CLIMA COOL®

A NIBE GROUP MEMBER

CoolLogic Touch Controller

Quick Start Guide

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For All Air-Source, Water-Source, and Remote Air-Cooled Modules

Models UCA/W/H/R

SHC on DEMAND®
SIMULTANEOUS HEATING AND COOLING

CoolLogic Touch™

Models:
UCA/W/H/R

Table of Contents

Introduction

Models:
UCA/W/H/R

This document outlines the quick start procedure for items that require configuration at initial system startup. Additional fine tuning may be required depending on the system's application.

This guide assumes the required software is installed on the *CoolLogic Touch* Controller and each of the Chiller Modules in the bank. It is important to verify that all sensors' input jumpers on the *CoolLogic Touch* and Module Controllers are set properly per sensor type used (voltage, thermistor/dry contact, or current loop).

Models:
UCA/W/H/R

Establishing Communication and Configuring Modules Present

Use this guide after the software is installed and all devices are properly addressed. Address the *CoolLogic Touch* Controller and Modules using the rotary dials on each control board. All control boards require a power cycle after setting the address.

IMPORTANT: Save Settings.

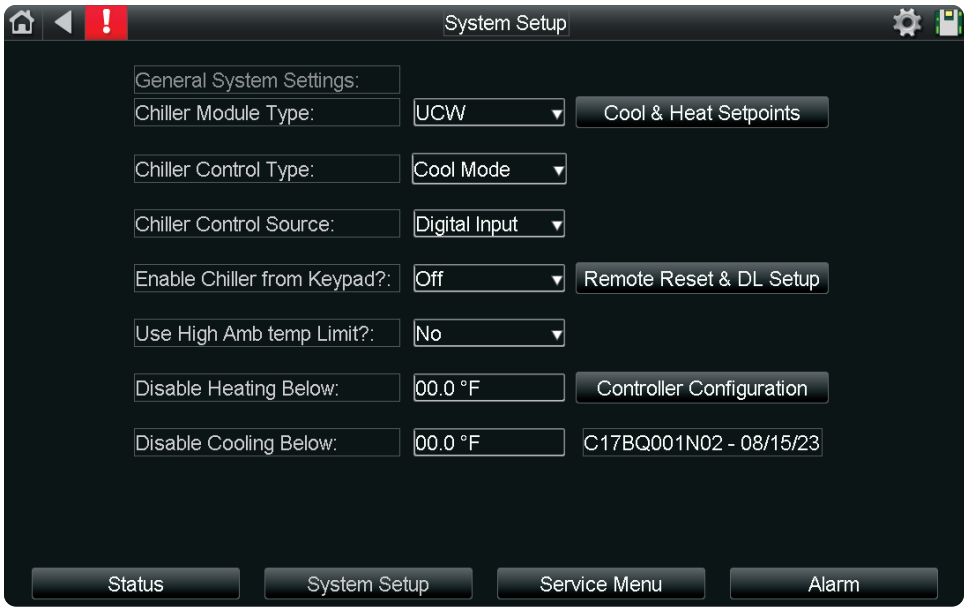
After all configuration items are set as desired for the chiller bank, access the *Configuration Screen* to save settings.

System Setup → **Controller Configuration** and select **Backup Memory** to save your settings.

After applied, verify the **"VALID?"** Indicator turns green.

Configuring System Type and Application

Models:
UCA/W/H/R



Select **System Setup** from the *Home Screen*.

Chiller Module Type: Select the appropriate module type from the following options: UCW, UCH, UCR, UCA, UCA-UCF, UCA-HP, UCH-HP, UCH-HR.

Chiller Control Type: Make your selection based on the bank application from the following options: Cool Mode, Heat Mode, or Heat Recovery.

Chiller Control Source: This selects the start/stop method the chiller bank uses.

Keypad – Enable using the keypad **and** the three-way switch in the LOCAL position.

Digital Input – Enable with dry contact closure of the Remote Chiller Enable terminals within the *CoolLogic Touch* Control Panel **and** the three-way switch in the REMOTE position.

BAS – Enable via BACnet points **and** the three-way switch in the REMOTE position **and** the contact closure at the *CoolLogic Touch* Control Panel terminals 42 and 43 of LVTB1.

Enable Chiller from Keypad: Enables chiller operation when the three-way switch is in the LOCAL position (both must be ON for the unit to run).

Use High Ambient Temp Limit: When ON, this disables unit operation in high ambient temperature conditions (default 115°f). *For UCA/UCF banks only.*

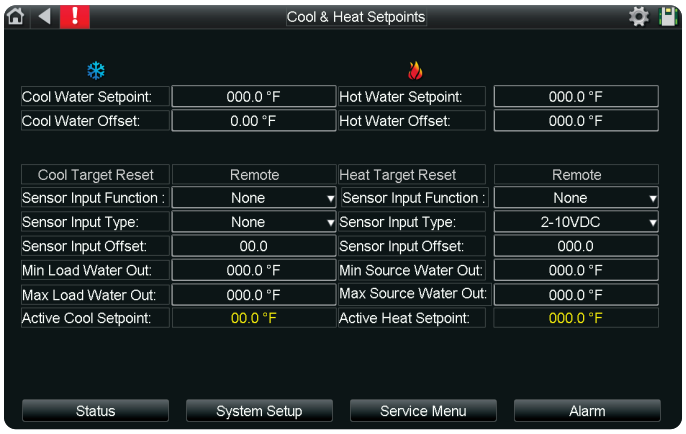
Disable Heating Below: The ambient temperature setpoint below which heating is disabled. This applies only to air source units. *For UCA Heat Pump banks only.*

Disable Cooling Below: The ambient temperature setpoint below which cooling is disabled. This applies only to air source units. *For UCA/UCF banks only.*

Models:
UCA/W/H/R

Configuring System Type and Application

COOL AND HEAT SETPOINTS

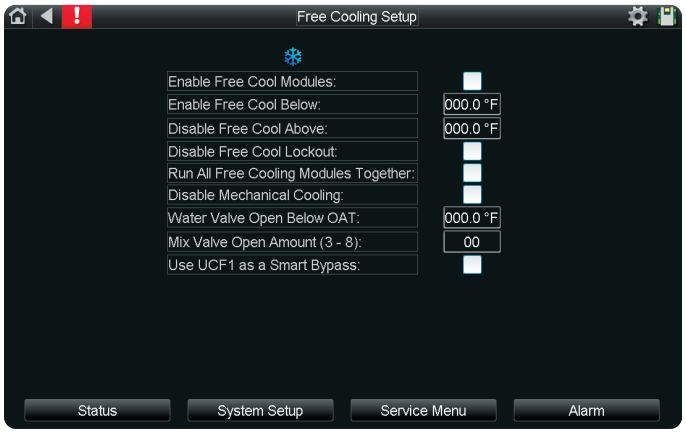


Under **Local**, select Hot (or Cool) water setpoint and enter the desired setpoint for each mode. The Min/Max for Load/Source Out is for bank safeties where a breach in these values disables the unit from running.

Input 8 and **Input 10** settings are related to the remote setpoint control functionality on the *CoolLogic Touch* Controller.

FREE COOLING SETUP

Free Cooling Setup is the required configuration to set up the UCF modules' operation in a bank.



Enable Free Cool Modules: Enable Free Cooling if Free Cooling modules are available.

Enable Free Cool Below: The maximum temperature at which Free Cooling starts.

Enable Free Cool Above: The minimum temperature at which Free Cooling stops.

Disable Free Cool Lockout: If the outside ambient temperature (OAT) is less than the low ambient temperature trip point, Free Cooling is disabled if this option is selected.

Run All Free Cooling Modules Together: All Free Cooling Modules stage up together instead of waiting for each UCF to stage up individually. The next UCF stages up only if the previous UCF module is at max capacity (full fan speed) for at least five minutes.

Disable Mechanical Cooling: Enabling this disables Mechanical Cooling from UCA modules when Free Cooling is Enabled.

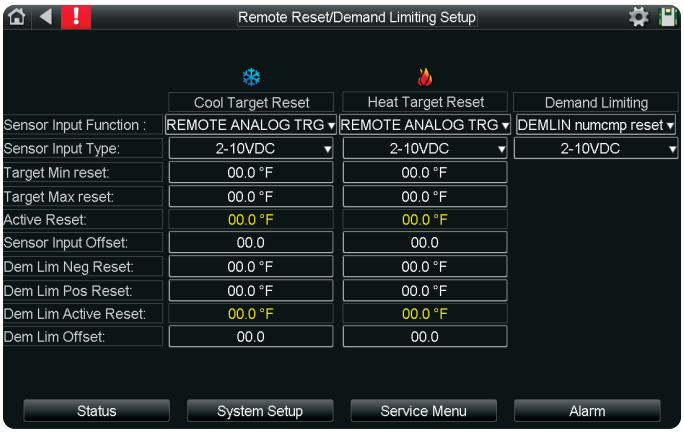
Water Valve Open Below OAT: The OAT setpoint for Freeze Safety. When the OAT is at or below this setpoint, the open/close water valve opens and the mixing valve opens to the pre-set position.

Mix Valve Open Amount (3-8): The Mixing Valve Position when Freeze Safety occurs.

Use UCF1 as a Smart Bypass: Fixes the UCF1 motorized water valve to the open position when the bank is off and a bypass is required.

REMOTE RESET AND DEMAND LIMITING SETUP

Remote Setpoint target configurations and Demand Limiting.



Sensor Input Function: Choose between HMI(None), Remote Analog Target (Input 6), or BAS Target (0-10).

Sensor Input Type: Choose between 4-20mA or 2-10VDC for Remote Analog Target use.

Configuring System Type and Application

Models:
UCA/W/H/R

Target Min Reset: The minimum setpoint for Remote Analog Target or BAS Target.

Target Max Reset: The maximum setpoint for Remote Analog Target or BAS Target.

Active Reset: The active remote setpoint.

Sensor Input Offset: Input 6 (Cool) and Input 10 (Hot) Sensor Offset.

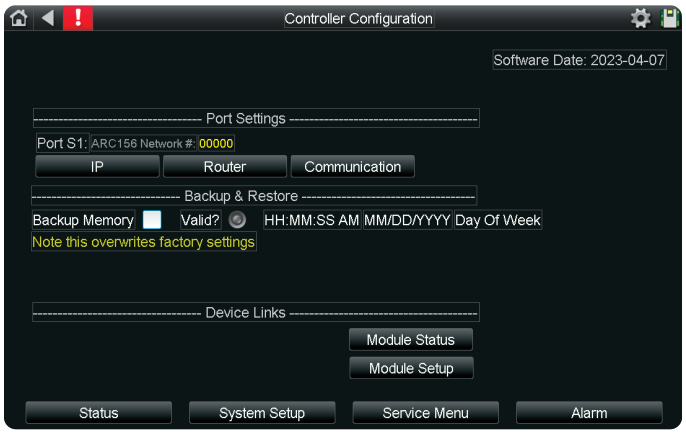
Dem Lim Neg Reset: Input 7's (0-10VDC) Demand Limiting Minimum Setpoint Addition (Cool SetPoint) or Subtraction (Heat Setpoint).

Dem Lim Pos Reset: Input 7's (0-10VDC) Demand Limiting Maximum Setpoint Addition Addition (Cool SetPoint) or Subtraction (Heat Setpoint).

Dem Lim Active Reset: The Active Setpoint Addition (Cool) or Setpoint Subtraction (Heat) from Demand Limiting.

Dem Lim Offset: Input 7(0-10VDC) offset.

CONTROLLER CONFIGURATION



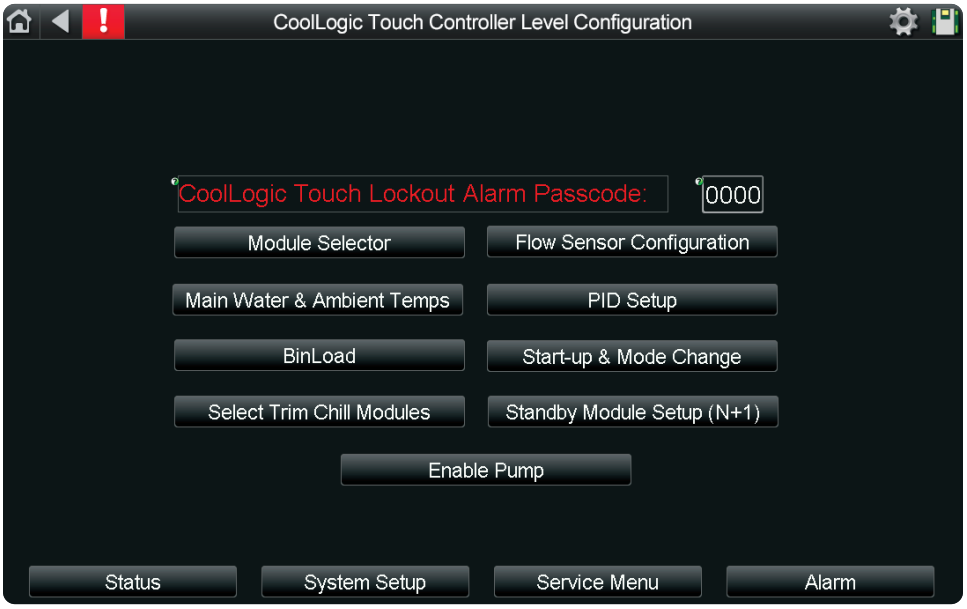
Backup Memory: Select this option to save the current configuration to non-volatile memory.

This option also enables access to setup network configurations for the device.

Models:
UCA/W/H/R

CoolLogic Touch Controller Level Configuration

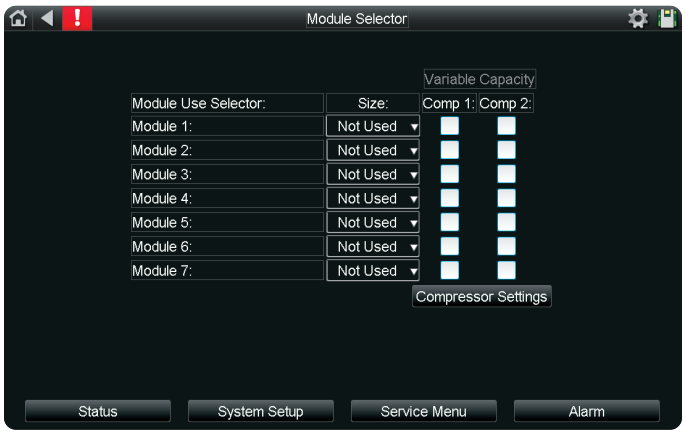
From the ⚙ menu.



***CoolLogic Touch* Lockout Alarm Enter Passcode:** The required Passcode to unlock the unit.

MODULE SELECTOR

Select the module size for each module in the bank. If a module is not being used, leave the size as "Not Used."

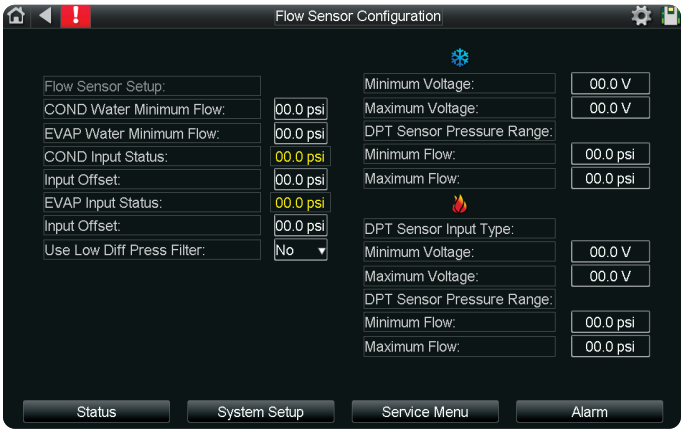


Module Size Options are: Not Used, 20 Ton, 30 Ton, UCF 20/30, 50 Ton, 70 Ton, 85 Ton, UCF 50/70.

If a module is equipped with either a Digital Scroll compressor or a VFD compressor, the Variable Capacity check box should be selected.

Find additional settings for compressor operation (timers, variable compressor settings, and more) in the *Compressor Settings Screen*.

FLOW SENSOR CONFIGURATION



COND Water Minimum Flow: The minimum flow psi on Loop 2.

EVAP Water Minimum Flow: The minimum flow psi required for Loop 1.

COND Input Status: The current flow reading for Loop 2.

Input Offset: The offset for COND Input Status.

EVAP Input Status: The current flow reading for Loop 1.

Input Offset: The offset for EVAP Input Status.

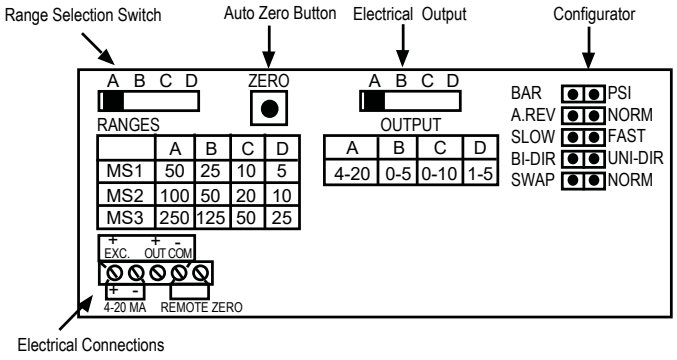
CoolLogic Touch Controller Level Configuration

Models: UCA/W/H/R

Use Low Diff Press Filter: Prevents flow from dropping immediately where the decrease in value is limited by 1 psi every second.

The Minimum/Maximum for the Load (Cold Icon) and Source (Hot Icon) must be set to match SETRA DPT dipswitches. The SETRA DPT has multiple choices for pressure ranges based on the dipswitch. Example: If the 0-25 psi dipswitch is selected, then Minimum and Maximum flow must be set to 0 and 25, respectively.

For Reference: Below is the possible SETRA DPT configurations. The default Range Selection Switch is D (25psi) and Electrical Output is A (4-20mA) for general applications.



Calibrate the DPTs while the tubing is connected to the appropriate piping and the pump is not running. The pressure differential should read 0.0. If not, confirm that the tubing is properly connected, the pumps are off, the DPT is wired correctly, and there is no air in the lines. Adjust as needed using the OFFSET fields shown in the *Flow Sensor Configuration Screen*.

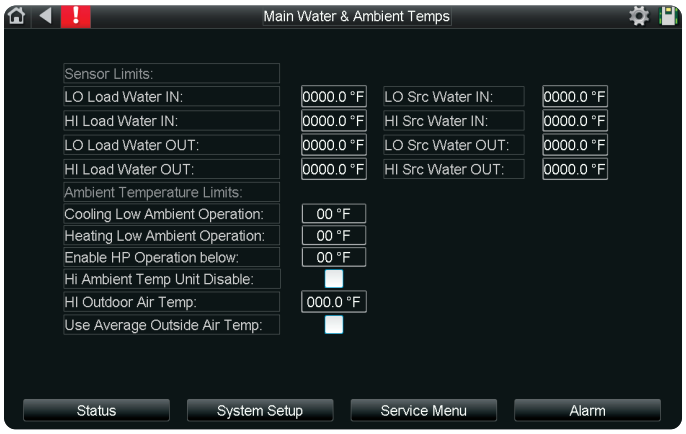
Example: Flow Sensor Configuration (UCH SHC)

EVAP (LOAD COOL) MINIMUM DPT SENSOR PRESSURE SETPOINT			
30 Ton	**50 Ton**	**70 Ton**	**85 Ton**
1.1 PSI	1.3 PSI	1.8 PSI	1.3 PSI
EVAP (LOAD COOL) MINIMUM DPT SENSOR PRESSURE SETPOINT			
30 Ton	**50 Ton**	**70 Ton**	**85 Ton**
1.5 PSI	1.8 PSI	2.2 PSI	1.8 PSI

The values in the example are the absolute minimum for a UCH-style chiller, but can be set higher. These values are derived from the respective heat exchanger pressure drops and the operation limitations table, located in the unit Installation, Operation, and Maintenance Manual (IOM). A value of 0.5 psi is added to the result to accommodate the additional pressure losses of the piping between the heat exchanger and the header, where the DPT sensor is located.

MAIN WATER AND AMBIENT TEMPS

Configure appropriate **LO/HI Load/Src Water IN/OUT** depending on the brine used in the job site.



Cooling and Heating Low Ambient: Set these values using the unit IOM.

Enable HP Operation Below: The OAT at which heat pump operation is enabled.

HI Ambient Temp Unit Disable: Enable the HI Ambient Limit option for air-source units.

HI Outdoor Air Temp: The OAT at which the air-source units is disabled.

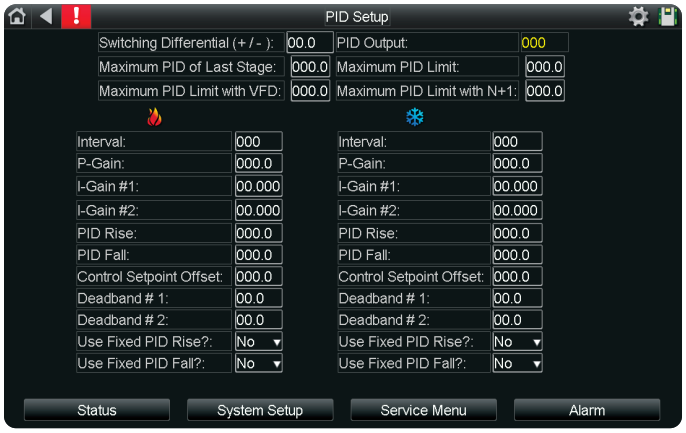
Use Average Outside Air Temp: Enable this option to aggregate and average the ambient temperature from all the modules.

Models:
UCA/W/H/R

CoolLogic Touch Controller Level Configuration

PID SETUP

PID Configurations for both Heat Demand and Cool Demand.



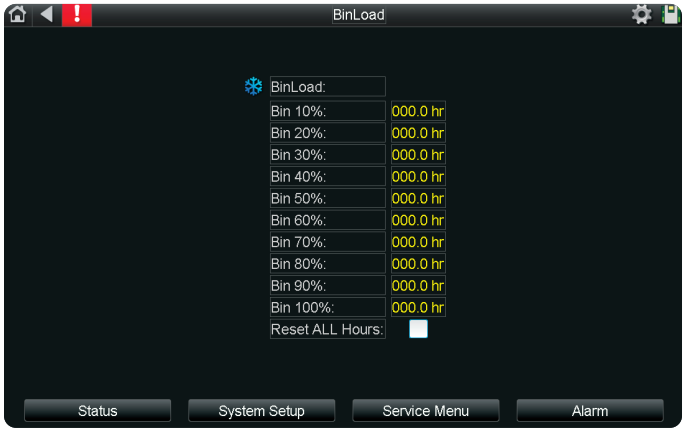
Recommended: Set PID tuning up to stage one compressor up/down every 5-8 minutes.

Default:

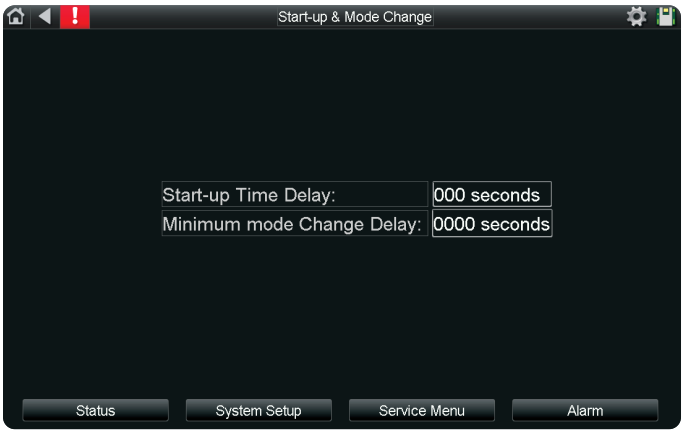
- P-Gain: 16
- I-Gain: 0.40
- D-Gain: 0.0
- Rise: 6
- Fall: 32
- Deadband #1: 1.8
- Deadband #2: 0.0
- Switching Differential: 3

BINLOAD

This time accumulator displays the capacity use of the bank aggregated in hours.



START UP AND MODE CHANGE

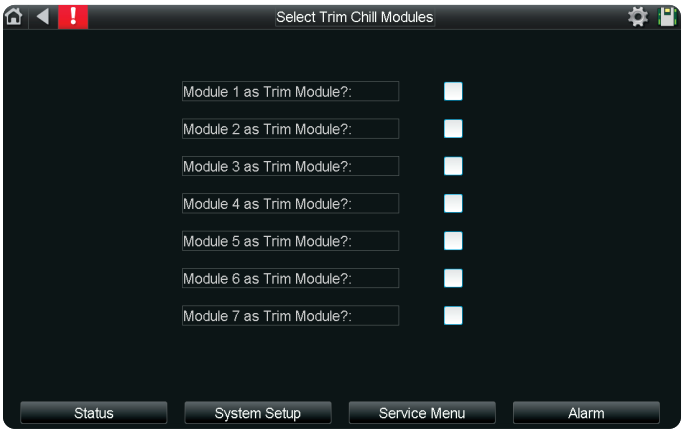


Start-up Time Delay: The time delay before the unit starts up.

Minimum mode Change Delay: The required delay before the bank changes mode.

SELECT TRIM CHILL MODULES

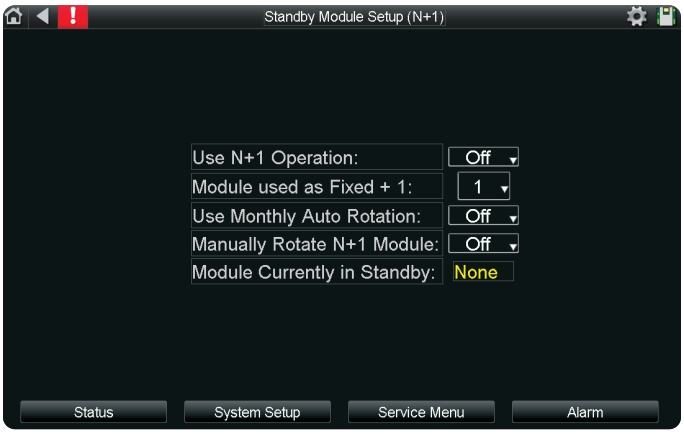
Select Trim Chill Modules by selecting the box next to the modules. Selecting multiple modules as "Trim Chill" causes the trim module to be randomly selected every time the bank stages up the first unit or stages down the last unit.



CoolLogic Touch Controller Level Configuration

Models:
UCA/W/H/R

STANDBY MODULE SETUP (N+1)



Use N+1 Operation: Enable N+1 Operation.

Module used as Fixed + 1: Select a fixed Module to be N+1.

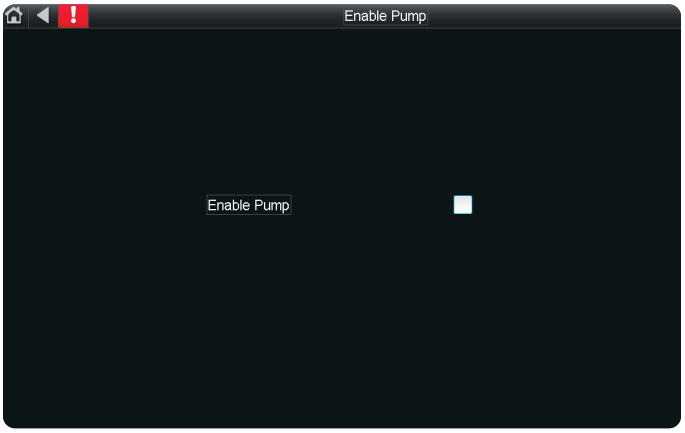
Use Monthly Auto Rotation: Changes the N+1 module every month.

Manually Rotate N+1 Module: Enable this to increment the N+1 module to the next module. Continue toggling to keep incrementing.

Module Currently in Standby: Displays the current N+1 module.

ENABLE PUMP

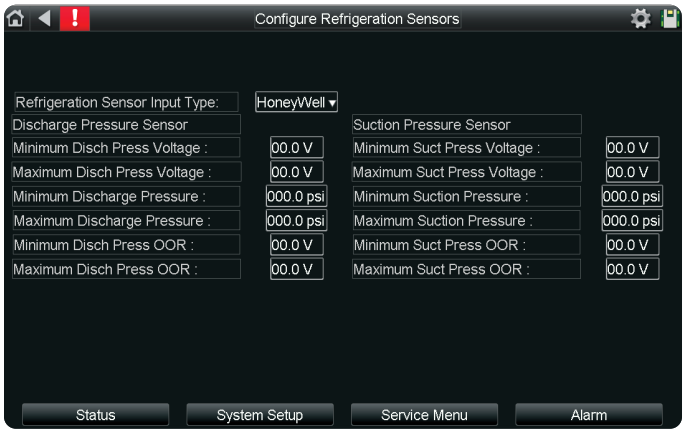
This screen is used only when an ON/OFF pump is connected to BO3 on the *CoolLogic Touch* Controller. If **Enable Pump** is selected, the pump is enabled.



Models:
UCA/W/H/R

Service Menu

CONFIGURE REFRIGERATION SENSORS



Refrigeration Sensor Input Type: Choose between Honeywell, Carel(default) or Custom. If Custom is selected, the below values must be set.

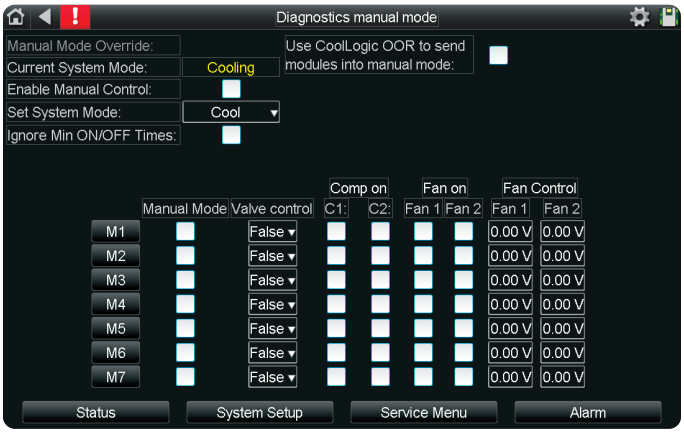
Minimum/Maximum ... Voltage – Signal Range for the pressure transducer.

Minimum/Maximum ... Pressure – Pressure Range for the pressure transducer.

Minimum/Maximum ... OOR Voltage – OOR fault limit range for Signal

DIAGNOSTICS MANUAL MODE

The manual control for the system to test modules.



Current System Mode: Displays the current manual mode.

Enable Manual Control: Enable Manual Mode.

Set System Mode: Set the Manual Mode.

Ignore Min ON/OFF Times: If enabled, the compressor minimum runtime and minimum off time is ignored.

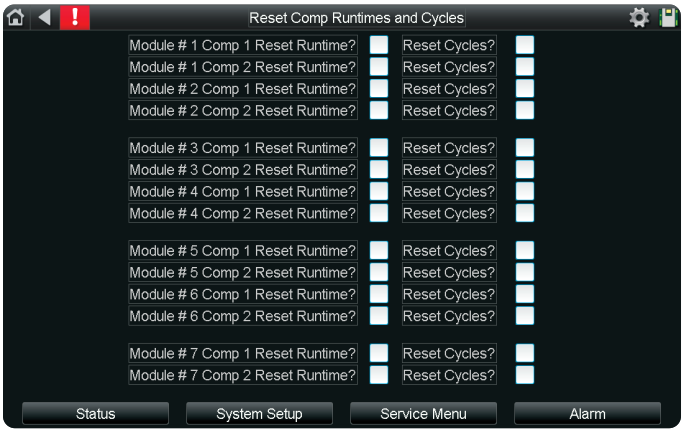
Each Module and its components have independent manual controls, as shown.

Service Menu

Models:
UCA/W/H/R

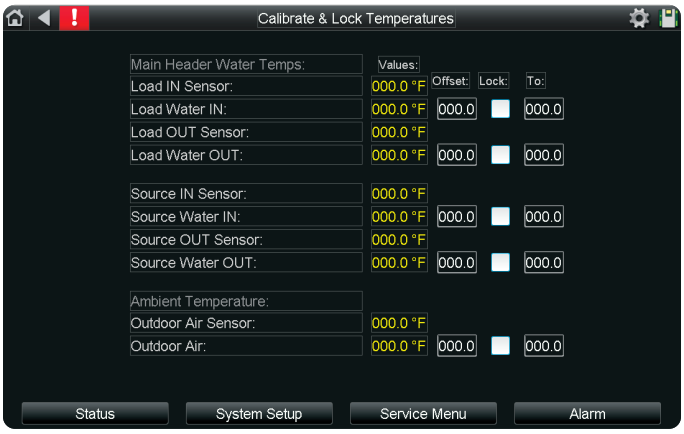
RESET COMP RUNTIMES AND CYCLES

Reset compressor runtimes and number of cycles for each compressor.



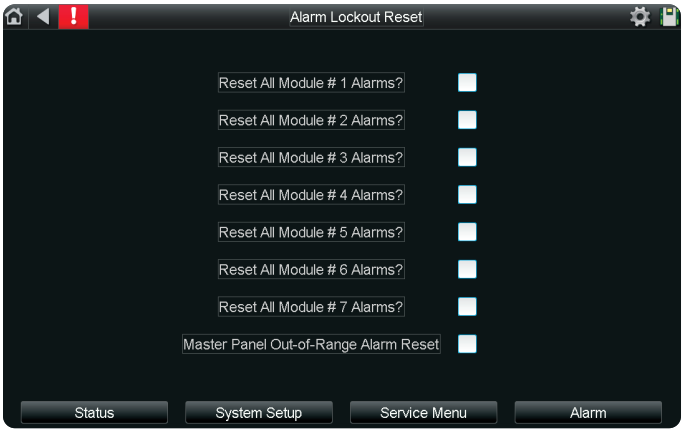
CALIBRATE AND LOCK TEMPERATURES

Calibrate and lock the main temperature sensors for diagnostic purposes.



ALARM LOCKOUT RESET

Configuration to clear module and *CoolLogic Touch* Controller alarms.

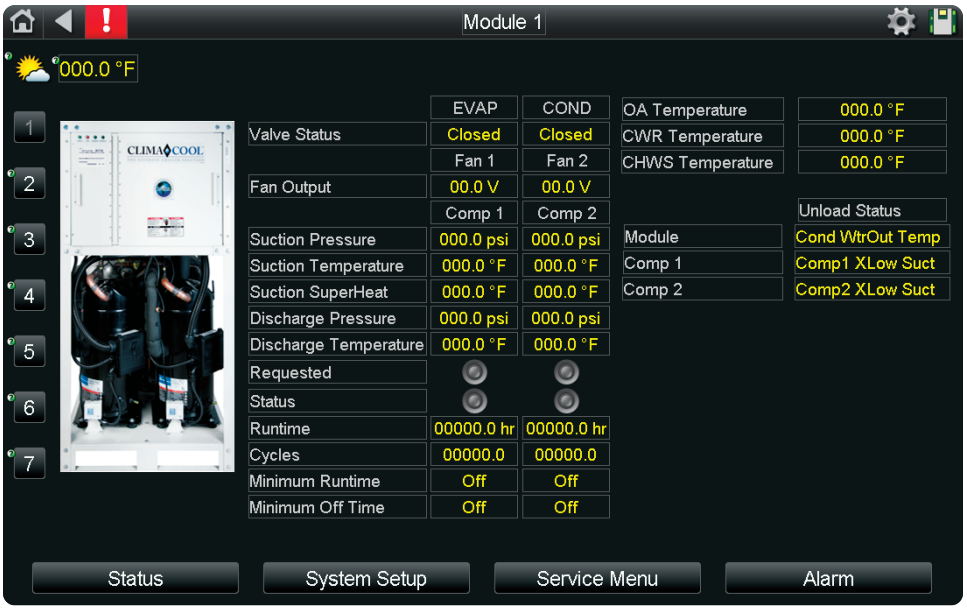


NOTE: Alarms are removed only if the cause of the alarm is solved/removed.

Models:
UCA/W/H/R

Verifying Communications with Modules

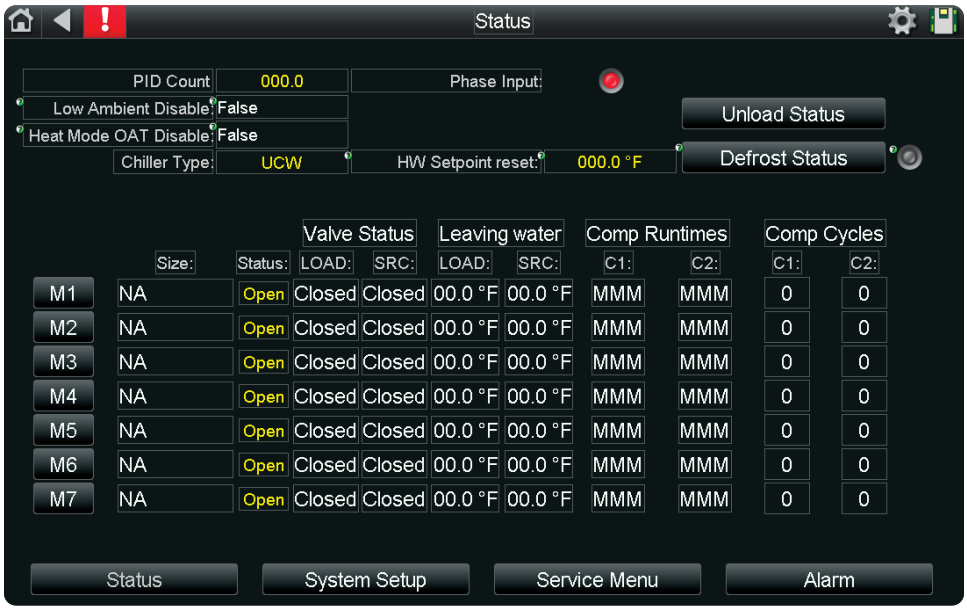
Communication between the *CoolLogic Touch* Controller and Chiller Modules can be confirmed by entering the module's *Status Screen* from the *Home Screen*. Selecting a module image displays the *Module Status Screen* for that module. From this status screen, refrigerant pressures and temperatures display as shown in the figure below. If the module temperature or pressure field displays the value 0.0, then communication is not established with the module. Confirm proper rotary address settings, that the ARC156 daisy chain communication string is correctly connected, and that power on all modules and the *CoolLogic Touch* Controller has been cycled. The *CoolLogic Touch* Controller must be powered on last. It takes two to three minutes for communication to be established to all modules.



Status

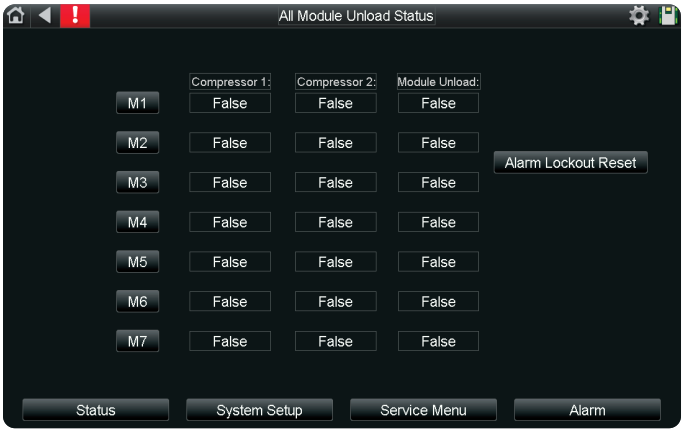
Models:
UCA/W/H/R

Overall system status and commands.

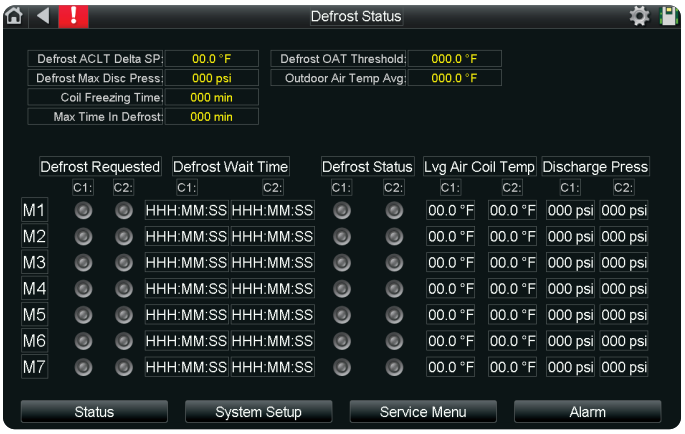


UNLOAD STATUS

Displays whether the modules or the compressors are in unload status.



DEFROST STATUS

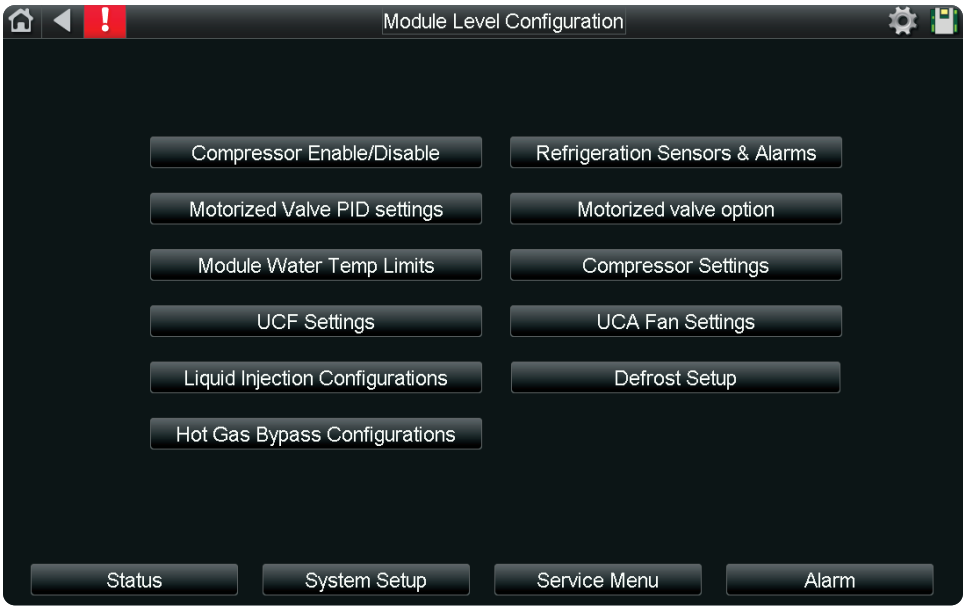


The bank is ready to start and run with the minimum configuration completed. It is recommended that you verify additional configuration settings that may require adjustment for the intended application.

Models:
UCA/W/H/R

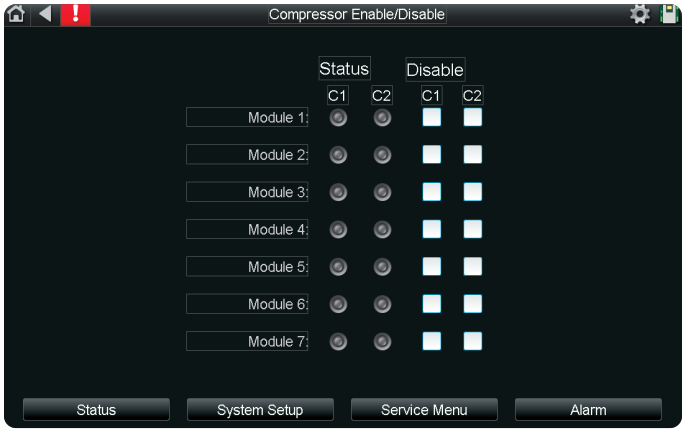
Module Level Configuration ( )

Review the settings in each menu displayed below to confirm they are correct for the chiller application. Some of these settings are not available depending on the Module Unit Type selection in "*CoolLogic Touch* Controller Level Configuration".

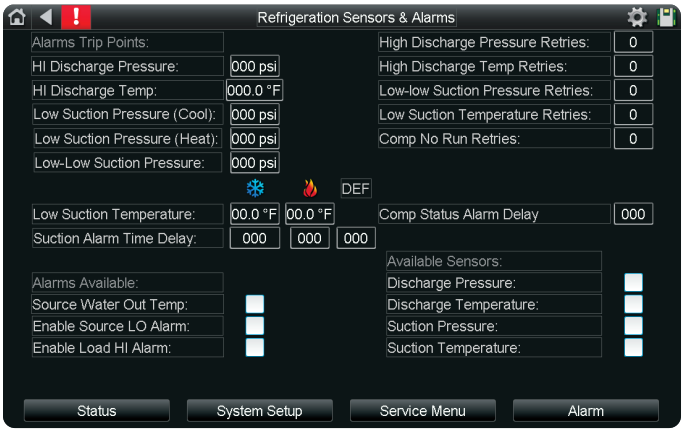


COMPRESSOR ENABLE/DISABLE

When the compressor's "Disable" box is selected, it is made unavailable for operation. This is useful for preventing nuisance NO RUN alarms while the compressor toggle switch is turned OFF. For normal operation, do not disable the compressors.



REFRIGERATION SENSOR AND ALARMS



HI Discharge Pressure: Sets the threshold above which the DISCHARGE PRESSURE ALARM is triggered for the selected refrigerant.

HI Discharge Temp: Sets the threshold above which the DISCHARGE TEMPERATURE ALARM is triggered for the selected refrigerant.

Low Suction Pressure (Cool/Heat): Sets the threshold below which the SUCTION PRESSURE ALARM is triggered for the selected refrigerant in the selected mode. Typically, this option only requires adjustment when glycol is used in the cooling or source loop.

Module Level Configuration ( )

Models:
UCA/W/H/R

Low Suction Temperature: Sets the threshold below which the SUCTION TEMPERATURE ALARM is triggered for the selected mode.

Suction Alarm Time Delay: Sets the amount of time in seconds that the module delays before triggering a SUCTION TEMPERATURE or PRESSURE ALARM.

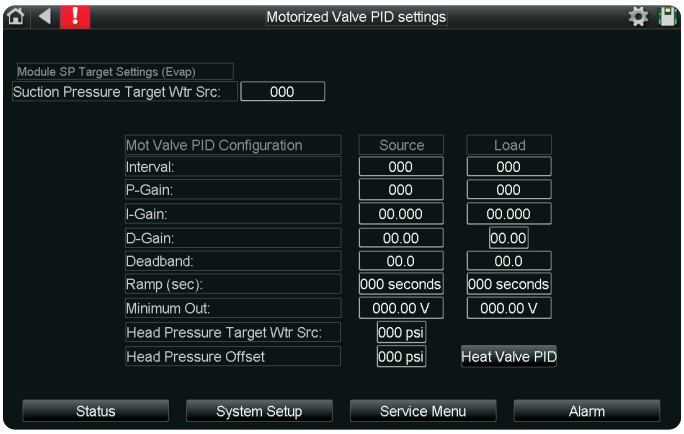
Alarms Available: Select the box to enable the alarms listed. De-select to disable.

***Retries:** The number of times a circuit unloads and retries before the fault becomes active.

Comp Status Alarm Delay: Sets the amount of time in seconds the module delays for the current switch to close after starting the compressor before triggering the COMPRESSOR NO-RUN ALARM.

Available Sensors: Select to enable out-of-range and limit alarms for the selected refrigerant sensor.

MOTORIZED VALVE PID SETTINGS

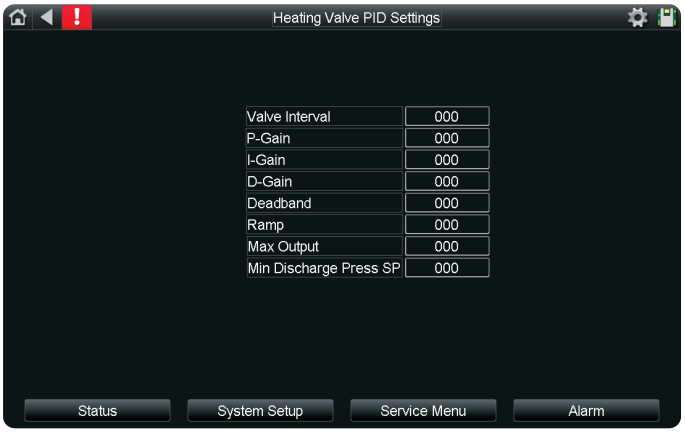


Module SP Target Settings: The Suction Pressure valve control target for water-source units.

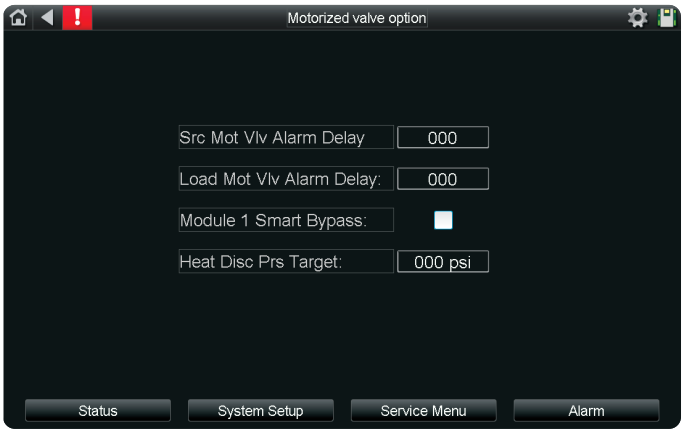
Mot Valve PID Configuration: The Valve PID configuration for water-source units.

HEAT VALVE PID

Valve PID settings for Discharge Pressure Control for air-source units.



MOTORIZED VALVE OPTION



Alarm Delay: The delay between the valve open command and valve feedback before an alarm is triggered.

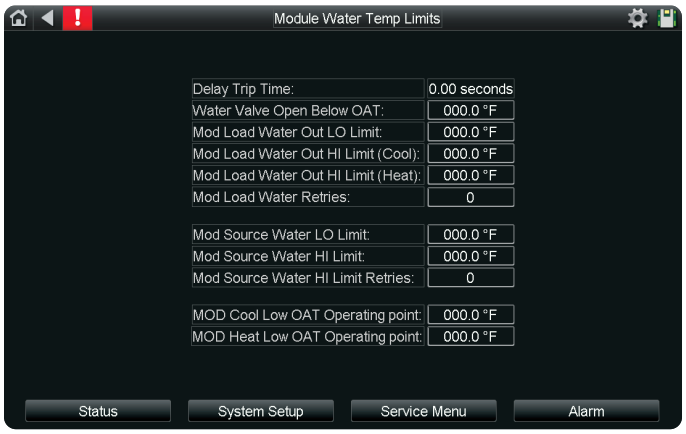
Smart Bypass: Select to lock the Module 1 motorized water valve in the open position as an alternative to a header bypass.

Heat Disc Prs Target: The Discharge Pressure target for air-source unit valve control in HEAT MODE.

Models:
UCA/W/H/R

Module Level Configuration ( )

MODULE WATER TEMP LIMITS



Delay Time Trip: The time in seconds that the module delays before triggering a freeze protection alarm.

Water Valve Open Below OAT: Sets the OAT threshold below which the modules fix open their water valves (air-source units only).

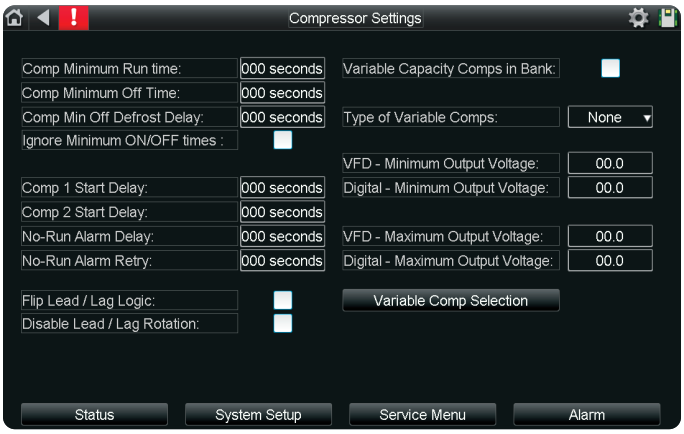
Module Water Temp Limits: These are the LOW and HIGH water OUT temperature limits for the HEAT MODE and COOL MODE at the module sensor locations. The LOW water temp limits typically only require adjustment when glycol is used in the cooling loop.

Water Retries: The number of times the module retries operation before triggering a water temperature fault.

Mod Cool/Heat Low OAT Operating Point: Sets the OAT below which cooling/heating operation is prohibited (air-source units only).

COMPRESSOR SETTINGS

Decreasing the default values for Comp Minimum Run Time or Comp Minimum Off Time is not recommended. These values set the minimum ON and minimum OFF times for all compressors. Do not change these settings without consulting the factory, as doing so may cause excess wear and tear on the compressors.



Compressor (1/2) Start Delay: The delay in seconds before a module compressor runs after being requested. This option typically requires no adjustment. *Default 90 sec for Comp 1 and 220 for Comp 2.*

No-Run Alarm Delays: The delay in seconds before a module level no-run alarm appears. This option typically requires no adjustment.

No-Run Alarm Retry: The number of times the compressor is allowed to try running after a No Run Alarm.

Flip Lead/Lag Logic: Selecting this option reverses the lead/lag rotation, so that C2 is lead and C1 is lag. This rotates on a monthly basis.

Disable Lead/Lag Rotation: Selecting this option disables lead/lag rotation so that the current lead compressor will stay the lead compressor. De-select to return to normal lead/lag rotation.

Variable Capacity Comps in Bank: Select this option if any module in the bank utilizes a digital scroll compressor or VFD.

Type of Variable Compressors: Compressor type selection – choose between Digital and VFD. If no variable compressor is used, select **None**.

Module Level Configuration (💾)

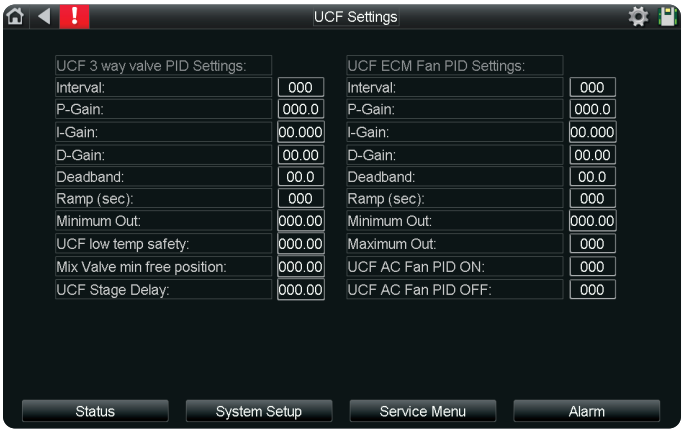
Models:
UCA/W/H/R

VFD/Digital Minimum Output Voltage: Variable compressor minimum low voltage DC signal output. This option typically requires no adjustment. *Default 7.5V for VFD type compressor and 2.4V for Digital type compressor.*

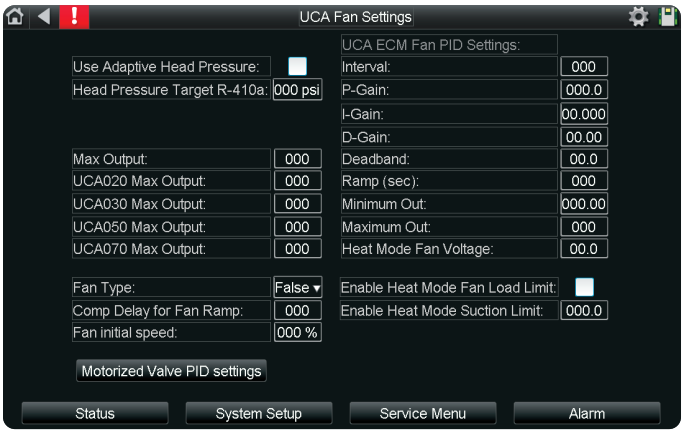
Variable Compressor Selection: This button directs to the *Module Selector Screen* – select if using a variable compressor and the previous items are configured. Once at the *Module Selector Screen*, select the check boxes for the module(s) that contain a variable type of compressor.

UCF SETTINGS

UCF Configurations and PID setup for mixing valve and fan control.



UCA FAN SETTINGS



Use Adaptive Head Pressure: Uses a custom curve to match appropriate head pressure to ambient temp (not recommended).

Head Pressure Target: The fan control to discharge pressure in HEAT MODE. Initially, the fan controls to 100 psi less than this value before slowly letting the control adjust to this value.

Max Outputs: The maximum fan speeds.

Fan Type: OFF or Rosenberg. If Rosenberg is selected, a delay is introduced before the compressor starts.

Comp Delay for Fan Ramp: The delay before the compressor starts so the Rosenberg fan can ramp up from the initial OFF mode.

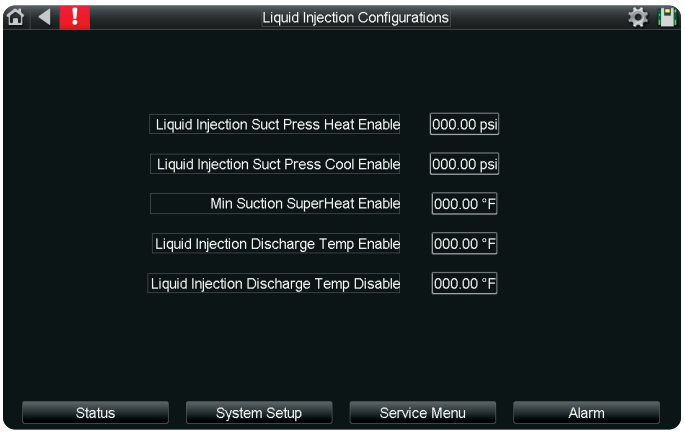
Fan Initial Speed: The initial ramp-up target for the Rosenberg fan.

Fan PID: The PID values for fan modulation.

Enable Heat Mode Fan Load Limit: Enable suction pressure control in COOL MODE.

Enable Heat Mode Suction Limit: The air-source suction pressure target in COOL MODE.

LIQUID INJECTION CONFIGURATIONS



Liquid Injection Suct Press Heat Enable: To enable Liquid Injection, suction pressure must be below this setpoint in HEAT MODE.

Liquid Injection Suct Press Cool Enable: To enable Liquid Injection, suction pressure must be below this setpoint in COOL MODE.

Min Suction SuperHeat Enable: The minimum SuperHeat to enable Liquid Injection.

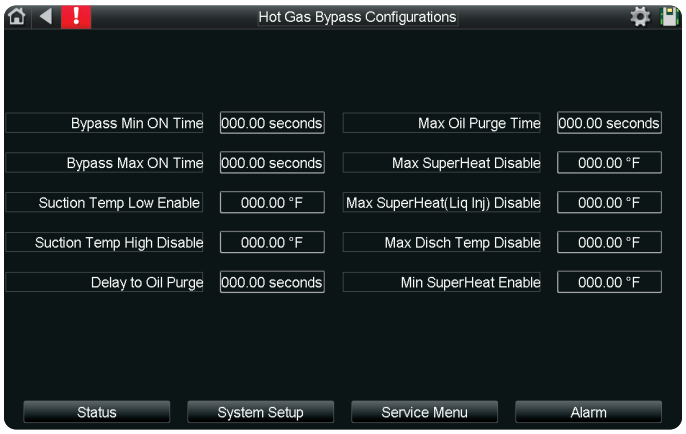
Models:
UCA/W/H/R

Module Level Configuration ( )

Liquid Injection Discharge Temp Enable: The minimum Discharge Temperature to enable Liquid Injection.

Liquid Injection Discharge Temp Disable: The maximum Discharge Temperature to disable Liquid Injection.

HOT GAS BYPASS CONFIGURATIONS



Bypass Min ON Time: The minimum time hot gas bypass is open.

Bypass Max ON Time: The maximum time hot gas bypass is open.

Suction Temp Low Enable: Enables Hot Gas Bypass at and below this suction temperature.

Suction Temp High Disable: Hot Gas Bypass disabled at and below this suction temp.

Delay to Oil Purge: The delay before the Oil Purge sequence opens Hot Gas Bypass.

Max Oil Purge Time: The maximum time for the Oil Purge Sequence.

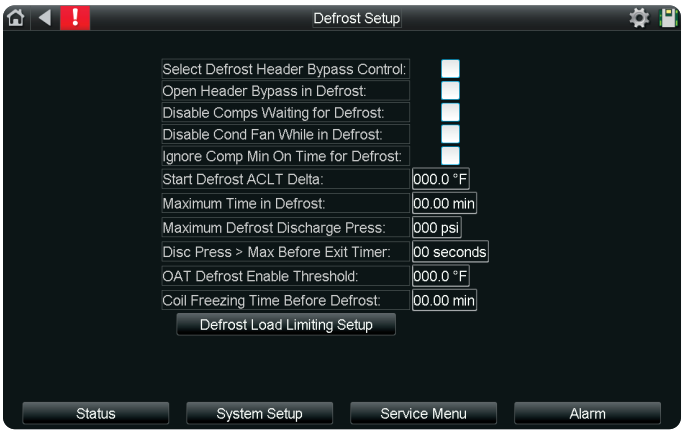
Max SuperHeat Disable: Disables Hot Gas Bypass at and above this SuperHeat.

Max SuperHeat(Liq Inj) Disable: Disables Hot Gas Bypass at and above this SuperHeat if Liquid Injection is ON.

Max Disch Temp Disable: The High Discharge Temperature to disable Hot Gas Bypass.

Min SuperHeat Enable: Enables Hot Gas Bypass at and below this SuperHeat.

DEFROST SETUP



Select Defrost Header Bypass Control: The Header Bypass is locked open in defrost if this is enabled with 'Open Header Bypass in Defrost'.

Open Header Bypass in Defrost: The Header Bypass is locked open in defrost if this is enabled with 'Select Defrost Header Bypass Control'.

Disable Comps Waiting in Defrost: Bypasses delay so the compressor comes on earlier in Defrost.

Disable Cond Fan While in Defrost: When enabled, this option turns off the fan in Defrost. (default: Enabled)

Ignore Comp Min On Time for Defrost: Ignores Compressor Minimum On Time allowing the compressor to turn off immediately when defrost is done, and returns the compressor to HEAT MODE faster.

Start Defrost ACLT Delta: The ACLT sensor trip to start Defrost delay timer.

Maximum Time in Defrost: The maximum time a compressor can run in Defrost.

Maximum Defrost Discharge Press: This is the Defrost exit condition.

Disc Press > Max Before Exit Timer: This is the Defrost exit condition delay before Defrost is ended.

OAT Defrost Enable Threshold: The maximum ambient for defrost to occur.

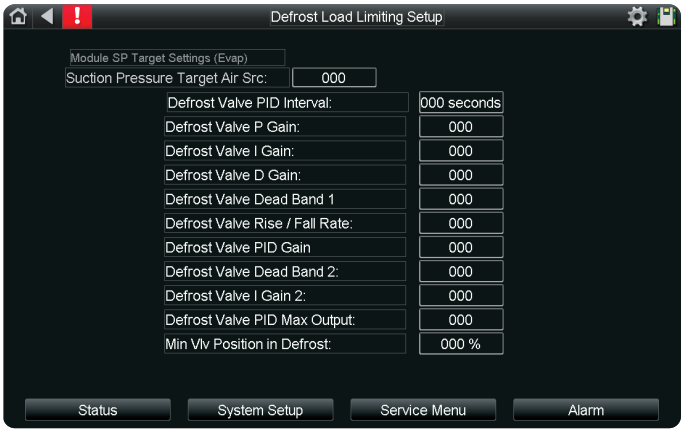
Coil Freezing Time Before Defrost: This setting sets the Defrost start delay.

Module Level Configuration ( )

Models:
UCA/W/H/R

DEFROST LOAD LIMITING SETUP

Valve PID setup for Suction Pressure control when in Defrost/Cool Mode for Air Source Units.



Models:
UCA/W/H/R

Contact Information

For more information on any of the previous configuration menus, contact ClimaCool Technical Services at 405.815.3000 or www.climacoolcorp.com.

Notes

Models:
UCA/W/H/R

Models:
UCA/W/H/R

Revision History

DATE	ITEM	ACTION
08/30/23	First Published	

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