



**TRANE®**

## Programming Guide

---

# Tracer AdaptiView™ Panel Upgrade



**Note: Distribution/use of this document is limited to the Trane sales and service organization in support of the Tracer AdaptiView™ control panel upgrade. This document is not intended for independent third party use or for use apart from the Tracer AdaptiView™ control panel.**

Model/Program: CVRE

---

February 2009

**CVRE-SVP01A-EN**

## Copyright

© 2009 Trane All rights reserved


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


## Trademarks

Trane, the Trane logo, EarthWise, CenTraVac, Tracer, and Tracer AdaptiView are trademarks of Trane in the United States and other countries. All trademarks referenced in this document are the trademarks of their respective owners.

## Warnings and Cautions

Warnings and cautions are provided in appropriate places throughout this document:

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

 **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

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



# Table of Contents

Preparing for Chiller Configuration .....	5
Obtaining and Installing the Tracer TU Service Tool .....	5
Additional Equipment You Will Need .....	5
CenTraVac Reference Documentation .....	5
Nameplate Model Numbers .....	6
Major Programming Tasks .....	8
Summary of Startup Tasks .....	8
Powering Up the Controls for Checkout .....	12
Starting Tracer TU and Connecting to the Controller .....	13
Navigating to the Chiller Settings Screens .....	16
The Equipment Utility Configuration Tab Screen .....	17
Configuration Tab Screen Setpoint Reference Tables .....	18
1. MAIN Box: Unit Type Selection .....	18
2. UC800 Box: Chiller Controller (UC800) Settings .....	19
3. OPTIONS Box: Features and Options .....	22
4. OPTIONS SETUP Box: Settings Supporting Specified Options .....	27
5. STARTER Box (Non-AFD) .....	29
6. STARTER Box (AFD) .....	31
7. NAMEPLATE Box: Chiller Nameplate Values .....	32
Modifying, Saving and Deploying Chiller Configurations .....	33
Saving a Configuration To Your Laptop Hard Drive .....	33
Retrieving a Stored Configuration From Your Laptop Hard Drive .....	33
Saving a Configuration to the Controller .....	33
The LLID Binding Tab Screen .....	34
Additional Chiller Settings Screens .....	36
Equipment Utility - Service Setpoints Tab Screen .....	36
1. CHILLER SETPOINTS Box .....	36
2. COMPRESSOR SETPOINTS Box .....	38
3. ADJUSTABLE FREQUENCY DRIVE Box .....	39
Equipment Utility - Field Startup Tab Screen .....	39
1. FEATURE SETTINGS Box .....	39
2. MANUAL SETTINGS Box .....	42
3. ADJUSTABLE FREQUENCY DRIVE Box .....	42
4. HOT GAS BYPASS Box .....	43
5. TIMERS Box .....	43
6. LEVEL 4 GAINS AND START SEQUENCE Box .....	45
7. LEVEL 4 STARTS AND RUNTIME Box .....	46
8. LEVEL 4 ADJUSTABLE FREQUENCY DRIVE Box .....	47
9. LEVEL 4 DATA RECORDER Box .....	47
Equipment Utility - Purge Tab Screen .....	48

---

Manual Override Dialog .....	49
Chiller Outputs You Can Override .....	50
Purge Outputs You Can Override .....	51
Status Utility Tab Screens .....	52
The Status Utility - Unit Summary Tab Screen .....	52
The Status Utility - Unit Status Tab Screen .....	53
1. CHILLER MODES Box .....	54
2. CIRCUIT MODES Box .....	54
3. PURGE MODES Box .....	54
4. DIAGNOSTIC MODES Box .....	55
5. CHILLER Box .....	55
6. EVAPORATOR Box .....	56
7. CONDENSER Box .....	56
8. CIRCUIT Box .....	57
9. MOTOR Box .....	57
10. COMPRESSOR Box .....	58
11. AF Box .....	58
12. PURGE Box .....	59
Alarms Tab Screen .....	60
Reports .....	62
Appendix A: Tracer TU Connection Error Conditions .....	63
Appendix B: Upgrading UC800 Firmware .....	64
Appendix C: Installing CVR Firmware on the UC800 .....	65
Installing CVR Firmware on a Blank UC800 .....	65
Cleaning the UC800 Before Installing CVR Firmware .....	65
Appendix D: CT Meter Scale .....	66

# Preparing for Chiller Configuration

The purpose of this information is to guide an experienced CenTraVac service technician through Tracer™ UC800 controller configuration and setpoint selections, which are performed as part of an AdaptiView™ Panel Upgrade installation using the Tracer TU service tool.

**Note:** Each of the individual retrofit kits sold has a specific installation manual. This manual is intended to be used for the programming and startup process. It is not intended to be the installation manual.

## 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 obtain the product installation file at the following URL:

<http://www.trane.com/Commercial/Internal/View.aspx?i=2248>

You can also access the product installation file from the Trane Technicians community page on the iTrane portal.

1. Sign on to the iTrane portal Home page.
2. Click the **Americas Services and Contracting** link on the left under the Trane Commercial Systems heading.

The Americas Services and Contracting page appears.

3. Click **Service Technicians** in the left column under "Resources and Tools".

The Service Technicians community page appears.

4. Click the **Tracer TU** link in the Tools and Downloads box.

5. Read all instructions on the Tracer TU Service Tool page.

6. 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-SVN01B-EN)*, which is included with the software. 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.

## 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)

## 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.)
- 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-SUV01C-EN)*.



### Nameplate Model Numbers

For service purposes, AdaptiView Panel Upgrade Kits are assigned a multiple character alphanumeric model number that precisely identifies each unit. An explanation of the identification code that appears on the unit nameplate is shown below. Use of the service model number will enable the owner/operator, installing contractors and service technicians to define the operation, components and options for any specific unit. Refer to the control panel model number printed on the nameplate when ordering replacement parts or requesting service.

#### **Digit 1, 2, 3**

CVR CenTraVac® liquid chiller retrofit

#### **Digit 4 Development Sequence**

E Tracer AdaptiView™ chiller controller

#### **Digit 5 Panel Type**

- A Single door pneumatic controls
- B Double door pneumatic controls
- C Classic black controls
- 1 UCP-1
- 2 UCP-2
- G Generic

#### **Digit 6**

(Open)

#### **Digit 7 Starter Type**

- 0 No starter module
- 3 Starter module current limit 3 phase

#### **Digit 8 Chiller RLA (CT's)**

- 0 None, uses existing signal
- J <600 V, 33–50 A, 2" hole, CT's (3)
- K <600 V, 18–27 A, 2" hole, CT's (3)
- A <600 V, 67–100 A, 2" hole, CT's (3)
- B <600 V, 100–150 A, 2" hole, CT's (3)
- C <600 V, 134–200 A, 2" hole, CT's (3)
- D <600 V, 184–275 A, 2" hole, CT's (3)
- E <600 V, 267–400 A, 2.5" hole, CT's (3)
- F <600 V, 334–500 A, 2.5" hole, CT's (3)
- G <600 V, 467–700 A, 2.5" hole, CT's (3)
- H <600 V, 667–1000 A, 2.5" hole, CT's (3)
- L <600 V, 936–1400 A, 3.5" hole, CT's (3)
- M <600 V, 1260–1800 A, 4" hole, CT's (3)
- N Turn down transformer 5 A to 100 mA (3)
- P >600 V, 8–18 A, 1.25" hole, CT's (3)
- R >600 V, 18–27 A, 1.25" hole, CT's (3)
- T >600 V, 24–144 A, 4" hole, CT's (3)
- U >600 V, 120–252 A, 4" hole, CT's (3)
- V <600 V, 480–1080 A, 4" hole, CT's (3)
- W <600 V, 864–1800 A, 4" hole, CT's (3)

#### **Digit 9 Chiller voltage monitoring (Potential Transformers)**

- 0 None
- A 600 Vac or less
- B Greater than 600 Vac
- C 2300/2400 Vac
- D 3300 Vac

- E 4200 Vac
- F 6600 Vac, 50 Hz

### **Digit 10, 11 Design Sequence**

- A0 1st Design Sequence

### **Digit 12 Actuator**

- 1 Stepper actuator
- 2 Pulse actuator (generic only)

### **Digit 13 Oil Protection**

- F Full protection for low pressure units
- H Full protection for high pressure units (generic only)
- P Oil pressure status for low pressure units (generic only)

### **Digit 14 Motor Protection & HPC**

- F Full motor protection w/ 15 psig HPC switch
- H High pressure option w/ 195 psig HPC switch (generic only)

### **Digit 15 Human Interface**

- A No
- B Yes

### **Digit 16 Starter Box**

- 0 None
- 1 Starter enclosure

### **Digit 17 Free Cooling**

- 0 No
- 1 Yes

### **Digit 18 Heat Recovery/Auxiliary Condenser**

- 0 No
- 1 Yes

### **Digit 19 Hot Gas Bypass**

- 1 No
- 2 Compressor discharge temp sensor w/LLID, bulb well
- 3 3" HGBP valve w/sensor, LLID, bulbwell, conduit
- 4 4" HGBP valve w/sensor, LLID, bulbwell, conduit
- 5 5" HGBP valve w/sensor, LLID, bulbwell, conduit

### **Digit 20 Tracer Interface Control**

- 0 None
- 2 With generic BAS
- 4 COMM 4
- 5 LonTalk, LCI-C

### **Digit 21 Cold Water Reset (CWR)**

- 0 No
- 1 Yes

### **Digit 22 Enhanced Protection**

- 0 No
- 1 -15 to 35 psig (0 to 50 psia) low pressure transducer
- 2 -15 to 335 psig (0 to 350 psia) high pressure transducer (Generic only)

### **Digit 23 Extended Operation**

- 0 No
- 1 Yes

### **Digit 24 Chilled/Tower Water Flow Display**

- 0 No
- 1 Water Flow Display



### Major Programming Tasks

In all cases, Trane recommends that all configuration questions and unit setpoints be checked, verified, and documented before startup. Also, see “Summary of Startup Tasks” on page 8.

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).

### Summary of Startup Tasks

Table 1 on page 9 describes the major steps to take the control panel from “installed” to “operational”. Specific details on certain steps (configuring, binding, and so on) are contained in the sections referenced in each particular step.

It is common to connect LLIDs that are external to the control panel to the bus one at a time and bind them as they are connected. In this way it becomes obvious if there is a bus connection problem that needs resolution before the bus installation is complete.

#### **WARNING**

#### **Hazardous Voltage with Capacitors!**

**Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer’s literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.**

**Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR.**

## Preparing for Chiller Configuration

Complete the following steps.

**Table 1. Startup checklist**

Step	Procedure	Complete
1	Obtain the Tracer TU software: See "Obtaining and Installing the Tracer TU Service Tool" on page 5.	
2	Unplug the IPC bus from the power supply LLID: This will isolate the power supply LLID.	
3	Disconnect the IGV actuator from the IGV linkage: The IGV does not ship fully retracted. The first time the IGV is powered up, it will drive closed. This may mean travel as much as 1 inch. Disconnect the IGV actuator from the IGV linkage until fully retracted.	
4	<p>"Power Up" the control panel using auxiliary power:</p> <ul style="list-style-type: none"> <li>• The Starter disconnect is locked open.</li> <li>• Inspect all low voltage binary inputs to verify that no 115 Vac leads are connected to any low voltage binary input LLIDs. If 115 Vac is connected to a low voltage binary input, such as external auto/stop, major damage to other connected LLIDs on the bus can occur.</li> <li>• Remove fuse from control power transformer (2F4 or equivalent load side CPT fuse).</li> <li>• Connect auxiliary 115 Vac power cord to starter panel. See "Powering Up the Controls for Checkout" on page 12.</li> <li>• Connect cord to 115 Vac source. Control panel is now energized.</li> <li>• Ensure green LED on power supply LLID is on.</li> <li>• If there is an existing EarthWise™ purge or stand alone CH531 starter, make sure that these devices are hooked up before proceeding.</li> </ul>	
5	Connect IPC bus to power supply and AdaptiView™ display	
6	For cases where the firmware needs to be installed, or new firmware needs to be installed see "Appendix C: Installing CVR Firmware on the UC800" on page 65 for the correct CVR firmware installation procedure.	
7	Configure the UC800 using the Configuration screen on the Equipment Utility tab: Specify configuration variable values corresponding to items installed. See "Configuration Tab Screen Setpoint Reference Tables" on page 18 for details on configuration items. Record the programmed values.	
8	Configure the Starter using "Starter" expanding box on the Configuration screen: Configure Starter items to correspond to items installed. See "5. STARTER Box (Non-AFD)" on page 29. Make sure the CT Meter Scale parameter is properly set. See "Appendix D: CT Meter Scale" on page 66.	
9	<p>Bind the LLIDs using the binding view: See "The LLID Binding Tab Screen" on page 34 for an explanation of the correct binding procedure.</p> <p>Note that if a Trane Earthwise™ purge or CH531 starter is already present, it must be part of the system and communicating before binding any other LLIDs. Unbind the compressor running LLID (3A6) and the Condenser Saturated refrigerant temperature LLID (purge liquid temp). (See Earthwise purge section of specific panel installation manual (CVRE-SVNxxx-EN for more details).</p>	

## Preparing for Chiller Configuration

---

**Table 1. Startup checklist (continued)**

Step	Procedure	Complete
10	Set the setpoint values using the Service Setpoints and Field Startup screens on the Equipment Utility tab: See "Equipment Utility - Service Setpoints Tab Screen" on page 36 and "Equipment Utility - Field Startup Tab Screen" on page 39 for details on setpoint items. Record the entered values.	
11	Test evaporator and condenser pump control: <ul style="list-style-type: none"> <li>• If evaporator and condenser pumps are controlled by the UC800, use the Tracer TU Override icon to manually start and test the control of the pumps. "Manual Override Dialog" on page 49.</li> <li>• For each heat exchanger, close and open the isolation valve in order to prove flow switch operation.</li> <li>• Return to Auto control.</li> </ul>	
12	Check the oil pump: <ul style="list-style-type: none"> <li>• Use the Override icon to manually start and test the oil pump.</li> <li>• Check to see that oil differential pressure is 12 to 18 psid or whatever setting is desired. Low differential oil pressure cutout setting is adjustable from 9 to 35 psid.</li> <li>• Use gauge set to verify pressure transducer readings.</li> <li>• Return oil pump to Auto control.</li> </ul>	
13	Check inlet guide vanes operator: <ul style="list-style-type: none"> <li>• Disconnect the IGV actuator from the IGV linkage until fully retracted.</li> <li>• With the IGV actuator fully retracted, connect the IGV actuator to the IGV linkage.</li> <li>• Use the Override icon to manually override the vane control.</li> <li>• Enter targets from 0% to 100% and observe vane operation. At minimum and maximum travel the operator should not exert any force on the vane assembly.</li> <li>• Adjust as required. To adjust the 0% location the lead screw can be adjusted. To adjust the 100% location the maximum travel steps can be set using Tracer TU service tool. Vane movement should be smooth from open to close. Vane movement is reported back to the AdaptiView display and Tracer TU.</li> <li>• Return vane control to Auto.</li> </ul>	
14	Dry run the starter. The following notes assume direct starter control: <ul style="list-style-type: none"> <li>• Make sure starter disconnect is locked open</li> <li>• Use the manual override view to initiate starter test mode</li> <li>• Observe correct operation of (if applicable for starter type present):               <ul style="list-style-type: none"> <li>- Shorting relay</li> <li>- Start relay</li> <li>- Transition relay</li> <li>- Start and run relays on together</li> <li>- Run relay</li> <li>- Disable starter test mode</li> </ul> </li> </ul>	
15	Test the purge, only if Trane Earthwise™ purge is present: Use the Override icon in Tracer TU to test the purge circuit. Observe proper operation of the Exhaust Circuit Pumpout. Other tests are described in the latest version of the purge manual (PRGD-SVU01x-EN).	
16	Verify temperatures and pressures: From Unit Status screen in Tracer TU, verify water, oil, refrigerant, motor winding temperatures and BAS inputs or outputs are reasonable for the current chiller condition. See "The Status Utility - Unit Status Tab Screen" on page 53. Verify pressures are reasonable.	

**Table 1. Startup checklist (continued)**

Step	Procedure	Complete
17	Power up the chiller: <ul style="list-style-type: none"> <li>• Remove 115 V temporary power from starter.</li> <li>• Replace fuse in CPT.</li> <li>• Energize starter panel with line voltage by re-closing starter disconnect.</li> </ul>	
18	If voltage is less than 600 Vac, place clamp on ammeter on one of the L1, L2 or L3 legs.	
19	Start chiller: Place chiller in Auto Note: it may be desirable to put the Current Limit Setpoint to 40% initially to ensure items like CT Meter Scale are set correctly.	
20	Observe startup: Confirm that unit starts and loads as expected. Watch motor currents to help troubleshoot if problems exist. <b>Note:</b> If contactor integrity test was enabled in starter configuration, contactors may be heard prior to actual start sequence in starter cabinet.	
21	Check current and voltage readings: Verify that the current reading on the front panel matches that on the handheld ammeter. If it does not, the CT meter scale may need to be adjusted. See "Appendix D: CT Meter Scale" on page 66 for more information.	
22	Load Chiller: Adjust current limit setpoint to 80% and ensure that front panel readings match handheld ammeter. Set final current limit setpoint to desired operating level (typically 100%).	
23	Log startup: If active diagnostics are encountered, see "Alarms Tab Screen" on page 60. If a start up log sheet is desired, refer to "Startup Test Log for Water Cooled CenTraVac with CH530 Controller" in latest version of CVHE-SVU01x-EN.	

## 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 1X1-1 to 1X1-5, and Ground.
4. Turn 120 vac supply ON.  
The Tracer AdaptiView display should boot up and display the Home screen within a minute.

#### **AFD Starter**

Pull the AFDD/AFDF 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. 63"*

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 Unit Summary screen.

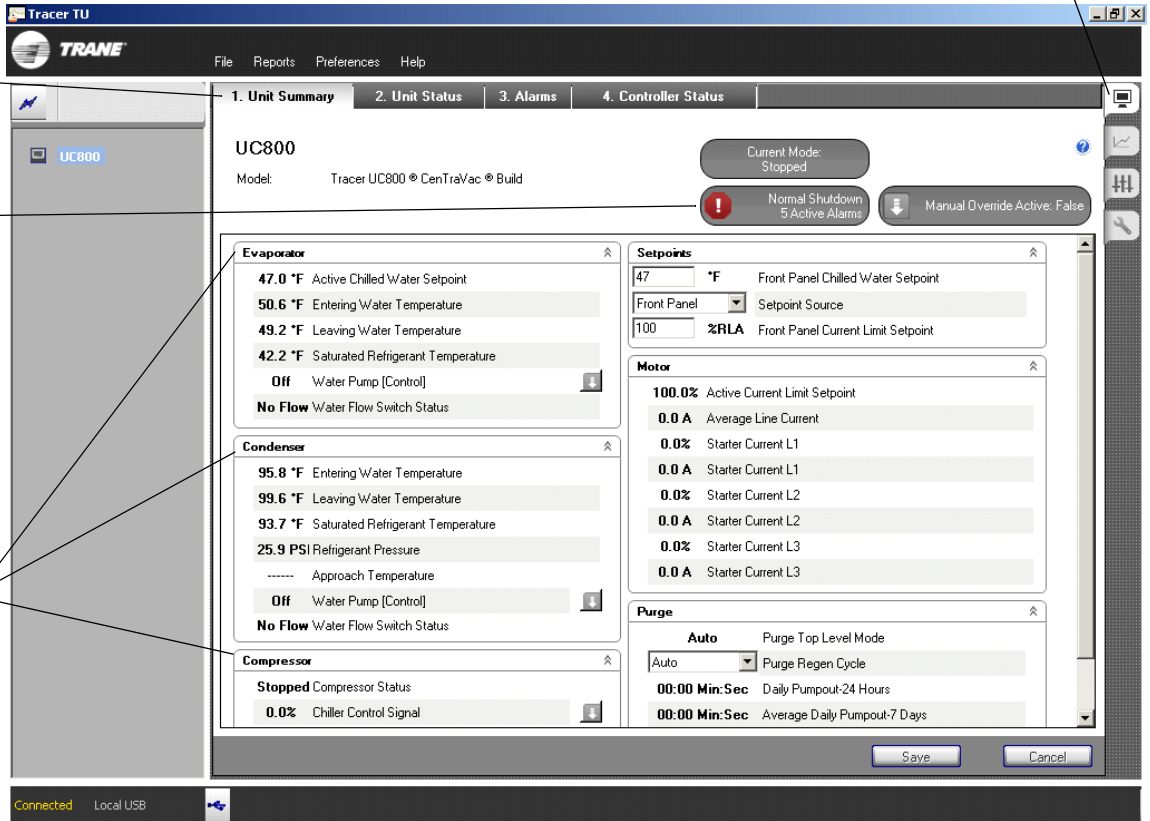
**Figure 2. The Unit Summary Tab Screen**

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.

Status Utility Icon

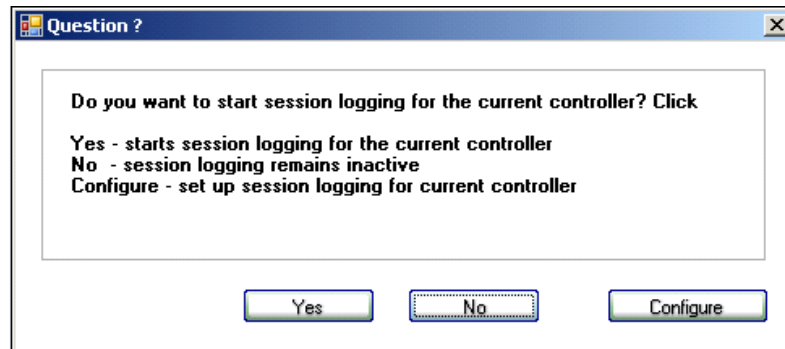


The Unit Summary screen provides a common presentation format for all chiller models. (See “The Status Utility - Unit Summary Tab Screen,” p. 52 for more information.)

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.)

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

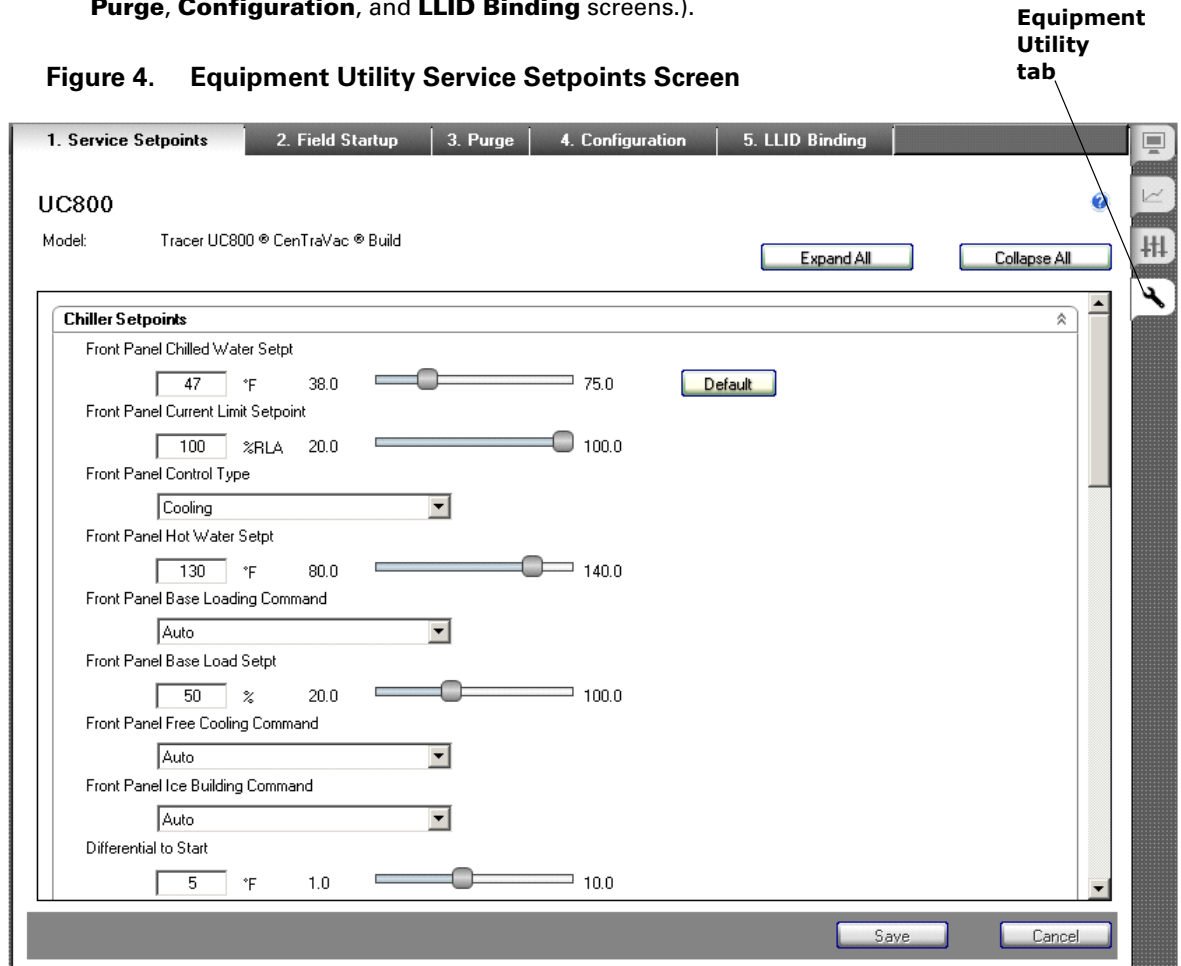


To navigate to the Chiller Settings screens in the Equipment Utility, perform the following steps:

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 **Service 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 Service Setpoints Screen**

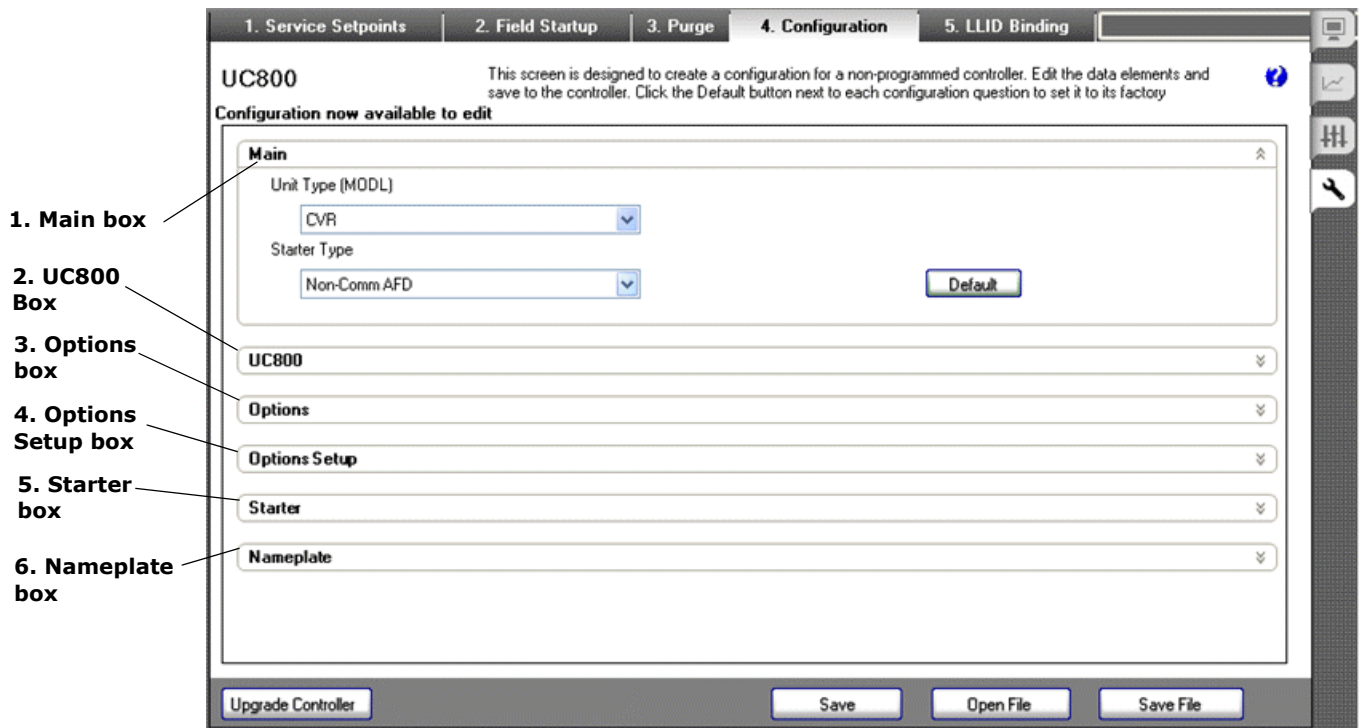


2. Click the **Configuration** tab along the top of the screen. During startup, first verify the configuration. The Configuration tab screen contains the groups of configuration variables or settings you need to work with. The selections you make on the Configuration tab screen cause setpoints to appear 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.

**Figure 5. The Configuration Tab Screen**



The reference section that follows (“Configuration Tab Screen Setpoint Reference Tables,” p. 18) lists and describes the setpoints for each of the expanding boxes on the Configuration tab screen. (See Table 2, p. 18 through Table 8, p. 32 in this subsection.)

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

## Configuration Tab Screen Setpoint Reference Tables

The following tables list and describe the Configuration tab screen (machine configuration) setpoints included in the expanding boxes. 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. 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.
- Column 3 instructs the user how to determine the correct Tracer TU selection.
- 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 2. (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.)
3. Select the starter type from the drop-down list.

*Notes:*

- After you select a unit and starter type, Tracer TU adjusts the rest of the configuration entries based on your selection.
- As you work, document all items or save a Chiller Service Report, which contains all configuration settings.

**Table 2. 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>	<b>For single compressor units: CVR (default)</b>	MODL (type)	Always use CVR.
<b>2. Starter Type</b>	<ul style="list-style-type: none"> <li>• Wye- Delta (default)</li> <li>• Across Line</li> <li>• Auto Transformer</li> <li>• Primary Reactor</li> <li>• Adjustable Frequency Drive</li> <li>• Non-comm Solid State Starter</li> <li>• Non-comm AFD</li> <li>• None</li> </ul>	SRTY (value)	<p>Programs the controls to the installed starter. When AFDF starter is installed select Adjustable Frequency Drive. Do not select None. Current Trane solid state starters are Non-comm Solid State Starter.</p> <p>Starter Type selection within this box determines the content of the Starter expanding box. Selection of AFD will change the Starter Tab items.</p>

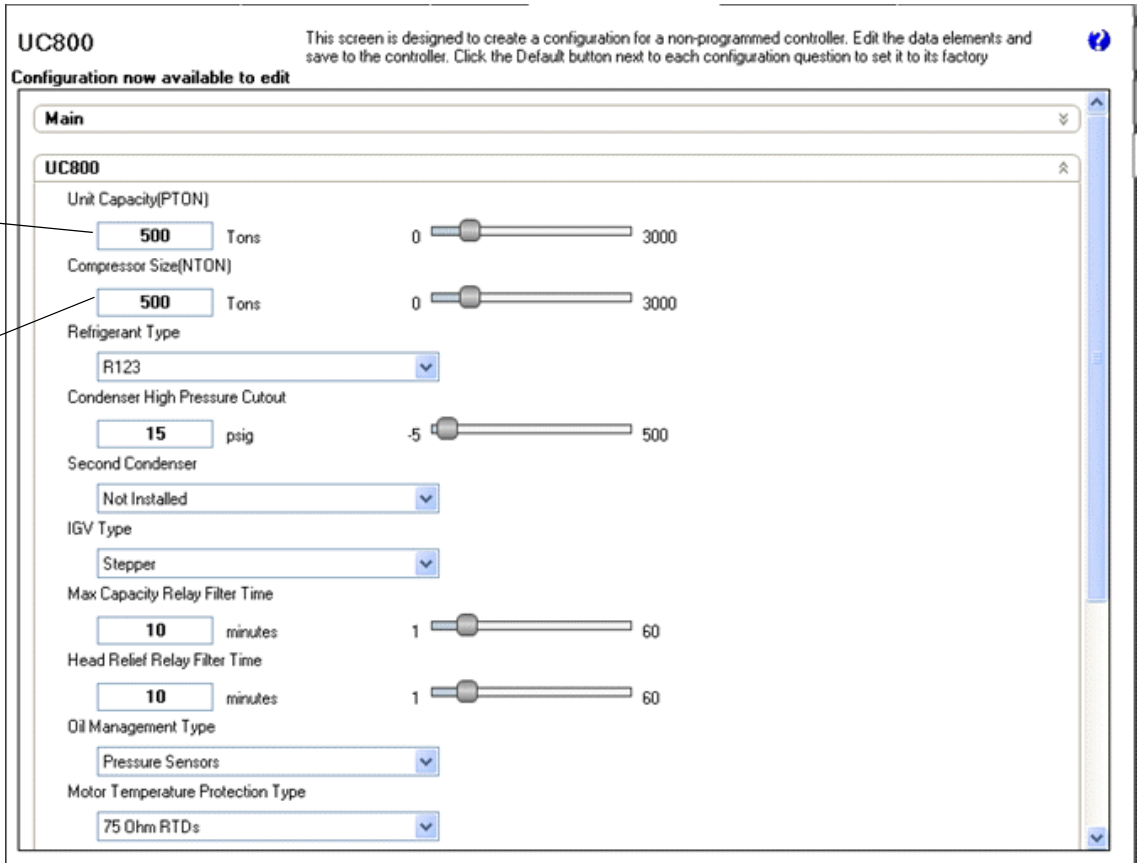
## The Equipment Utility Configuration Tab Screen

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

Next, verify or change the chiller controller settings (see Table 3, p. 20) in the UC800 expanding box on the Configuration tab screen (see Figure 6).

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

**Figure 6. The UC800 Box on the Equipment Utility Configuration Tab Screen**



**UC800** Configuration now available to edit

This screen is designed to create a configuration for a non-programmed controller. Edit the data elements and save to the controller. Click the Default button next to each configuration question to set it to its factory

**Main**

**UC800**

Unit Capacity(PTON)  Tons 0  3000

Compressor Size(NTON)  Tons 0  3000

Refrigerant Type

Condenser High Pressure Cutout  psig -5  500

Second Condenser

IGV Type

Max Capacity Relay Filter Time  minutes 1  60

Head Relief Relay Filter Time  minutes 1  60

Oil Management Type

Motor Temperature Protection Type

**Annotations:**

- Set to Chiller Sales Order selection TONS (PTON on Nameplate).
- Set to COMPRESSOR SIZE (NTON on Nameplate)

## The Equipment Utility Configuration Tab Screen

**Table 3. 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>500 tons</b> 0 - 3000 tons	PTON	See chiller selection data for performance tons.
<b>2. (Compressor Size)</b>	<b>500 tons</b> 0 - 3000 tons	NTON	Selects the proper Compressor Map for Compressor Control signal algorithm. Set to the NTON of the compressor.
<b>3. Refrigerant Type</b>	<b>R123 (default)</b> <ul style="list-style-type: none"> <li>• R134a</li> <li>• R11</li> <li>• R12</li> <li>• R22</li> <li>• R113</li> <li>• R114</li> <li>• R500</li> <li>• R502</li> </ul>		Selects the chiller refrigerant type. Scroll up and down the list to see all choices.
<b>4. Condenser High Pressure Cutout</b>	<b>[15 psig default]</b> Min: 5 psig Max: 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>5. Impeller Diameter</b>	<b>[275 default]</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] The entered value will be 10 times the average impeller diameter, i.e. an impeller set having ave. 27.5" diameter would be entered as 275. Used specifically for AFD control algorithms.
<b>6. Number of stages</b>	<b>[2 default]</b> 1 - 3 stages		This is the number of impellers. CVHF would be 2. CVHE would be 3. Used specifically for AFD control algorithms
<b>7. Second Condenser</b>	<b>[Not Installed default]</b> Installed	ACOS YES	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>8. IGV Type</b>	<b>[Stepper (default)]</b> Pulsed		Installs the inlet guide vane type used. Only select Pulsed for the generic panel applications.

## The Equipment Utility Configuration Tab Screen

**Table 3. Equipment Utility - Configuration Tab Screen: UC800 Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>9. 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>10. 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>11. Oil Management Type</b>	<b>[Pressure Sensors default]</b> DP Switches None Lite		Choose Pressure Sensors for most application.
<b>12. Motor Temperature Protection Type</b>	<b>[75 Ohm RTDs default]</b> <ul style="list-style-type: none"> <li>• 100 Ohm RTDs</li> <li>• MTC Switch</li> <li>• MTC Temperature Sensor</li> <li>• Lite and 75 Ohm RTDs</li> <li>• Lite and 100 Ohm RTDs</li> <li>• None</li> </ul>		The most common motor sensor is the 75 Ohm at 75 degree F RTD. The 100 Ohm RTD is measured at 0 degrees C.
<b>13. Water Pump Control</b>	<b>[Water Pump Control default]</b> Flow Status Only Not Installed		<b>Flow Status Only</b> - 5S1 evaporator water flow switch and 5S2 condenser water flow switch are installed along with the 1A6 LLID. <b>Water Pump Control</b> - 5K10 evaporator water flow interlock and 5K20 condenser water flow interlock are also required.
<b>14. 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 indicates 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 12) with a default 93% of the High Pressure cutout configuration setting (15 psig default).

## The Equipment Utility Configuration Tab Screen

### 3. OPTIONS Box: Features and Options

Verify the features and options settings shown in Table 4, 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 4. Equipment Utility - Configuration Tab Screen: Options Box**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
1	2	3	4
<b>1. 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).
<b>2. Purge Control</b>	<b>Default:</b> Installed <b>Selections:</b> Not Installed Installed	Not shown on main panel nameplate	Installs the EarthWise Purge into the control system.
<b>3. 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. "INSTALLED" requires potential transformers 2T17, 2T18, and 2T19. Required for momentary power loss (MPL)
<b>4. 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>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.

## The Equipment Utility Configuration Tab Screen

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

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>6. 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>7. 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)
<b>8. Free Cooling</b>	<b>Default:</b> Installed <b>Selections:</b> Installed, Not Installed	FRCL YES	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.
<b>9. 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>10. Base Loading</b>	<b>Default:</b> Not Installed <b>Selections:</b> Not Installed Installed 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

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

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>11. 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>12. 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>13. 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
<b>14. Refrigerant Monitor Type</b>	<b>Default:</b> Not Installed <b>Selections:</b> <ul style="list-style-type: none"> <li>• 4-20 mA, 0-100 PPM</li> <li>• 4-20 mA, 0-1000 PPM</li> <li>• 2-10V, 0-100 PPM</li> <li>• 2-10VDC, 0-1000 PPM</li> </ul>	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>15. %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.

## The Equipment Utility Configuration Tab Screen

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

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>16. Operating Status Programmable Relays</b>	<b>Default:</b> Not Installed <b>Selections:</b> One Relay Card Installed Two Relay Cards Installed	OPST YES	<b>One Relay Card</b> - requires module 1A8 Quad relay output module. <b>Two Relay Cards</b> - requires modules 1A8 and 1A9 Quad relay output modules.
<b>17. Hot Gas Bypass</b>	<b>Default:</b> Not Installed <b>Selections:</b> Installed, Not Installed	HGBP WITH	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>18. Compressor Power Source</b>	<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
<b>19. 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>Installed</b> - Requires Bearing temp sensor 4R1 and 4R2, compressor discharge temp sensor 4R16, and condenser refig. Press. Sensor 4R22. Remove: Select INST, as this is normal mode for units with refrigerant pump.
<b>20. 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.

## The Equipment Utility Configuration Tab Screen

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

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>21. 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>22. Relay Option Package</b>	<b>Default:</b> Dual Relays <b>Selections:</b> Dual Relays Quad Relays		<b>Dual Relays</b> - if 1A5 is a Dual Relay Output LLID. <b>Quad Relays</b> - if 1A5 is a Quad Relay Output LLID
<b>23. Operator Display Image Type</b>	<b>[Default: CVHE]</b> <ul style="list-style-type: none"> <li>• CVHE</li> <li>• CVHF</li> <li>• CVHG</li> <li>• CVG</li> <li>• CVAA</li> <li>• CVHA</li> <li>• CVHB</li> <li>• YorkCentrifugal</li> <li>• CarrierCentrifugal</li> <li>• McQuay Centrifugal</li> </ul>		This setting selects the picture that is displayed on the color display.
<b>24. Starter Safety Inputs</b>	<b>Default:</b> Installed <b>Selections:</b> Installed Not installed		Installed - requires 1A98 LLID to be installed.
<b>25. Call for Cooling and Interlock</b>	<b>Default:</b> Installed <b>Selections:</b> Installed Not installed		Installed - requires 1A99 LLID to be installed.

## 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 5 are only examples. (See the Knowledge Center for related cases.)

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

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>1. ECWS Minimum Temperature</b>	<b>[34F default]</b> 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>[65° F default]</b> 50 to 65,	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>80 deg F default</b> 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>140 deg F default</b> 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>[40 default]</b> 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>[100 default]</b> 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.)
<b>7. Module 1 &amp; 2 Programmable Status Relays</b>	(See schematic diagram.)	OPSI YES	The schematic diagrams reflect the defaults.

## The Equipment Utility Configuration Tab Screen

**Table 5. Equipment Utility - Configuration Tab Screen: Options Setup Box (continued)**

Tracer TU Configuration screen item	Default and other selections	Chiller nameplate data	Help information
<b>8. Rfgt Pressure Output Type</b>	<b>[Delta P default]</b> 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>9. Min Delta Rfgt Press Output</b>	<b>0 psid default</b> 0 to 150 psid setting range	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>10. Max Delta Rfgt Press Output</b>	<b>30 psid default</b> 0 to 150 psid setting range	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>
<b>11. Evaporator Differential Water Pressure Range</b>	<b>30 default</b> 0 to 50 setting range	Not shown on nameplate.	Default 30 psi for Trane supplied transducer.

## The Equipment Utility Configuration Tab Screen

### 5. 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)
<b>5. CT Meter Scale</b>	<b>[0 Amps default]</b> , 0-2000 setting range	CTMS (value) Duplex chiller: CTM1 (value) CTM2 (value)	See "Appendix D: CT Meter Scale," p. 66. <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)
<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.

## 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>9. Acceleration Time Out Action</b>	<b>SHDN [Shutdown default]</b> TRAN (Transition)		Sets resulting action to occur upon exceeding maximum acceleration timer. Unit will shutdown upon exceeding maximum acceleration time
<b>10. Overload Type</b>	<b>LINR [Linear default]</b> EXPO (Exponential)		Selects the overload algorithm type. Select Linear for all Centrifugal compressor applications
<b>11. Phase Reversal Protection</b>	<b>ENBL [Enable default]</b> DSBL (Disable)		Enables Phase reversal protection. Always select enable.
<b>12. Contactor Integrity Test</b>	<b>DSBL [Disable default]</b> ENBL (Enable)		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>ENBL [Enable default]</b> DSBL (Disable)	SRPR ENBL	Enables Surge Detection.
<b>15. Momentary Power Loss Protection</b>	<b>ENBL [Enable default]</b> DSBL (Disable)	MPLP ENBL	Enables Momentary Power Loss (MPL). Potential transformers are required for MPL.
<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.

## The Equipment Utility Configuration Tab Screen

### 6. STARTER Box (AFD)

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 Protection</b>	<b>ENBL [Enable default]</b> Disable (DSBL)	SRPR ENBL	Enables Surge Detection.
<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> 180-15,000 volts	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>[0 Amps default],</b> 0-2000	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 30 for AFD. Sets the rate of acceleration for all speed increases
<b>13. Deceleration Time</b>	<b>30 Sec default</b> 1-99 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> must set per sales order. 1-3200 setting range	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)

## 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>15. Current Limit Gain</b>	<b>10 default</b> 0 - 5000 setting range	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 - 25 seconds setting range	(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> ENBL (Enable),	FLST DSBL	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> 20-32767,	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.

**Note:** 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

**Note:** Document settings on log sheet for future reference.

**Note:** THESE SETTINGS ARE DOCUMENTED ON THE AFD STARTUP LOG SHEET Starter Configurations. (Selections based on sales order variables.)

## 7. NAMEPLATE Box: Chiller Nameplate Values

The Nameplate expanding box contains the Nameplate values listed in Table 8. You can edit these values if you are completing a retrofit or replacing the unit.

**Table 8. 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.

# 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**.

A confirmation dialog box appears listing the items that you modified.

4. 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

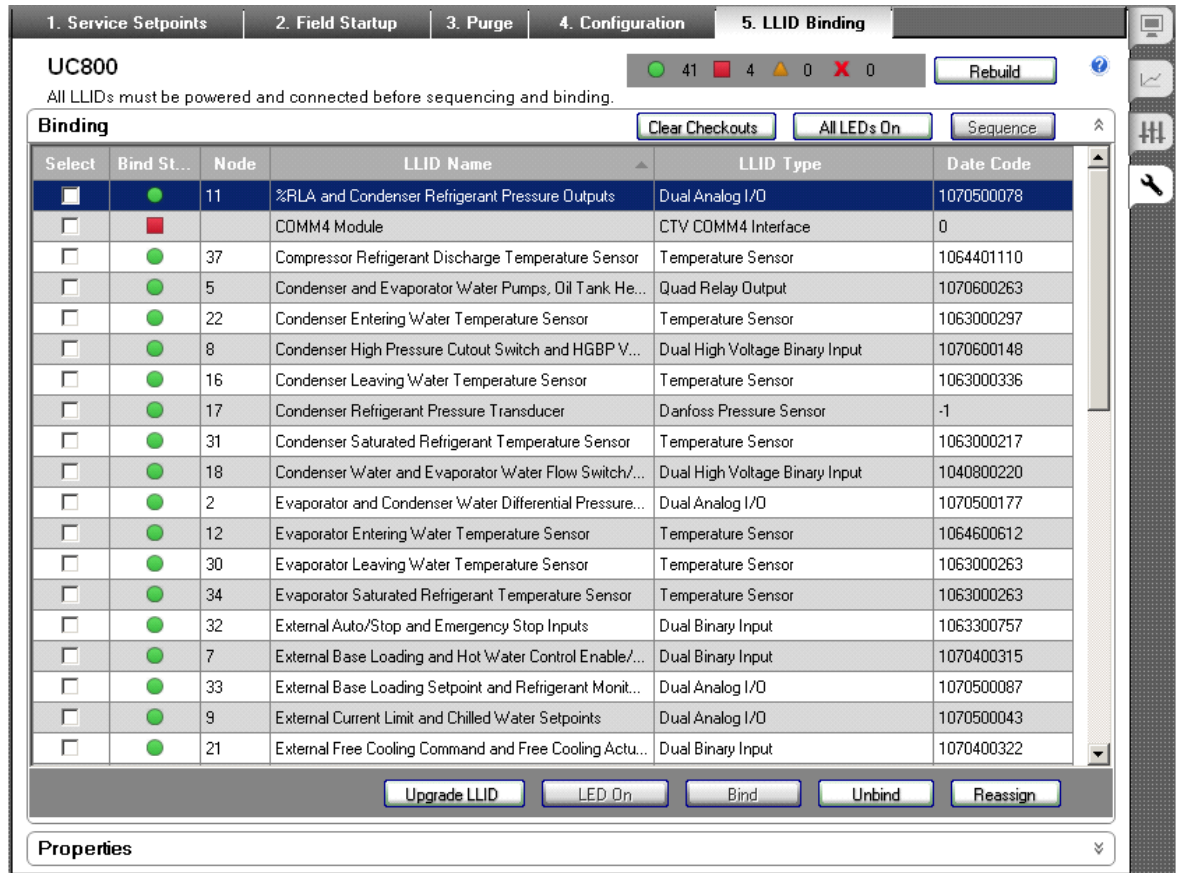
Saved changes do not take effect until they are transferred to the UC800. To save a configuration to the UC800 after all entries have been changed, click the **Save** button located at the bottom of the Configuration screen.

*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.*

# The LLID Binding Tab Screen

When all the configuration inputs are complete, click the **Save** button at the bottom of the screen. After a few moments, the LLID Binding screen appears.

**Figure 7. Equipment Utility—LLID Binding tab screen**



Note that the LLIDs appearing on this list are dependent on selections made previously on the Configuration screen. Initially, the LLIDs will show up as red squares (see the COMM4 Module item near the top of the table) indicating they are unbound. Binding is a process by which a particular LLID is assigned to monitor or control a particular function or component. All LLIDs required for a configuration must be bound (green circle) to complete this section.

## Binding devices

Use the following procedure to bind the configured LLIDs.

1. Select the LLID to be bound and click on the **Bind** button in the task bar.  
For example when binding the Motor Start Command LLID, a dialog box appears asking “Motor Start Command. Is the desired device alone selected?”
2. Locate the targeted LLID in the control panel, unit or starter and place the Trane provided magnetic screwdriver (South pole magnet) near the LED under the SW1 arrow.  
The green LED turns on at the device.

## The LLID Binding Tab Screen

---

3. Click **Yes** in the dialog box.  
If the binding is successful, the red square changes to a green circle next to that LLID on the binding view menu.  
If the wrong type of LLID was selected during this binding process an error message appears. Check the LLID Type column entry to be sure it corresponds to the physical LLID you selected with your magnet.
4. Repeat the same procedure for all red square LLIDs in the list.



# Additional Chiller Settings Screens

You can now verify or make changes to setpoints on the other Equipment Utility tab (Chiller Settings) screens: Service Setpoints, Field Startup, and Purge. See the following subsections:

- “Equipment Utility - Service Setpoints Tab Screen,” p. 36
- “Equipment Utility - Field Startup Tab Screen,” p. 39
- “Equipment Utility - Purge Tab Screen,” p. 48

## Equipment Utility - Service Setpoints Tab Screen

The Service Setpoints tab screen contains the active setpoints shown in Table 9 through Table 11. 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 Service Setpoints tab screen appear in the following order.

**Table 9. Equipment Utility - Service Setpoints Tab Screen: Chiller Setpoints Box**

Setpoint	Default, (Min, Max)	Help Information
<b>1. Front Panel Chilled Water Setpoint</b>	<b>44°F / 6.67 °C default</b> 38°F to 75°F (-3.33°C to 23.9°C)	Set to sales order / Job requirements
<b>2. Front Panel Current Limit Setpoint</b>	<b>100% RLA default</b> (20 to 100)	Use 100% unless otherwise specified
<b>3. Front Panel Control Type</b>	<b>Chilled water</b> (Chilled water or Hot water)	Optional item, shown when installed
<b>4. Front Panel Hot Water Setpoint</b>	<b>130°F / 54.44 °C default</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>Auto default</b> (On or Auto)	Optional item, shown when installed
<b>6. Front Panel Base Load Setpoint</b>	<b>50% default</b> (20 to 100)	Optional item, shown when installed
<b>7. Front Panel Free Cooling Command</b>	<b>Auto default</b> (On or Auto)	Optional item, shown when installed
<b>8. Front Panel Ice Building Command</b>	<b>Auto default</b> (On or Auto)	Optional item, shown when installed
<b>9. Differential to Start Setpoint</b>	<b>5°F / 2.78°C default</b> (1F to 10F, 0.55C to 5.55C)	Set to sales order/ Job requirements
<b>10. Differential to Stop Setpoint</b>	<b>5°F / 2.78°C default</b> (1F to 10F, 0.55C to 5.55C)	Set to sales order/ Job requirements
<b>11. Setpoint Source</b>	BAS/Ext/FP default (BAS/Ext/FP, Ext/Front Panel, Front Panel)	Sets hierarchy of commands; Building Automation system, External signals, front panel
<b>12. Evaporator Water Flow Point 1</b>	<b>264 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>13. Evaporator Pressure Drop Point 1</b>	<b>1.45 PSI / 10 kPaD</b> <b>(0 to 210 kPaD)</b>	Diff Pressure, WFC Option; Pressure at flow point 1. (design PD in PSID, factory set)
<b>14. Evaporator Water Flow Point 2</b>	<b>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>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)

## Additional Chiller Settings Screens

**Table 9. Equipment Utility - Service Setpoints Tab Screen: Chiller Setpoints Box (continued)**

Setpoint	Default, (Min, Max)	Help Information
<b>16. Evaporator Fluid Specific Gravity</b>	1 (range 0 to 2)	WFC Option Use "1.00" for 100% water
<b>17. Evaporator Fluid Specific Heat</b>	1 (range 0 to 2)	WFC Option Use "1.00" for 100% water
<b>18. Evaporator Low Water Flow Warning Setpoint</b>	Default is calculated @ 1.2 gpm/ton * PTON.	<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>264 gpm / 1000 lpm</b> (0 to 40000)	WFC Option; GPM Flow at point 1. (design GPM, factory set)
<b>20. Condenser Pressure Drop Point 1</b>	<b>1.45 PSI / 10 kPa</b> (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>423 gpm / 1600 lpm</b> (0 to 10568 / 0 to 40000)	WFC Option; Pressure at flow point 1. (design PD in PSID, factory set)
<b>22. Condenser Pressure Drop Point 2</b>	<b>4.35 PSI / 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>0%</b> (0, 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>24. Maximum Capacity Limit</b>	<b>100%</b> (0, 100)	Creates a maximum boundary of the Compressor Load Signal.
<b>25. External Heat Cool Switch</b>	Heating Cooling	Optional Item, Shown when installed
<b>26. Chiller Start Initial Capacity Command</b>	<b>0%</b> 0 to 100%	Optional Item, Shown when installed



## Additional Chiller Settings Screens

### 2. COMPRESSOR SETPOINTS Box

The compressor setpoints shown in Table 10 appear on the Compressor Setpoints expanding box of the Service Setpoints tab screen.

**Table 10. Equipment Utility - Service Setpoints Screen: Compressor Setpoints**

Setpoint	Default (Min, Max)	Help Information
<b>1. Oil Temperature -Compressor Running</b>	<b>100°F (37.78°C) default</b> 100°F to 140°F (37.78°C to 60°C)	Oil heater will come on if temp drops below this temperature -compressor running mode
<b>2. Low Differential Oil Pressure Cutout Setpoint</b>	<b>12PDS / 82.74 kPaD</b> (9 tp 35 [sod 62.1, 241.3 kPaD)	Oil Pressure setting
<b>3. Check Oil Filter Diagnostic</b>	<b>Disable</b> (Enable)	Issued if the pressure differential drops below the Check Oil Filter Setpoint value during runtime.
<b>4. Check Oil Filter Setpoint</b>	<b>103.43 kPaD / 15 PSID</b> (62.06 - 413.7, 9 - 60)	Oil pressure setting
<b>5. Check Oil Heater Setpoint</b>	<b>04 Hr</b> (00 - 24 hours)	Previously the chiller would wait indefinitely for the oil to warm up and not alarm. Now if there is a call for the chiller to run and the oil doesn't heat up in 4 hours (the default), then the chiller software issues an informational alarm.
<b>6. Motor Winding Temp Diagnostic Severity</b>	<b>Normal Shutdown (default),</b> Warning	Allows service to set a WARNING for first occurrence, then becomes shutdown upon second occurrence.
<b>7. High Compressor Refrigerant Discharge Temperature Cutout</b>	<b>200° F default</b> (170° F min, 220° F 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 Service Setpoints screen (Equipment tab) in Tracer TU.
<b>8. Post-Lube Time Setpoint</b>	<b>180 sec default</b> 30 - 900 seconds	Sets the time the oil pump will run after the chiller shuts down.
<b>9. Pre-Lube Time Setpoint</b>	<b>60 sec default</b> 20-60 seconds	Sets the time the oil pump will run before the chiller starts.

### 3. ADJUSTABLE FREQUENCY DRIVE Box

The AFD control setpoints shown in Table 11 are included in the Adjustable Frequency Drive Setpoints expanding box of the Service Setpoints tab screen when an AFD starter is used. (See the Knowledge Center for related cases.)

**Table 11. Equipment Utility - Service Setpoints Tab Screen: Adjustable Frequency Drive Setpoints**

Setpoint	Default, (Min, Max)	Help Information
<b>1. AF Control</b>	<b>Auto</b> (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>20% default</b> (0-100), I (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>• <sup>2</sup> If the inlet guide vane position has changed more than the sensitivity setpoint amount then re-optimization</li> </ul>

## Equipment Utility - Field Startup Tab Screen

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

### 1. FEATURE SETTINGS Box

The settings shown in Table 12 are displayed in the Feature Settings box of the Field Startup tab screen. (See the Knowledge Center for related cases).

**Table 12. Equipment Utility - Field Startup Tab Screen: Feature Settings**

Setpoint	Default, (Min, Max)	Help Information
<b>1. Chilled Water Reset Type</b>	<b>Disable</b> (Constant, Outdoor Air, Return)	Front Panel Enable/Disable of option
<b>2. Return Reset Ratio</b>	<b>50%</b> , range 10 to 120	A user adjustable gain.
<b>3. Return Start Reset</b>	<b>10°F / 5.56°C</b> (4 to 30 °F)	A user adjustable reference.
<b>4. Return Maximum Reset</b>	<b>5°F/2.8°C</b> (0 - 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>10%</b> , range -80 to 80	A user adjustable gain.
<b>6. Outdoor Start Reset</b>	<b>90°F/32.22 °C</b> (50 -130 °F / 10 to 54.44°C)	A user adjustable reference.
<b>7. Outdoor Maximum Reset</b>	<b>5°F, 2.78°C</b> (0, 20°F / 0.0, 11.11)	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>Disable</b> Enable	Front Panel Enable/Disable of option



## Additional Chiller Settings Screens

Table 12. Equipment Utility - Field Startup Tab Screen: Feature Settings (continued)

Setpoint	Default, (Min, Max)	Help Information
<b>9. External Current Limit Setpoint</b>	<b>Disable</b> Enable	Front Panel Enable/Disable of option
<b>10. Front Panel Ice Termination Setpoint</b>	<b>27°F / -2.8 °C default</b> 20F to 32F (-6.67C to 0.0C)	Optional item, shown when installed
<b>11. Evaporator Design Delta Temp</b>	<b>10°F / 5.6°C</b> 4 F to 40 F (2.22°C to 22.22°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>10°F / 5.6°C</b> 4°F to 40°F, 2.22°C to 22.22°C	Set to the Condenser design Delta temp in F/C. Control algorithm use entering temp in feed forward logic. (Heating mode use only)
<b>13. Evaporator Leaving Water Temp Cutout</b>	<b>36°F / 2.22°C</b> -10°F to -36°F, (-23.33°C to 2.22°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>50000 steps</b> (1000 to 53111),	Set to equal number of steps for full vanes stroke.
<b>15. Inlet Guide Vane Max Steps Second Stage</b>	<b>50000 steps</b> (1000 to 53111)	Ext capacity units only. Set to equal number of steps for full vanes stroke.
<b>16. Low Refrigerant Temp Cutout</b>	<b>32°F / 0.0°C default</b> -35°F to 36°F (-37.22°C to 2.22°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>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>Enable</b> Disable	Enabled diagnostic message
<b>19. Restart Inhibit Free Starts</b>	<b>3</b> (1-5)	# of free starts allowed before Restart Timer begins
<b>20. Restart Inhibit Start to Start</b>	20 min, (10-30min)	Restart Time
<b>21. Local Atmospheric Pressure</b>	<b>14.7 PSIA / 101.4 kPaA</b> (5 to 20 psia) (34.5 to 137.9 kPaA)	Set to Jobsite conditions
<b>22. High Evaporator Water Temperature Cutout</b>	<b>105°F / 40.6°C default,</b> 80-150°F	Evap pump contacts open if the LCWT reaches this temp.
<b>23. High Evaporator Refrigerant Temperature Warning</b>	<b>110° F default</b> 32° to 158° F	Check evaporator pressure and temperature.
<b>24. Ice Building Feature</b>	<b>Disable</b> Enable	Front Panel Enable/Disable of option
<b>25. External Base Loading Setpoint</b>	<b>Disable</b> Enable	Front Panel Enable/Disable of option

## Additional Chiller Settings Screens

**Table 12. Equipment Utility - Field Startup Tab Screen: Feature Settings (continued)**

Setpoint	Default, (Min, Max)	Help Information
<b>26. Current Limit Softload Start Point</b>	<b>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>Enable</b> (Disable)	When Enabled, the chiller capacity limit feature is active and de-rates the chiller capacity when the unbalance of one phase is greater than 20%. Disabling the limit feature allows the control to run until the unbalance trip point is reached and a fault is triggered.
<b>28. Over/Under Voltage Protection</b>	<b>Disable</b> Enable Enabled with Unit mounted Starters and later (Run-in stand constraints required disabled with other starter types)	Enables / disables the under/over voltage protection. Potential Transformer 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>29. Minimum Capacity Timer</b>	<b>Enable (default)</b> (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>Enable</b> (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>Disable</b> (Enable)	Disables/Enables diagnostic message.
<b>32. Phase Unbalance Limit</b>	<b>100%</b> 0 to 100%	



## Additional Chiller Settings Screens

### 2. MANUAL SETTINGS Box

The settings shown in Table 13 appear on the Manual Settings expanding box of the Field Startup tab screen.

**Table 13. Equipment Utility - Field Startup Tab Screen: Manual Settings**

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

### 3. ADJUSTABLE FREQUENCY DRIVE Box

The settings shown in Table 14 appear on the Adjustable Frequency Drive expanding box of the Field Startup tab screen.

**Table 14. Equipment Utility - Field Startup Tab Screen: Adjustable Frequency Drive**

Setpoint	(Min, Max) Default	Help Information
<b>1. AFD Maximum Frequency</b>	(38-60), <b>60 Hz</b>	Maximum Operating frequency setpoint
<b>2. AFD Minimum Frequency</b>	(38-60), <b>38 Hz</b>	Minimum Operating frequency setpoint
<b>3. AFD Surge Capacity Increase</b>	RANGE 0-5 hertz <b>Default 1 hz</b>	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.

## Additional Chiller Settings Screens

### 4. HOT GAS BYPASS Box

The settings shown in Table 15 appear on the Hot Gas Bypass expanding box of the Field Startup tab screen.

**Table 15. Equipment Utility - Field Startup Tab Screen: Hot Gas Bypass**

Setpoint	Default (Min, Max)	Help Information
<b>1. Hot Gas Bypass Compressor Control Command</b>	<b>10%</b> Range of 10 % to 90 %	Compressor control signal upon decreasing loads when HGBP valve begins to open.
<b>2. Hot Gas Bypass Feature</b>	<b>Disable,</b> Enable	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>Enable,</b> Disable	Front Panel Enable/Disable of option
<b>4. Hot Gas Bypass Maximum Timer Setpoint</b>	<b>30 min</b> 0 - 480 minutes	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>19 sec</b> 5 - 180 seconds	Max time allowed in mode. Will cycle chiller off when time expires.

### 5. TIMERS Box

The settings shown in Table 16 appear on the Timers expanding box of the Field Startup tab screen.

**Table 16. Equipment Utility - Field Startup Tab Screen: Timers**

Setpoint	(Min, Max) Default	Help Information
<b>1. Ice To Normal Cooling Timer</b>	(0-10) <b>5 minutes</b>	Optional item, shown when installed
<b>2. Maximum Time at Minimum Capacity</b>	(1-480 minutes) <b>30 minutes</b>	When the Minimum Capacity Timer (Table 12, p. 39) is enabled, this parameter sets time allowed at minimum capacity until normal shutdown occurs.
<b>3. Power-Up Start Delay</b>	(0-600 seconds) <b>0 seconds</b>	Time delay to start upon power restoration. Allows multiple chillers to be staged on after a power outage.
<b>4. Condenser Water Pump Off Delay</b>	(Range 0 to 30) <b>1 minute</b>	Time Condenser water pump will remain on after post lube terminates. (Heating mode use only)
<b>5. Evaporator Water Pump Off Delay</b>	(Range 0 to 30) <b>1 minute</b>	Time chilled water pump will remain on after post lube terminates. (Cooling mode use only)
<b>6. Capacity Control Softload Time</b>	(0 to 7200) <b>900 sec</b>	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.
<b>7. Current Limit Control Softload Time</b>	(Range 0 to 7200) <b>600 Seconds</b>	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.

## Additional Chiller Settings Screens

---

**Table 16. Equipment Utility - Field Startup Tab Screen: Timers (continued)**

<b>Setpoint</b>	<b>(Min, Max) Default</b>	<b>Help Information</b>
<b>8. AFD Re-Optimization Timer</b>	(0,255), <b>12</b> hours default. (Background timer triggered re-optimization)	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>	(1, 50), <b>10</b> minutes	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>	(Range 0 to 72) <b>0</b> Hours	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>	(Range 1-60 minutes) <b>Default 15 minutes</b>	Sets time period

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

The settings shown in Table 17 appear on the Level 4 Gains and Start Sequence expanding box 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 17. Equipment Utility - Field Startup Tab Screen: Level 4 Gains and Start Sequence**

Setpoint	(Min, Max) Default	Help Information
<b>1. Start Sequence Type [Level 4]</b>	(Normal, or No Load) <b>Normal</b>	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>	(Normal or Delayed) <b>Normal</b>	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>	(0.0, 180.0) <b>50 default</b>	Proportional Gain =Kp (error of distance from setpoint). This setting indicates how far from setpoint and how fast the compressor load signal (vanes, and AFD) are moving. The higher the value the faster it reacts. <b>Note:</b> Experience has shown that 50 provides better stability for the majority of sites.
<b>4. Chilled Water Control Reset Time</b>	(0, 1000) <b>120 sec</b>	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 for integral 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>	(0.0, 18.0) <b>0.0</b>	Kd = rate of change from, or towards, the target. (Rate of Change. Higher number settles out an oscillating system.)



## Additional Chiller Settings Screens

Table 17. Equipment Utility - Field Startup Tab Screen: Level 4 Gains and Start Sequence (continued)

Setpoint	(Min, Max) Default	Help Information
<b>6. Chilled Water Control Feed Forward Gain</b>	(0, 200%) <b>80 default</b>	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>	(0, 100), <b>25%</b>	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 18 appear on the Level 4 Gains and Start Sequence expanding box 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 18. Equipment Utility - CVHE, CVHF, and CVHG Field Startup Tab Screen: Level 4 Starts and Runtime

Setpoint	Default (Min, Max)	Help Information
<b>1. Compressor Running Time</b>	1-1000000000.59	Allows settings of running hours. (Used to set starts after software download, or with UC800 replacement).
<b>2. Compressor Starts</b>	<b>00 : 00</b> Hrs : Min	Allows settings of starts. (Used to set starts after software download, or with UC800 replacement.)
<b>3. Carbon Regen Cycles</b>	0-1000	
<b>4. Pumpout Total at Last Regeneration</b>	0-5999999.59	
<b>5. Pumpout-Life</b>	0-1000000000.59	
<b>6. Regeneration-Life</b>	1-1000000000.59	

### 8. LEVEL 4 ADJUSTABLE FREQUENCY DRIVE Box

The settings shown in Table 19 appear on the Level 4 Adjustable Frequency Drive expanding box 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 19. Equipment Utility - Field Startup Tab Screen: Level 4 Adjustable Frequency Drive**

Setpoint	Default (Min, Max)	Help Information
<b>1. AFD Boundary Pressure Coefficient Y Intercept [level 4]</b>	<b>0.40</b> (0.01, 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.
<b>2. AFD Boundary Pressure Coefficient Y Intercept Max - Cprs [level 4]</b>	<b>2.00</b> (0.01, 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.
<b>3. Minimum Surge Boundary Coefficient [level 4]</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.

### 9. LEVEL 4 DATA RECORDER Box

The settings shown in Table 20 appear on the Level 4 Data Recorder expanding box of the Field Startup tab screen.

*Notes:*

- *This expanding box appears only if software part #6200-0456-1.11 is installed.*
- *Access the Level 4 boxes by clicking in the gray area at the bottom of the Field Startup tab screen.*

**Table 20. Equipment Utility - Field Startup Tab Screen: Level 4 Data Recorder Box**

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



## Additional Chiller Settings Screens

---

### Equipment Utility - Purge Tab Screen

Table 21 lists the setpoints pertaining to the purge unit. You can modify the settings within their legal range of values. (See the Knowledge Center for related cases.)

**Table 21. Equipment Utility - Purge Tab Screen Setpoints for All Models**

<b>Setpoint</b>	<b>(Min, Max) Default</b>	<b>Help Information</b>
<b>1. Purge Operating Mode</b>	(Stop, On, Auto), <b>Adaptive</b>	Recommended mode is adaptive. Adaptive operation is greatly improved over previous "adaptive purge modes."
<b>2. Purge Liquid Temperature Inhibit</b>	<b>Enable</b> 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.
<b>3. Purge Liquid Temperature Limit</b>	Range 32° - 50°F / 0° to 10°C <b>45°F/7.22°C default</b>	Defines the setpoint for the purge liquid temp inhibit feature.

# Manual Override Dialog

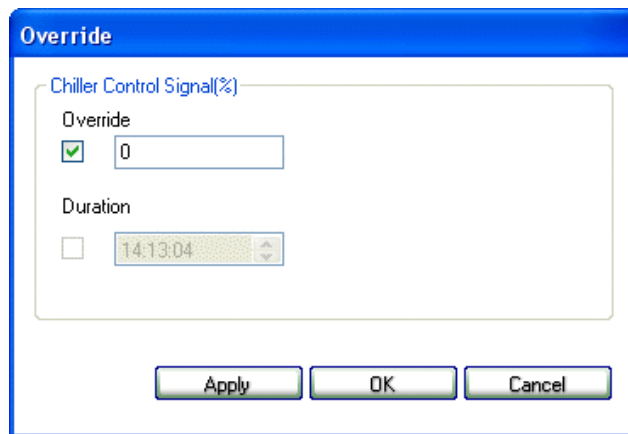


In Tracer TU, you use the Override dialog box to implement overrides for individual outputs. Setting values that you can override are marked with the override icon (shown at left). If the setting is active and has an override icon, you can override it. If a setting does not have an override icon, you 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 8. 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.



## Manual Override Dialog

### Chiller Outputs You Can Override

Table 22 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 22. Chiller Outputs That Can Be Overridden**

Name	Options	Units	Monitor Value(s):
<b>1. Inlet Guide Vane Control</b>	Auto Manual Target	IGV %	IGV Position First Stage (%): IGV Position First Stage (steps):
<b>2. Evap Water Pump Control</b>	Auto On		Evap Water Flow Switch Status: Evap Pump Control: Evap Diff Water Press: Approx. Evap Water Flow: Evap Pump Override Time Remaining:
<b>3. Cond Water Pump Control</b>	Auto On		Cond Water Flow Switch Status: Cond Pump Control: Cond Diff Water Press: Approx. Cond Water Flow: Cond Pump Override Time Remaining:
<b>4. Oil Pump Control</b>	Auto On		Pump Status: Oil Tank Pressure: Oil Discharge Pressure: Oil Differential Pressure: Oil Pump Override Time Remaining:
<b>5. IGV and AFD Control</b>	Auto Manual Targets	IGV % AFD Hz	IGV Position First Stage (%): IGV Position First Stage (steps): AFD Speed: AFD Frequency:
<b>6. Clear Restart Inhibit Timer</b>	Clear		Clears restart inhibit timer
<b>7. Hot Gas Bypass Position</b>	Close Hold Open		
<b>8. Head Pressure Control Command</b>	Range of 0 to 100	%	

## Purge Outputs You Can Override

Table 23 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 23. 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).
<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).
<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).

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



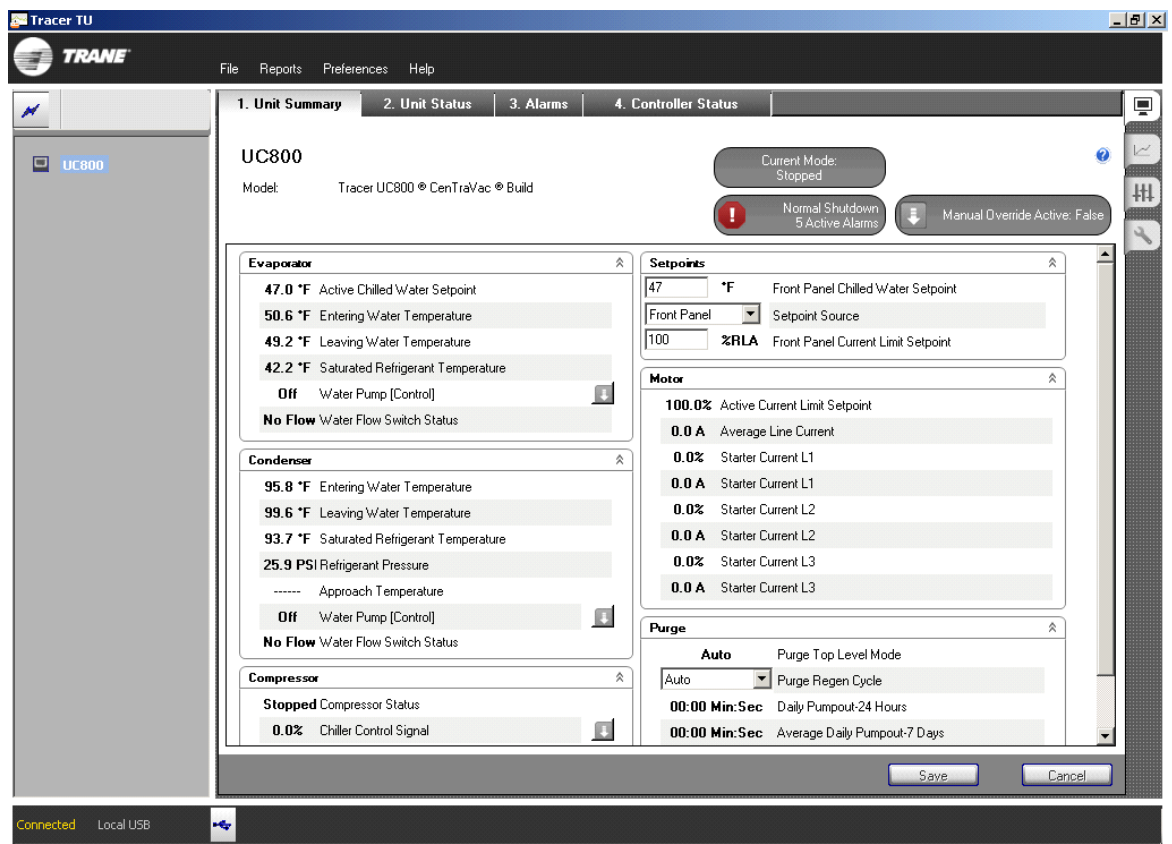
# Status Utility Tab Screens

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 9. 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

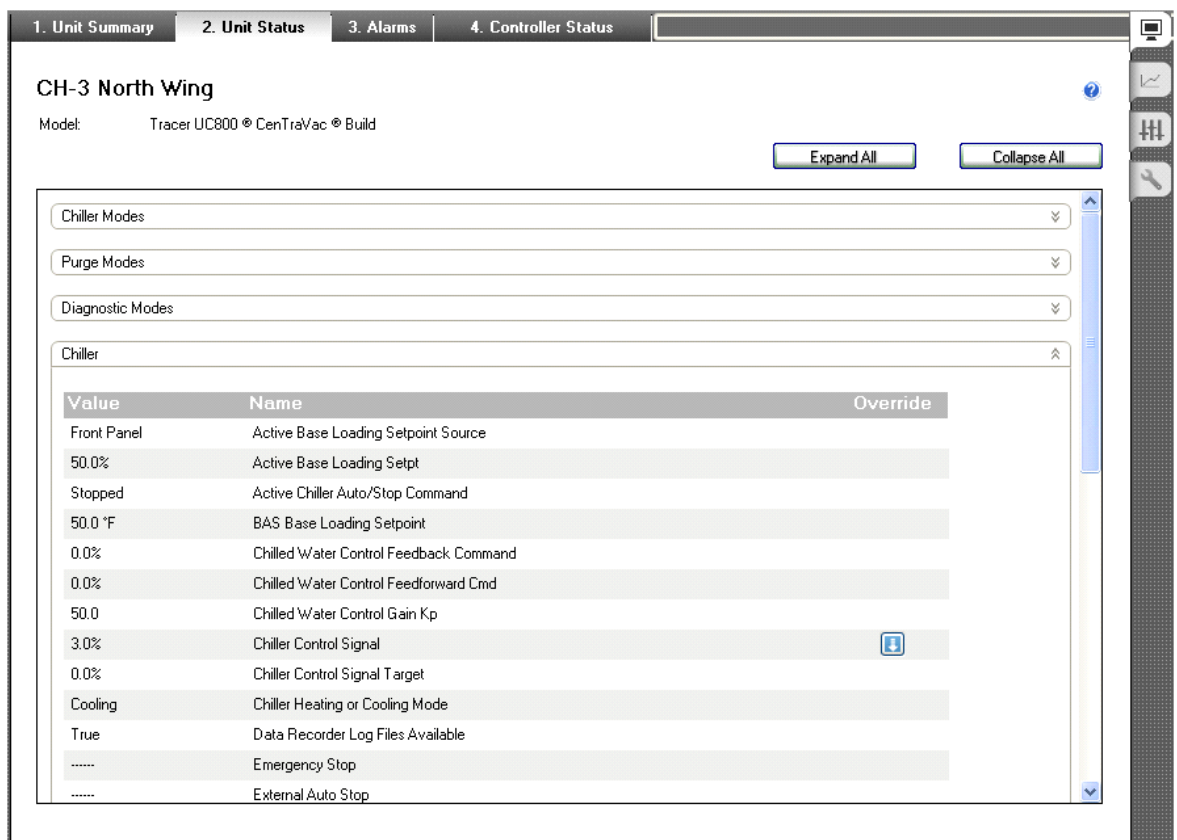
*Note: You can click these boxes to see the Alarms screen or the Modes boxes on the Unit Status screen.*


## The Status Utility - Unit Status Tab Screen

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 10. The Unit Status Screen**



Value	Name	Override
Front Panel	Active Base Loading Setpoint Source	
50.0%	Active Base Loading Setpt	
Stopped	Active Chiller Auto/Stop Command	
50.0 °F	BAS Base Loading Setpoint	
0.0%	Chilled Water Control Feedback Command	
0.0%	Chilled Water Control Feedforward Cmd	
50.0	Chilled Water Control Gain Kp	
3.0%	Chiller Control Signal	
0.0%	Chiller Control Signal Target	
Cooling	Chiller Heating or Cooling Mode	
True	Data Recorder Log Files Available	
.....	Emergency Stop	
.....	External Auto Stop	



## Status Utility Tab Screens

---

### 1. CHILLER MODES Box

Table 24 lists settings that are included in the Chiller Modes expanding box of the Unit Status Screen.

**Table 24. Status Utility - Unit Status Tab Screen: Chiller Modes Expanding Box**

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

### 2. CIRCUIT MODES Box

Table 25 lists settings that are included in the Circuit Modes expanding box of the Unit Status Screen.

**Table 25. Status Utility - 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		

### 3. PURGE MODES Box

Table 26 lists settings that are included in the Purge Modes expanding boxes of the Unit Status Screen.

**Table 26. 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 27 lists settings that are included in the Diagnostic Modes expanding box of the Unit Status Screen.

**Table 27. 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		

### 5. CHILLER Box

Table 28 lists settings that may be included in the Chiller expanding box on the Unit Status screen.

**Table 28. (Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Chiller Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Base Loading Setpoint	17.	Front Panel Base Loading Setpoint
2.	Active Base Loading Setpoint Source	18.	Front Panel Control Type
3.	Active Chiller Auto/Stop Command	19.	Front Panel Current Limit Setpoint
4.	Chilled Water Control Feedback Command	20.	Front Panel Free Cooling Command
5.	Chilled Water Control Feedforward Command	21.	Head Relief Request Relay
6.	Chilled Water Control Gain Kp	22.	Maximum Capacity Relay
7.	Chiller Control Signal	23.	Minimum Capacity Time Remaining
8.	Chiller Control Signal Target	24.	Need to Cool
9.	Chiller Heating or Cooling Mode	25.	Need to Heat
10.	Data Recorder Log Files Available	26.	Outdoor Air Temp
11.	Emergency Stop	27.	Post Lubrication Time
12.	External Auto Stop	28.	Power Up Delay Inhibit
13.	External Base Loading Setpoint	29.	Pre-lubrication Time
14.	External Base Loading Setpoint (Enable/Disable)	30.	Refrigerant Monitor
15.	Front Panel Auto/Stop	31.	Refrigerant Type
16.	Front Panel Base Loading Command		



## Status Utility Tab Screens

### 6. EVAPORATOR Box

Table 29 lists settings that may be included in the Evaporator expanding box of the Unit Status screen.

**Table 29. 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 Leaving Water Temp Cutout
2.	Active Chilled Water Setpoint Source	14.	Evaporator Pump Control
3.	Active Ice Termination Setpoint	15.	Evaporator Pump Override
4.	Active Ice Termination Setpoint Source	16.	Evaporator Pump Override Time Remaining
5.	Approximate Evaporator Water Flow	17.	Evaporator Water Flow Switch Status
6.	BAS Chilled Water Setpoint	18.	Evaporator Water Pump Off Delay
7.	Calculated Chiller Capacity	19.	Ext Chilled Water Setpoint
8.	Evaporator Design Delta Temp	20.	External Chilled Water Setpoint
9.	Evaporator Differential Water Pressure	21.	Front Panel Chilled Water Setpoint
10.	Evaporator Entering Water Temperature	22.	Front Panel Ice Building Command
11.	Evaporator Filtered Chilled Water Setpoint	23.	Front Panel Ice Termination Setpoint
12.	Evaporator Leaving Water Temp	24.	High Evaporator Water Temperature Cutout

### 7. CONDENSER Box

Table 30 lists settings that may be included in the Condenser expanding box on the Unit Status screen.

**Table 30. 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 31 lists settings that may be included in the Circuit expanding box of the Unit Status screen.

**Table 31. 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 32 lists settings that may be included in the Motor expanding box of the Unit Status screen.

**Table 32. Status Utility - CVHE, CVHF, and CDHG Unit Status Tab Screen: Motor Expanding Box**

Ref #	Setting Name	Ref #	Setting Name
1.	Active Current Limit Setpoint	18.	Starter Average Phase Voltage [volts]
2.	Active Current Limit Setpoint Source	19.	Starter Current L1
3.	Average Line Current	20.	Starter Current L1 (% RLA)
4.	Average Line Current (% RLA)	21.	Starter Current L2
5.	BAS Current Limit Setpoint	22.	Starter Current L2 (% RLA)
6.	Current Limit Softload Target	23.	Starter Current L3
7.	Energy Consumption Last Reset	24.	Starter Current L3 (% RLA)
8.	Energy Consumption NonReset	25.	Starter Load Power Factor
9.	Energy Consumption Resettable	26.	Starter Max Current
10.	Ext Current Limit Setpoint	27.	Starter Power Consumption
11.	External Current Limit Setpoint	28.	Starter Power Demand
12.	Motor Temperature	29.	Starter Test Mode
13.	Motor Winding Temp #1	30.	Starter Voltage Phase AB
14.	Motor Winding Temp #2	31.	Starter Voltage Phase BC
15.	Motor Winding Temp #3	32.	Starter Voltage Phase CA
16.	Restart Inhibit Time (MP)	33.	Time of Last Reset
17.	Restart Inhibit Time Electromechanical Starter	34.	Transition Complete



## Status Utility Tab Screens

### 10. COMPRESSOR Box

Table 33 lists settings that may be included in the Compressor expanding box of the Unit Status screen.

**Table 33. 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 34 lists settings that may be included in the AF expanding box of the Unit Status screen.

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

**Table 34. 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 35 lists settings that may be included in the Purge expanding box of the Unit Status screen.

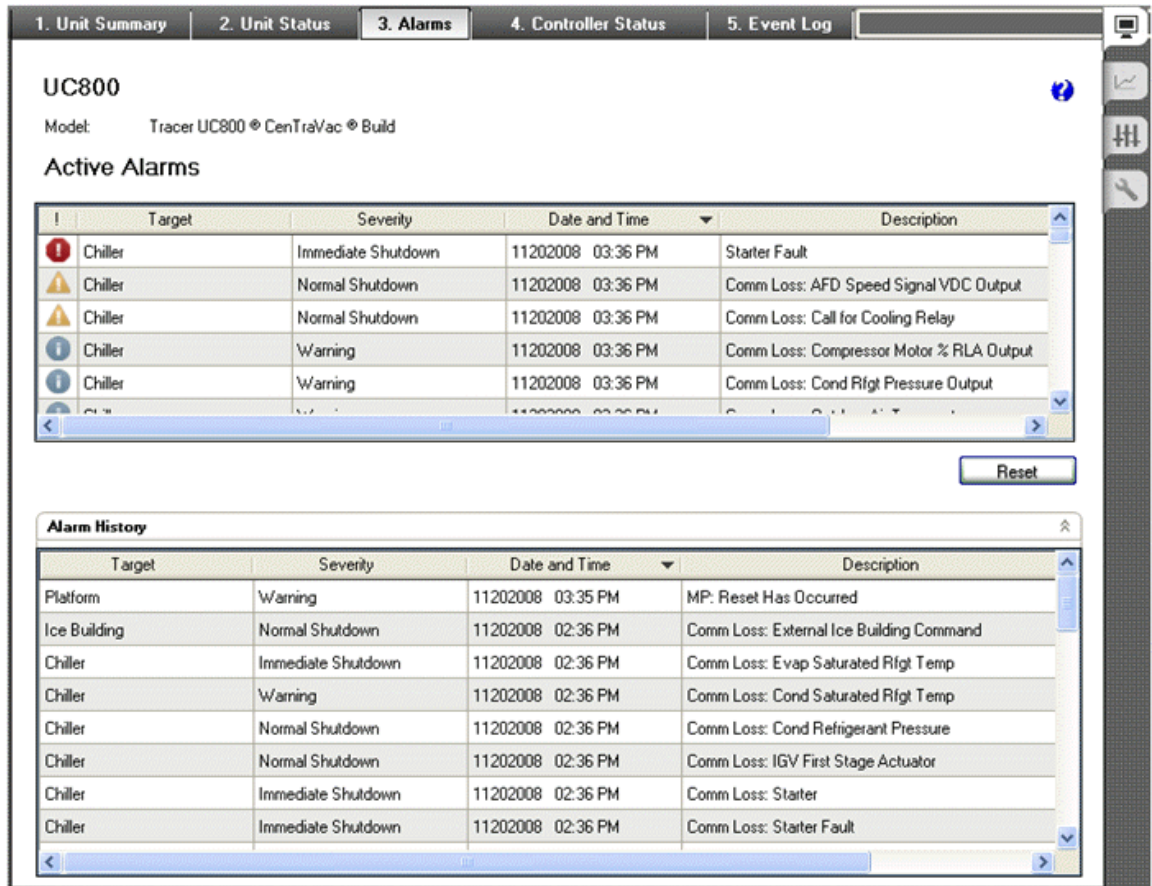
**Table 35. Status Utility - Unit Status Tab Screen: Purge Expanding Box**

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

# Alarms Tab Screen

Select the Status Utility tab from the vertical tab set on the right and then select Alarms from the horizontal tabs along the top of the screen area.

**Figure 11. Status Utility—Alarms tab screen**



## Active and historic alarms

The Alarms tab screen displays both active alarms and historic alarms. (Alarms are also referred to as "diagnostics"). Historic alarms have either been resolved by the system or acknowledged and resolved manually. There can be up to 100 alarms, both active and historic. For example, if there were 5 active alarms, the possible number of historic alarms would be 95.

For information about the alarms (diagnostics), refer to the *Diagnostic Descriptions*, *Troubleshooting Tables*, and *Control Component Overview for Water-Cooled Chillers with Tracer AdaptiView™ Control (CTV-SVD03B-EN)*.

### Alarm reset

You can also reset active alarms on this screen. Clicking the Reset button transfers active alarms to history and allows the chiller to resume operation.

### CAUTION

#### **Be careful when resetting alarms!**

**Resetting the active alarms causes the chiller to attempt to resume operation. The chiller could be damaged if latching diagnostics are not properly resolved.**



# Reports

You can generate the following types of reports from a controller using Tracer TU. These reports can be archived and/or printed.

## **Chiller Service Report**

The Chiller Service report is a complete report of the chiller status, configuration, service tool configuration, PC environment, connected devices, and alarm history. Tracer TU generates a printable chiller status report in .RTF format that serves as a maintenance record. You can enter details about the work performed on a specific date and any work that should be performed in the future. You can also enter other job site notes. Finally, you can save the report in its native .RTF format or to any other file format that is supported by your RTF viewer. Once saved, you can view the report in any other application that supports your chosen save file format (for example, a Web browser, a word processing application, or a spreadsheet application).

## **ASHRAE Chiller Report**

Tracer TU generates a printable ASHRAE Chiller Report that lists a number of setpoints. This report is similar to the Chiller Service Report. You can enter job site information and notes, and then save the report in its native .RTF format or to any other file format that is supported by your RTF viewer. Once saved, you can view the report in any other application that supports your chosen save file format (for example, a Web browser, a word processing application, or a spreadsheet application).

## **Alarms Report**

Presents a listing of all active and historic alarms from the Alarms screen on the Status Utility tab.

## **LLID Binding Report**

Lists all existing LLIDS with their properties.

## **Event Logs Report**

Lists all the events visible on the Events Log tab screen.

# 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 36.

**Table 36. 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.
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**.

## Appendix C: Installing CVR Firmware on the UC800

This appendix explains the procedures to follow in each of two cases:

- Firmware installation on a blank UC800
- Firmware installation on a UC800 that currently has a different version of the firmware installed.

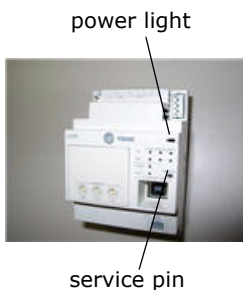
### Installing CVR Firmware on a Blank UC800

Connect your laptop to the UC800 with a USB cable.

1. Start Tracer TU.
2. Press the **Connect** button on the Connect dialog box.
3. Click **OK**.  
The Download Software dialog box appears.
4. Select the product name **CVR** from the Product Name drop-down list and the **version number** from the Version drop-down list.
5. Click the **Upgrade Device** button.  
A confirmation dialog box appears.
6. Click **OK**.

The installation routine starts to download CVR firmware to the UC800. When the installation is successfully completed, you are prompted with a message. Because no configuration is present on the UC800, Tracer TU automatically displays the Configuration screen, so you can prepare and save a configuration to the controller.

### Cleaning the UC800 Before Installing CVR Firmware



If you are using a UC800 that already has a different version of the firmware installed, and you now want to install UC800 firmware that supports the AdaptiView Panel Upgrade, perform the following steps after you have installed Tracer TU, Release 1.1 or higher on your PC and have established a USB connection to the UC800.

1. Power off the UC800 by disconnecting the USB cable from your laptop and unplugging the power cable at the top of the UC800.
2. Press and hold down the UC800 **service pin** while reconnecting the USB cable to your PC. (Continue pressing the service pin for a few moments until the green power light is active. The UC800 boots up in the backup application.)
3. Start Tracer TU.
4. Press the **Connect** button on the Connect dialog box.
5. Click **OK**.  
The Download Software dialog box appears.
6. Click the **Clean Device** button at the bottom of the dialog box if firmware is currently installed on the UC800.
7. Clean Device removes the old build on the UC800. The dialog box displays the message "No application found." (This should not be necessary for a new AdaptiView Panel Upgrade installation.)
8. Select the product name **CVR** from the Product Name drop-down list and the **version number** from the Version drop-down list.
9. Click the **Upgrade Device** button.  
A confirmation dialog box appears.
10. Click **OK**.

The installation routine starts to download CVR firmware to the UC800. When the installation is successfully completed, you are prompted with a message. Because no configuration is present on the UC800, Tracer TU automatically displays the Configuration screen, so you can prepare and save a configuration to the controller.



## Appendix D: CT Meter Scale

The CT Meter Scale is an especially critical factor and must be determined correctly. One of two methods should be used. Typically applications of less than 600 Vac will have a single stage CT per phase connected to the starter module. Likewise, medium voltage applications greater than 600 Vac or where existing old 5 amp CTs have been reused which have a two CTs per phase connection to the starter module. Select the correct method for this application from the two choices that follow.

### Single CT per phase

If three new control transformers CTs (“donut” shape) were installed in a single CT per phase arrangement use Table 37 to determine CT Meter scale for your application. Using the part number on the CT which provides the CT ratio, the RLA of the motor, and the number of turns through the CT you can read the resulting CT meter scale from this table.

**Table 37. CT specifications for single transformer per phase**

Actual motor RLA (A)	CT extension X13580253 or X13580269	CT ratio (A:A)	CT rating (A)	Inside dia. A (inches)	Outside dia. B (inches)	Primary turns	CT meter scale
5.6 to 8.3	09	50:0.1	50	2.0	3.35	6	8.3
6.7 to 10.0	09	50:0.1	50	2.0	3.35	5	10.0
8.4 to 12.5	09	50:0.1	50	2.0	3.35	4	12.5
11.2 to 16.6	09	50:0.1	50	2.0	3.35	3	16.6
16.7 to 25.0	09	50:0.1	50	2.0	3.35	2	25
25.0 to 37.5	10	75:0.1	75	2.0	3.35	2	37.5
33.4 to 50	09	50:0.1	50	2.0	3.35	1	50
50 to 75	10	75:0.1	75	2.0	3.35	1	75
67 to 100	01	100:0.1	100	2.0	3.35	1	100
100 to 150	02	150:0.1	150	2.0	3.35	1	150
134 to 200	03	200:0.1	200	2.0	3.35	1	200
184 to 275	04	275:0.1	275	2.0	3.35	1	275
267 to 400	05	400:0.1	400	2.5	3.95	1	400
334 to 500	06	500:0.1	500	2.5	3.95	1	500
467 to 700	07	700:0.1	700	2.5	3.95	1	700
667 to 1000	08	1000:0.1	1000	2.5	3.95	1	1000
934 to 1400	11	1400:0.1	1400	3.5	5.25	1	1400
1200 to 1800	12	1800:0.1	1800	4.0	6.50	1	1800

### Two CTs per phase

The application of Tracer™ CH531 chiller controls to a medium voltage chiller (greater than 600 Vac) recommends specific use of the dual current transformer (CT) application, rather than a single CT which is a common option on low voltage applications (600 Vac or less). See CVRD-SVN11A-EN, or current version, for wiring of medium voltage CT applications. Other applications of the dual CT arrangement are installed in order to use existing CTs, if they match the ratios required.

The dual CT installation uses a primary CT that reduces the amperage to less than 5 amps. A second CT is then used to reduce the current input to the starter module to a nominal 100 mA value. Use dual CT data from Figure 38 to determine the CT meter scale for this application.

## Appendix D: CT Meter Scale

The part number on the secondary CT is X13580266-01, Trane part number TRR00975, three required per starter.

**Table 38. CT specifications for two transformers per phase**

Actual motor RLA (A)	CT xcode	CT ext.	CT ratio (A:A)	CT rating (A)	Inside dia (inches)	Primary turns	CT meter scale
8.0 to 12.0	X13580272	01	50:5	50	1.25	3	12
12.0 to 18.0	X13580272	01	50:5	50	1.25	2	18
18.0 to 27.0	X13580272	02	75:5	75	1.25	2	27
24.0 to 36.0	X13580272	01	50:5	50	1.25	1	36
36.0 to 54.0	X13580272	02	75:5	75	1.25	1	54
48.0 to 72.0	X13580271	01	100:5	100	1.75	1	72
24.0 to 36.0	X13580048	01	150:5	150	2.5	3	36
28.8 to 43.2	X13580048	01	180:5	180	2.5	3	43.2
36.0 to 54.0	X13580048	01	150:5	150	2.5	2	54
43.2 to 64.8	X13580048	01	180:5	180	2.5	2	64.8
48.0 to 72.0	X13580048	01	200:5	200	2.5	2	72
60.0 to 90.0	X13580048	02	250:5	250	2.5	2	90
72.0 to 108.0	X13580048	01	150:5	150	2.5	1	108
86.4 to 129.6	X13580048	01	180:5	180	2.5	1	129.6
96.0 to 144.0	X13580048	01	200:5	200	2.5	1	144
120 to 180	X13580048	02	250:5	250	2.5	1	180
144 to 216	X13580048	02	300:5	300	2.5	1	216
168 to 252	X13580048	02	350:5	350	2.5	1	252
192 to 288	X13580048	03	400:5	400	2.5	1	288
240 to 360	X13580048	03	500:5	500	2.5	1	360
288 to 432	X13580048	03	600:5	600	2.5	1	432
336 to 504	X13580048	04	700:5	700	2.5	1	504
384 to 576	X13580048	04	800:5	800	2.5	1	576
480 to 720	X13580048	04	1000:5	1000	2.5	1	720
480 to 720	X13580047	02	1000:5	1000	4.0	1	720
576 to 864	X13580048	05	1200:5	1200	2.5	1	864
576 to 864	X13580047	02	1200:5	1200	4.0	1	864
720 to 1080	X13580048	05	1500:5	1500	2.5	1	1080
720 to 1080	X13580047	02	1500:5	1500	4.0	1	1080
864 to 1296	X13580047	01	1800:5, X1-X2	1800	4.0	1	1296
1008 to 1512	X13580047	01	2100:5, X1-X3	2100	4.0	1	1512
1200 to 1800	X13580047	01	2500:5, X1-X4	2500	4.0	1	1800



[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)

---

Literature Order Number	CVRE-SVP01A-EN
Date	February 2009
Supersedes	New

---

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