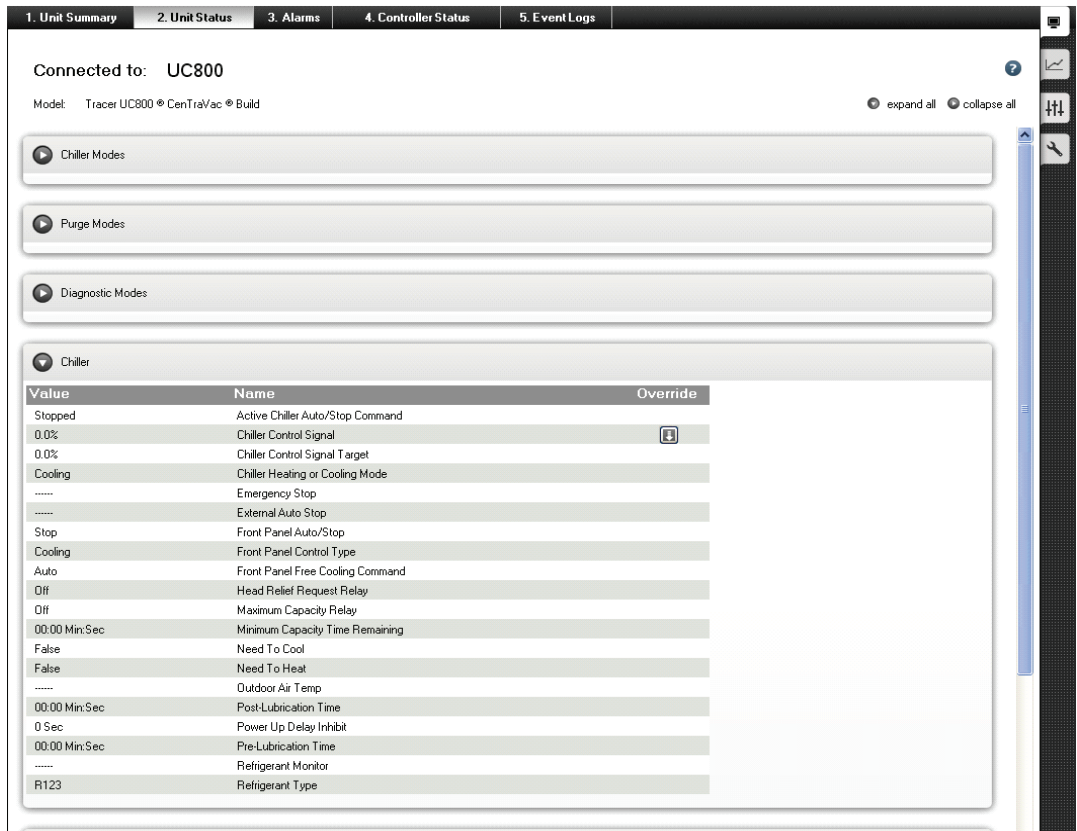
*Note: You can click these boxes to see the Alarms screen or the Modes boxes on the Unit Status screen.*

## The Status Utility - Unit Status Screen for CVHE, CVHF, and CVHG

The Unit Status tab screen displays real-time datapoint and setpoint values for a device. The data is organized by general device and subsystem categories.

Access the Unit Status tab screen by clicking the Status Utility tab on the right side of the Tracer TU window, then click the Unit Status tab on the horizontal row of tabs along the top of the screen area.

**Figure 12. The CVHE, CVHF, and CVHG Version of the Unit Status Screen**



### 1. CHILLER MODES BOX

Table 39 lists settings that are included in the Chiller Modes expanding box on the CVHE, CVHF, and CDHG version of the Unit Status Screen.

**Table 39. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Chiller Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Chiller Top Level Mode	5.	Chiller Sub Mode
2.	Chiller Sub Mode	6.	Chiller Sub Mode
3.	Chiller Sub Mode	7.	Chiller Sub Mode
4.	Chiller Sub Mode		

### 2. CIRCUIT MODES Box

Table 40 lists settings that are included in the Circuit Modes expanding box on the CVHE, CVHF, and CDHG version of the Unit Status Screen.

**Table 40. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Purge Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Top Level Operating Mode Ckt1/Ckt2	5.	Sub Mode 4 Ckt1/Ckt2
2.	Sub Mode 1 Ckt1/Ckt2	6.	Sub Mode 5 Ckt1/Ckt2
3.	Sub Mode 2 Ckt1/Ckt2	7.	Sub Mode 6 Ckt1/Ckt2
4.	Sub Mode 3 Ckt1/Ckt2		

### 3. PURGE MODES Box

Table 41 lists settings that are included in the Purge Modes expanding boxes on the CVHE, CVHF, and CDHG version of the Unit Status Screen.

**Table 41. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Purge Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Purge Top Level Mode	5.	Purge System Sub Modes 4
2.	Purge System Sub Modes 1	6.	Purge System Sub Modes 5
3.	Purge System Sub Modes 2	7.	Purge System Sub Modes 6
4.	Purge System Sub Modes 3		

### 4. DIAGNOSTIC MODES Box

Table 42 lists settings that are included in the Diagnostic Modes expanding box on the CVHE, CVHF, and CVHG version of the Unit Status Screen. This box provides a snapshot of the operating modes at the time of the last diagnostic.

**Table 42. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Diagnostic Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Chiller Mode at Time of Last Diagnostic	5.	Diagnostic Sub Modes 4
2.	Diagnostic Sub Mode 1	6.	Diagnostic Sub Modes 5
3.	Diagnostic Sub Mode 2	7.	Diagnostic Sub Modes 6
4.	Diagnostic Sub Mode 3		



## Status Utility Tab Screens

### 5. CHILLER Box

Table 43 lists settings that may be included in the Chiller expanding box on the CVHE, CVHF, and CVHG version of the Unit Status screen.

**Table 43. (Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Chiller Expanding Box)**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Base Loading Setpoint Source	15.	Front Panel Control Type
2.	Active Base Loading Setpoint	16.	Front Panel Free Cooling Command
3.	Active Chiller Auto/Stop Command	17.	Head Relief Request Relay
4.	BAS Base Loading Setpoint	18.	Maximum Capacity Relay
5.	Chiller Control Signal	19.	Minimum Capacity Time Remaining
6.	Chiller Control Signal Target	20.	Need to Cool
7.	Chiller Heating or Cooling Mode	21.	Need to Heat
8.	Emergency Stop	22.	Outdoor Air Temp
9.	External Auto Stop	23.	Post-Lubrication Time
10.	External Base Loading Setpoint	24.	Power Up Delay Inhibit
11.	External Base Loading Setpoint (Enable/Disable)	25.	Pre-Lubrication Time
12.	Front Panel Auto/Stop	26.	Refrigerant Monitor
13.	Front Panel Base Load Setpoint	27.	Refrigerant Type
14.	Front Panel Base Loading Command		

### 6. EVAPORATOR Box

Table 44 lists settings that may be included in the Evaporator expanding box on the CVHE, CVHF, and CVHG version of the Unit Status screen.

**Table 44. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Evaporator Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Chilled Water Setpoint	13.	Evaporator Pump Control
2.	Active Chilled Water Setpoint Source	14.	Evaporator Pump Override
3.	Active Ice Termination Setpoint	15.	Evaporator Pump Override Time Remaining
4.	Active Ice Termination Setpoint	16.	Evaporator Water Flow Status
5.	Approximate Evaporator Water Flow	17.	Evaporator Water Pump Off Delay
6.	BAS Chilled Water Setpoint	18.	Ext Chilled Water Setpoint
7.	Calculated Chiller Capacity	19.	Extl Chilled Water Setpoint
8.	Evaporator Design Delta Temp	20.	Filtered Chilled Water Setpoint
9.	Evaporator Differential Water Pressure	21.	Front Panel Chilled Water Setpoint
10.	Evaporator Entering Water Temp	22.	Front Panel Ice Building Command
11.	Evaporator Leaving Water Temp	23.	Front Panel Ice Termination Setpoint
12.	Evaporator Leaving Water Temp Cutout	24.	High Evaporator Water Temperature Cutout

### 7. CONDENSER Box

Table 45 lists settings that may be included in the Condenser expanding box on the CVHE, CVHF, and CVHG version of the Unit Status screen.

**Table 45. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Condenser Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Hot Water Setpoint	10.	Condenser Water Flow Switch Status
2.	Active Hot Water Setpoint Source	11.	Condenser Water Pump Off Delay
3.	Approximate Condenser Water Flow	12.	Condenser Pump Control
4.	BAS Hot Water Setpoint	13.	Ext Hot Water Setpoint
5.	Condenser Differential Water Pressure	14.	Front Panel Hot Water Setpoint
6.	Condenser Entering Water Temperature	15.	Head Pressure Control Command
7.	Condenser Leaving Water Temperature	16.	Head Pressure Control Override (icon)
8.	Condenser Pump Override Time Remaining	17.	Second Condenser Entering Water Temperature
9.	Condenser Refrigerant Pressure	18.	Second Condenser Leaving Water Temperature

### 8. CIRCUIT Box

Table 46 lists settings that may be included in the Circuit expanding box on the CVHE, CVHF, and CVHG version of the Unit Status screen.

**Table 46. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Circuit Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Condenser Approach Temperature [Diff.] Temperature	5.	Evaporator Refrigerant Pressure
2.	Condenser Refrigerant Pressure	6.	Evaporator Saturated Refrigerant Temperature
3.	Condenser Saturated Refrigerant Temperature	7.	High Pressure Cutout Circuit (On/Off)
4.	Evaporator Approach Temperature [Diff.]		

### 9. MOTOR Box

Table 47 lists settings that may be included in the Motor expanding box on the CVHE, CVHF, and CVHG version of the Unit Status screen.

**Table 47. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Motor Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Current Limit Setpoint	9.	Energy Consumption Resettable
2.	Active Current Limit Setpoint Source	10.	Ext Current Limit Setpoint
3.	Average Line Current	11.	External Current Limit Setpoint
4.	Average Line Current (% RLA)	12.	Motor Temperature
5.	BAS Current Limit Setpoint	13.	Motor Winding Temp #1
6.	Current Limit Softload Target	14.	Motor Winding Temp #2
7.	Energy Consumption Last Reset	15.	Motor Winding Temp #3
8.	Energy Consumption NonReset	16.	Restart Inhibit Time (MP)



## Status Utility Tab Screens

**Table 47. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Motor Expanding Box (continued)**

Ref #	Setting Name	Ref #	Setting Name
17.	Restart Inhibit Time Electromechanical Starter	26.	Starter Max Current
18.	Starter Average Phase Voltage [volts]	27.	Starter Power Consumption
19.	Starter Current L1	28.	Starter Power Demand
20.	Starter Current L1 (% RLA)	29.	Starter Test Mode
21.	Starter Current L2	30.	Starter Voltage Phase AB
22.	Starter Current L2 (% RLA)	31.	Starter Voltage Phase BC
23.	Starter Current L3	32.	Starter Voltage Phase CA
24.	Starter Current L3 (% RLA)	33.	Time of Last Reset
25.	Starter Load Power Factor	34.	Transition Complete

## 10. COMPRESSOR Box

Table 48 lists settings that may be included in the Compressor expanding box on the CVHE, CVHF, and CDHG version of the Unit Status screen.

**Table 48. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Compressor Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Compressor Control Signal	15.	IGV1 Position Steps
2.	Compressor Refrigerant Discharge Temp	16.	IGV2 Position
3.	Compressor Running Status	17.	IGV2 Position Steps
4.	Compressor Running Time	18.	Inboard Bearing Temp
5.	Compressor Starts	19.	Inlet Guide Vane Control <sup>(a)</sup>
6.	High Vacuum Trip Point	20.	Oil Differential Pressure
7.	Hot Gas Bypass Closed Feedback	21.	Oil Heater Command
8.	Hot Gas Bypass Mode <sup>(b)</sup>	22.	Oil Pump Command
9.	Hot Gas Bypass Position	23.	Oil Pump Control
10.	Hot Gas Bypass Time Remaining	24.	Oil Pump Discharge Pressure
11.	Hot Gas Bypass Total Time	25.	Oil Pump Override Time Remaining
12.	IGV 1 Manual Position Command	26.	Oil Tank Pressure
13.	IGV and AF Control <sup>(c)</sup>	27.	Oil Tank Temperature
14.	IGV1 Position	28.	Outboard Bearing Temp

(a) Appears as an icon in the Overrides column when the Starter type is not AFD or Power Source is utility.

(b) Appears as an icon in the Overrides column when the Hot Gas Bypass feature is installed.

(c) Appears as an icon in the Overrides column when the Starter type is AFD or Power Source is engine generator.

### 11. AF Box

Table 49 lists settings that may be included in the AF expanding box on the CVHE, CVHF, and CDHG version of the Unit Status screen.

*Note: This box appears if Starter Type is AFD or Power Source is Engine Generator.*

**Table 49. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: AF Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	AFD DC Bus Voltage	7.	Frequency Command
2.	AFD Last Diagnostic code (decimal)	8.	Generator Frequency Command
3.	AFD Output Power	9.	IGV and AF Control
4.	AFD Transistor Temp	10.	Pressure Coefficient
5.	Boundary Pressure Coefficient	11.	Re-optimization Time Remaining
6.	Frequency	12.	Speed

### 12. PURGE Box

Table 50 lists settings that may be included in the Purge expanding box on the CVHE, CVHF, and CDHG version of the Unit Status screen.

**Table 50. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Purge Expanding Box**

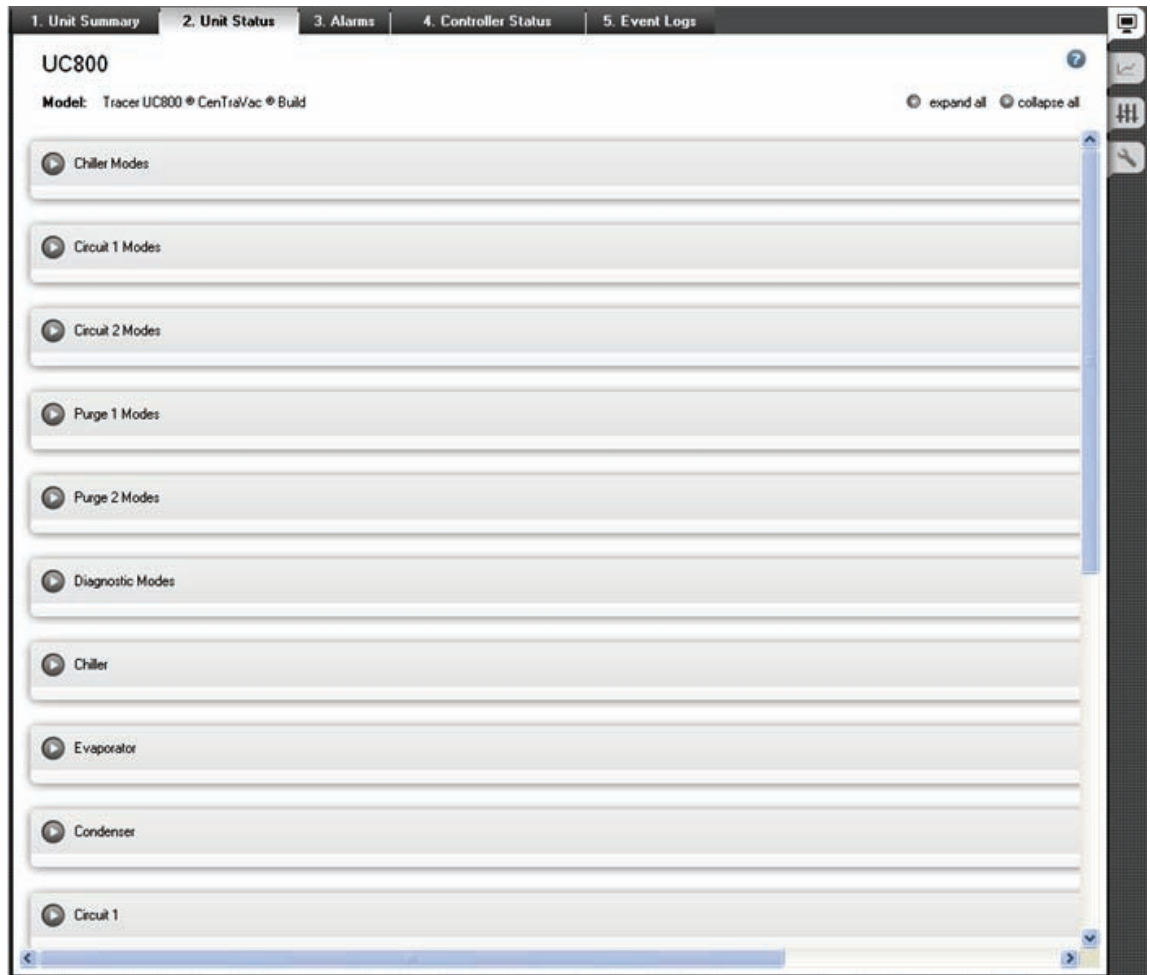
Ref #	Setting Name	Ref #	Setting Name
1.	Absorptive Capacity	12.	Pumpout Relay
2.	Average Daily Pumpout - 7 Days	13.	Pumpout Time Since Last Regeneration
3.	Carbon Regen Cycles	14.	Pumpout Total at Last Regeneration
4.	Carbon Tank Temp	15.	Pumpout - Life
5.	Chiller On 7 Days	16.	Purge Exhaust Circuit Test
6.	Daily Pumpout Limit	17.	Purge Liquid Temperature
7.	Daily Pumpout - 24 Hours	18.	Purge Refrigerant Compressor Suction Temp
8.	Exhaust Circuit Pressure Test	19.	Purge Regen Cycle
9.	Exhaust Circuit Vacuum Test	20.	Refrigeration - Life
10.	Pumpout Chiller Off - 7 Days	21.	Time at Last Regeneration [Date Stamp]
11.	Pumpout Chiller On - 7 Days	22.	Time Until Next Purge Run

## The Status Utility - Unit Status Screen for CDHF and CDHG

The Unit Status tab screen displays real-time datapoint and setpoint values for a device. The data is organized by general device and subsystem categories.

Access the Unit Status tab screen by clicking the Status Utility tab on the right side of the Tracer TU window, then click the Unit Status tab on the horizontal row of tabs along the top of the screen area.

**Figure 13. The CDHF and CDHG Version of the Unit Status Screen**



*Note: The Chiller Modes and Diagnostic Modes boxes are the same as those on the single unit (CVHE, CVHF, and CVHG) version of the Unit Status screen. Refer to [Table 39, p. 74](#) and [Table 42, p. 75](#) for lists of their contents.*

### 1. CIRCUIT 1 MODES and CIRCUIT 2 MODES Boxes

Table 51 lists settings that are included in the Circuit 1 Modes and Circuit 2 Modes expanding boxes on the CDHF and CDHG version of the Unit Status Screen.

**Table 51. Status Utility - CDHF and CDHG Unit Status Tab Screen: Purge Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Top Level Operating Mode Ckt1	5.	Sub Mode 4 Ckt1/Ckt2
2.	Sub Mode 1 Ckt1/Ckt2	6.	Sub Mode 5 Ckt1/Ckt2
3.	Sub Mode 2 Ckt1/Ckt2	7.	Sub Mode 6 Ckt1/Ckt2
4.	Sub Mode 3 Ckt1/Ckt2		

### 2. PURGE 1 MODES and PURGE 2 MODES Boxes

Table 52 lists settings that are included in the Purge 1 Modes and Purge 2 Modes expanding boxes on the CDHF and CDHG version of the Unit Status Screen.

**Table 52. Status Utility - CDHF and CDHG Unit Status Tab Screen: Purge Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Purge Top Level Mode	5.	Purge System Sub Modes 4
2.	Purge System Sub Modes 1	6.	Purge System Sub Modes 5
3.	Purge System Sub Modes 2	7.	Purge System Sub Modes 6
4.	Purge System Sub Modes 3		

### 3. DIAGNOSTIC MODES Box

Table 53 lists settings that are included in the Diagnostic Modes expanding box on the CDHF and CDHG version of the Unit Status Screen.

**Table 53. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Diagnostic Modes Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Chiller Mode at Time of Last Diagnostic	5.	Diagnostic Sub Mode 4
2.	Diagnostic Sub Mode 1	6.	Diagnostic Sub Mode 5
3.	Diagnostic Sub Mode 2	7.	Diagnostic Sub Mode 6
4.	Diagnostic Sub Mode 3		



## Status Utility Tab Screens

### 4. CHILLER Box

Table 54 lists settings that may be included in the Chiller expanding box on the CDHF and CDHG version of the Unit Status screen.

**Table 54. (Status Utility - CDHF and CDHG Unit Status Tab Screen: Chiller Expanding Box)**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Base Loading Setpoint	15.	Front Panel Control Type
2.	Active Base Loading Setpoint Source	16.	Head Relief Request Relay
3.	Active Chiller Auto/Stop Command	17.	Maximum Capacity Limit
4.	BAS Base Loading Setpoint	18.	Maximum Capacity Relay
5.	BAS Communication Status	19.	Minimum Capacity Limit
6.	Chiller Control Signal	20.	Minimum Capacity Time Remaining
7.	Chiller Control Signal Target	21.	Need to Cool
8.	Chiller Heating or Cooling Mode	22.	Need to Heat
9.	Emergency Stop	23.	Need to Make Ice
10.	Ext Base Loading Setpoint	24.	Outdoor Air Temp
11.	External Auto Stop	25.	Power Up Delay Inhibit
12.	External Heat Cool Switch	26.	Power-Up Start Delay
13.	Front Panel Base Load Setpoint	27.	Refrigerant Monitor
14.	Front Panel Base Loading Command	28.	Refrigerant Type

### 5. EVAPORATOR Box

Table 55 lists settings that may be included in the Evaporator expanding box on the on the CDHF and CDHG version of the Unit Status screen.

**Table 55. Status Utility - CDHF and CDHG Unit Status Tab Screen: Evaporator Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Chilled Water Setpoint	11.	Evaporator Water Flow Status
2.	Active Chilled Water Setpoint Source	12.	Evaporator Pump Control
3.	Active Ice Termination Setpoint	13.	External Chilled Water Setpoint
4.	Active Ice Termination Setpoint Source	14.	External Chilled Water Setpoint Enable
5.	Approximate Evaporator Water Flow	15.	Filtered Chilled Water Setpoint
6.	BAS Chilled Water Setpoint	16.	Front Panel Ice Building Command
7.	Calculated Chiller Capacity	17.	Front Panel Ice Termination Setpoint
8.	Evaporator Differential Water Pressure	18.	Ice to Normal Cooling Timer Setpoint
9.	Evaporator Entering Water Temp	19.	Ice to Normal Time Remaining
10.	Evaporator Leaving Water Temp		

### 6. CONDENSER Box

Table 56 lists settings that may be included in the Condenser expanding box on the on the CDHF and CDHG version of the Unit Status screen.

**Table 56. Status Utility - CDHF and CDHG Unit Status Tab Screen: Condenser Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Hot Water Setpoint	12.	Condenser Pump Control
2.	Active Hot Water Setpoint Source	13.	Condenser Pump Off Delay
3.	Approximate Condenser Water Flow	14.	Condenser Pump Override
4.	BAS Hot Water Setpoint	15.	Condenser Pump Override Time Remaining
5.	Condenser Capacity Command	16.	Condenser Water Flow Point 1
6.	Condenser Design Delta Temp	17.	Condenser Water Flow Point 2
7.	Condenser Differential Water Pressure	18.	Condenser Water Flow Switch
8.	Condenser Entering Water Temperature	19.	Condenser Water Flow Status
9.	Condenser Leaving Water Temperature	20.	Condenser Water Pump Off Delay
10.	Condenser Pressure Drop Point 1	21.	Ext Hot Water Stpt
11.	Condenser Pressure Drop Point 2	22.	Front Panel Hot Water Setpoint

### 7. CIRCUIT 1 and CIRCUIT 2 Boxes

Table 57 lists settings that may be included in the Circuit 1 and Circuit 2 expanding boxes on the on the CDHF and CDHG version of the Unit Status screen.

**Table 57. Status Utility - CDHF and CDHG Unit Status Tab Screen: Circuit 1 and Circuit 2 Expanding Boxes**

Ref #	Setting Name	Ref #	Setting Name
1.	Condenser Saturated Refrigerant Temperature Ckt1/Ckt2	5.	External Circuit Lockout Ckt1/Ckt2
2.	Evaporator Approach Temperature [Diff.] Ckt1/Ckt2	6.	Front Panel Lockout Ckt1/Ckt2
3.	Evaporator Refrigerant Pressure Ckt1/Ckt2	7.	High Pressure Cutout Circuit (On/Off) Ckt1/Ckt2
4.	Evaporator Saturated Refrigerant Temperature Ckt1/Ckt2		



## Status Utility Tab Screens

### 8. MOTOR Box

Table 58 lists settings that may be included in the Motor expanding box on the on the CDHF and CDHG version of the Unit Status screen.

**Table 58. Status Utility - CDHF and CDHG Unit Status Tab Screen: Motor Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Current Limit Setpoint	6.	Current Limit Softload Start Point
2.	Active Current Limit Setpoint Source	7.	External Current Limit Setpoint
3.	BAS Current Limit Setpoint	8.	External Current Limit Setpoint Enable
4.	Capacity Control Softload Time	9.	Front Panel Current Limit Setpoint
5.	Current Limit Control Softload Time	10.	Ice Machine Current Limit Setting

### 9. MOTOR 1 and MOTOR 2 Boxes

Table 59 lists settings that may be included in the Motor 1 and Motor 2 expanding boxes on the on the CDHF and CDHG version of the Unit Status screen.

**Table 59. Status Utility - CDHF and CDHG Unit Status Tab Screen: Motor Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Average Line Current Ckt1/Ckt2	13.	Starter Current L3 Ckt1/Ckt2
2.	Average Line Current % RLA Ckt1/Ckt2	14.	Starter Current L3 %RLA Ckt1/Ckt2
3.	Current Limit Softload Target Ckt1/Ckt2	15.	Starter Energy Consumption Last Reset
4.	Motor Winding Temp #1 Ckt1/Ckt2	16.	Starter Energy Consumption Non Resettable Ckt1/Ckt2
5.	Motor Winding Temp #2 Ckt1/Ckt2	17.	Starter Energy Consumption Resettable
6.	Motor Winding Temp #3 Ckt1/Ckt2	18.	Starter Load Power Factor Ckt1/Ckt2
7.	Restart Inhibit time Electro Mechanical Starter	19.	Starter Max Current Ckt1/Ckt2
8.	Starter Average Phase Voltage Ckt1/Ckt2	20.	Starter Power Consumption Ckt1/Ckt2
9.	Starter Current L1 Ckt1/Ckt2	21.	Starter Power Demand Ckt1/Ckt2
10.	Starter Current L1 %RLA Ckt1/Ckt2	22.	Starter Voltage Phase AB Ckt1/Ckt2
11.	Starter Current L2 Ckt1/Ckt2	23.	Starter Voltage Phase BC Ckt1/Ckt2
12.	Starter Current L2 %RLA Ckt1/Ckt2	24.	Starter Voltage Phase CA Ckt1/Ckt2

### 10. COMPRESSOR 1 and COMPRESSOR 2 Boxes

Table 60 lists settings that may be included in the Compressor 1 and Compressor 2 expanding boxes on the CDHF and CDHG version of the Unit Status screen.

**Table 60. Status Utility - CDHF and CDHG Unit Status Tab Screen: Compressor 1 and 2 Expanding Boxes**

Ref #	Setting Name	Ref #	Setting Name
1.	Compressor Refrigerant Discharge Temp (Ckt1 / Ckt2)	16.	Inboard Bearing Temperature (Ckt1 / Ckt2)
2.	Compressor Running Status (Ckt1 / Ckt2)	17.	Inlet Guide Vane Control (Ckt1 / Ckt2)
3.	Compressor Running Time (Ckt1 / Ckt2)	18.	Oil Differential Pressure (Ckt1 / Ckt2)
4.	Compressor Starts (Ckt1 / Ckt2)	19.	Oil Heater Command (Ckt1 / Ckt2)
5.	High Compressor Refrigerant Discharge Temperature Cutout (Ckt1 / Ckt2)	20.	Oil Pump Command (Ckt1 / Ckt2)
6.	IGV 1 Auto Position Command (Ckt1 / Ckt2)	21.	Oil Pump Control (Ckt1 / Ckt2)
7.	IGV 1 Manual Percent Command (Ckt1 / Ckt2)	22.	Oil Pump Discharge Pressure (Ckt1 / Ckt2)
8.	IGV 1 Manual Position Command (Ckt1 / Ckt2)	23.	Oil Pump Override Time Remaining (Ckt1 / Ckt2)
9.	IGV 1 Max Steps (Ckt1 / Ckt2)	24.	Oil Tank Pressure (Ckt1 / Ckt2)
10.	IGV 1 Percent Open (Ckt1 / Ckt2)	25.	Oil Tank Temperature (Ckt1 / Ckt2)
11.	IGV 1 Position (Ckt1 / Ckt2)	26.	Oil Temperature Compressor Running (Ckt1 / Ckt2)
12.	IGV 2 Max Steps (Ckt1 / Ckt2)	27.	Oil Temperature Compressor Stopped (Ckt1 / Ckt2)
13.	IGV 2 Percent Open (Ckt1 / Ckt2)	28.	Outboard Bearing Temperature (Ckt1 / Ckt2)
14.	IGV 2 Position (Ckt1 / Ckt2)	29.	Post-Lubrication Time (Ckt1 / Ckt2)
15.	IGV and AF Control (Ckt1 / Ckt2)	30.	Pre-Lubrication Time (Ckt1 / Ckt2)

### 11. AF 1 Box

Table 61 lists settings that may be included in the AF 1 expand box on the CDHF and CDHG version of the Unit Status screen.

**Table 61. Status Utility - CDHF and CDHG Unit Status Tab Screen: AF 1 Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	AFD Control Ckt1	10.	Generator Fault Input Ckt 1
2.	AFD DC Bus Voltage Ckt1	11.	Generator Frequency Command Ckt 1
3.	AFD Last Diagnostic code (decimal) Ckt1	12.	Generator On-line Input Ckt 1
4.	AFD Output Power Ckt1	13.	Generator Run Command Ckt 1
5.	AFD Surge Capacity Increase Ckt1	14.	Generator Speed Signal Ckt 1
6.	AFD Transistor Temperature Ckt1	15.	IGV and AF Control
7.	Boundary Pressure Coefficient Ckt 1	16.	Pressure Coefficient Ckt 1
8.	Frequency Ckt1	17.	Speed Ckt 1
9.	Frequency Command Ckt1		



## Status Utility Tab Screens

### 12. AF 2 Box

Table 62 lists settings that may be included in the AF 2 expand box on the CDHF and CDHG version of the Unit Status screen.

**Table 62. Status Utility - CDHF and CDHG Unit Status Tab Screen: AF 2 Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	AFD Control Ckt2	10.	Generator Fault Input Ckt 2
2.	AFD DC Bus Voltage Ckt2	11.	Generator Frequency Command Ckt 2
3.	AFD Last Diagnostic code (decimal) Ckt2	12.	Generator On-line Input Ckt 2
4.	AFD Output Power Ckt2	13.	Generator Run Command Ckt 2
5.	AFD Surge Capacity Increase Ckt2	14.	IGV and AF Control Ckt2
6.	AFD Transistor Temperature Ckt2	15.	Generator Speed Signal Ckt 1
7.	Boundary Pressure Coefficient Ckt 2	16.	Pressure Coefficient Ckt 2
8.	Frequency Ckt2	17.	Speed Ckt 2
9.	Frequency Command Ckt2		

### 13. PURGE 1 and Purge 2 Boxes

Table 63 lists settings that may be included in the Purge 1 and Purge 2 expanding boxes on the CDHF and CDHG version of the Unit Status screen.

**Table 63. Status Utility - CDHF and CDHG Unit Status Tab Screen: Purge 1 Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Absorptive Capacity (Ckt1 / Ckt2)	13.	Pumpout Time Since Last Regeneration (Ckt1 / Ckt2)
2.	Average Daily Pumpout - 7 Days (Ckt1 / Ckt2)	14.	Pumpout Total at Last Regeneration (Ckt1 / Ckt2)
3.	Carbon Regen Cycles (Ckt1 / Ckt2)	15.	Pumpout - Life (Ckt1 / Ckt2)
4.	Chiller On 7 Days (Ckt1 / Ckt2)	16.	Purge Carbon Tank Tank Temp (Ckt1 / Ckt2)
5.	Daily Pumpout Limit (Ckt1 / Ckt2)	17.	Purge Exhaust Circuit Test (Ckt1 / Ckt2)
6.	Daily Pumpout - 24 Hours (Ckt1 / Ckt2)	18.	Purge Float Switch
7.	Disable Daily Pumpout Limit (Ckt1 / Ckt2)	19.	Purge Liquid Temperature (Ckt1 / Ckt2)
8.	Exhaust Circuit Pressure Test (Ckt1 / Ckt2)	20.	Purge Regen Cycle (Ckt1 / Ckt2)
9.	Exhaust Circuit Vacuum Test (Ckt1 / Ckt2)	21.	Purge Refrigerant Compressor Suction Temp (Ckt1 / Ckt2)
10.	Pumpout Chiller Off - 7 Days (Ckt1 / Ckt2)	22.	Refrigeration - Life (Ckt1 / Ckt2)
11.	Pumpout Chiller On - 7 Days (Ckt1 / Ckt2)	23.	Time at Last Regeneration [Date Stamp] (Ckt1 / Ckt2)
12.	Pumpout Relay (Ckt1 / Ckt2)	24.	Time Until Next Purge Run (Ckt1 / Ckt2)

# Appendix A: Tracer TU Connection Error Conditions

During initial connection to a controller, you may encounter an error message or error condition. The messages with corrective actions are listed in [Table 64](#).

**Table 64. Error Conditions Arising During Tracer TU Connection**

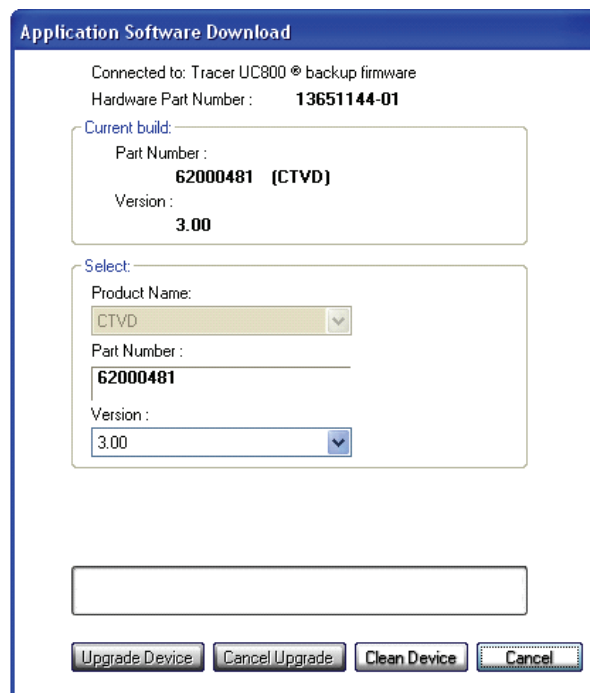
Error Message/Condition	Corrective Action
Does not recognize USB hardware.	Respond as follows: <ul style="list-style-type: none"> <li>• Install correct USB drivers using Tracer TU Setup.exe.</li> <li>• If you get this message and have the correct USB drivers installed, then make sure to wait long enough for the UC800 to completely boot before attaching the USB cable.</li> </ul>
Tracer TU is not responding or the screen is blank.	Look in the lower right hand corner of the Tracer TU screen. It should say "Connected Local USB". If not, the connection has been lost. Restart Tracer TU by clicking the Connection icon (lightening bolt) in the upper left of the Tracer TU window.
Found New Hardware (Popup message)	Open the Found New Hardware Wizard and verify that "Tracer (TM) UC800" is displayed after the text, "This wizard helps you to install software for:" <p>Respond as follows:</p> <ul style="list-style-type: none"> <li>• If this text is displayed, then select <b>Install the software automatically (Recommended)</b>.</li> <li>• If this text does not appear, run the Tracer TU installation file, Tracer TU Setup.exe.</li> </ul>

## Appendix B: Upgrading UC800 Firmware

If a new level of UC800 firmware is issued, you can upgrade the firmware by completing the following steps.

1. Connect your laptop to the USB port on the UC800 or on the Control Panel.
2. Start Tracer TU.
3. Click the **Equipment Utility** tab (wrench icon) on the right side of the Tracer TU window.
4. Click the **Configuration** tab.
5. Click the **Upgrade Controller** button at the bottom left of the window.  
The Application Software Download dialog box appears.

**Figure 14. Application Software Download dialog box**



Application Software Download

Connected to: Tracer UC800® backup firmware  
Hardware Part Number : **13651144-01**

Current build:  
Part Number : **62000481 (CTVD)**  
Version : **3.00**

Select:  
Product Name:  
CTVD  
Part Number : **62000481**  
Version : **3.00**

Upgrade Device Cancel Upgrade Clean Device Cancel

6. Select the version number from the Version drop-down list box.
7. Click **Upgrade Device**.  
A message box appears asking you to confirm your decision to upgrade the UC800.
8. Click **OK**.

## Notes

## Notes

## Notes



[www.trane.com](http://www.trane.com)

For more information, contact your local Trane office or e-mail us at [comfort@trane.com](mailto:comfort@trane.com)

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Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.