Koolant Koolers

WO2-2-5000

WO2-2-7500

WO2-2-10000

User Manual

ATTENTION

This manual provides the user, installer and maintenance technician the technical information for installation, operation and routine maintenance to ensure smooth operation and long-lasting operation of the CHILLER. This manual has been written with general guidelines and specifications for this platform of chillers. Always refer to your CHILLER's specific drawings that have shipped with the unit. When contacting the factory for service or replacement parts reference your CHILLER's serial and model numbers. These can be found on the data tag on the CHILLER or on the data pack information that shipped with the unit.

Information Subject to Change

While every effort has been made to ensure the accuracy and completeness of the information presented in this document, Dimplex Thermal Solutions assumes no responsibility and disclaims all liability for damages resulting from the use of this information or for any errors or omissions.

Table of Contents

List of Figures

List of Tables

1   Important Safety Instructions

This manual contains important safety instructions that should be followed during the installation and maintenance of the chiller. Read this manual thoroughly before attempting to install or operate this unit. Failure to follow the instructions in this document may damage the equipment, cause hazardous conditions and void the warranty.

Only properly trained and qualified personnel should move, install, operate or service this equipment.

Adhere to all warnings, cautions and safety instructions on the unit and in this manual when installing, operating or maintaining the unit. Follow all operating and user instructions.

WARNING

This unit may present arc flash and electric shock hazards that could cause injury or death.

Open all local electric power disconnect switches and wear protective equipment before working within the chiller cabinet.

Earth ground to unit must be provided, per NEC, CEC and local codes, as applicable. Adhere to all other local codes as applicable.

The only way to isolate all power from the unit is to turn the chiller's main disconnect to its OFF position. This should only be performed when intending to service the unit.

WARNING

The chiller has automatically starting, high-speed fans. Open all electric power disconnect switches before working in the unit. Contact with fans when the chiller is powered can cause injury or death.

Do not operate this unit with any cabinet panels or air filters removed.

CAUTION

Fan and pump motors, compressors, and refrigeration components can become extremely hot during operation. Allow enough time for them to cool before working within the unit. Wear protective gloves and arm protection when working on or near hot components.

Only HVAC/R qualified technicians should be working on refrigeration components.

NOTICE

Improper installation, application, and service practices can result in water leakage from the unit, causing damage to property and equipment.

Do not locate unit directly above any equipment that could sustain water damage.

NOTICE

Improper storage can cause damage to the unit.

Keep the unit upright, protected from moisture, and prevent contact damage.

2   Introduction

WO-2-2-( ) outdoor chillers are designed to supply water/glycol as coolant to remove heat from process equipment and reject it to the air through a vapor compression refrigeration cycle. The chiller features:

- **Dual refrigeration circuits**
  - Over 99% system uptime
  - 50% capacity remains if one circuit is shut down
- **Redundant horizontal centrifugal pump**
  - Dual pumps provide complete redundancy in case of pump failure
  - Easy access panels and flanged plumbing connections streamline pump replacements
  - Automated pump rotation for increased longevity through load sharing
- **Flow setter valve**
  - Flow setter valve automatically adjusts internal pressure drop to compensate for varying connecting pipe lengths while maintaining consistent flow
- **Tank level switch**
  - Tank level switch prevents the pumps from running dry
- **Variable speed fans**
  - Fans adjust rotational speed to provide optimal airflow through the condenser
- **Flow switch**
  - Flow switch ensures flow is maintained while the unit is running

Table 1 provides a summary of available Chiller models and their capabilities.

Table 1: Medical Chiller Capacities

Model	Cabinet Material	Coastal Application? (30 miles) (Yes/No)	Tank and Condenser Heater? (Yes/No)	Ambient Range (Min°F / Max°F)	Capacity at 95°F Ambient kW/ (BTU/Hr)	Capacity at Max Ambient kW/ (BTU/Hr)
WO2-2-5000-2P-NF-L-407C-M	Galvanized	No	No	-22 / 120	60 / 204720	49 / 167188
WO2-2-5000-2P-NF-L-407C-M	Galvanized	No	Yes	-40 / 120	60 / 204720	49 / 167188
WO2-2-5000-2P-NF-L-407C-M	Stainless	Yes	No	-22 / 120	60 / 204720	49 / 167188
WO2-2-7500-2P-NF-L-407C-M	Galvanized	No	No	-22 / 120		70 / 238840
WO2-2-7500-2P-NF-L-407C-M	Galvanized	No	Yes	-40 / 120		70 / 238840
WO2-2-7500-2P-NF-L-407C-M	Stainless	Yes	No	-22 / 120		70 / 238840
WO2-2-10000-2P-NF-L-407C-M	Galvanized	No	No	-22 / 104		94 / 320728
WO2-2-10000-2P-NF-L-407C-M	Galvanized	No	Yes	-40 / 104		94 / 320728
WO2-2-10000-2P-NF-L-407C-M	Stainless	Yes	No	-22 / 104		94 / 320728
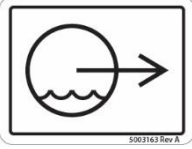
3 Specifications
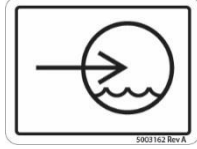
Table 2: Specifications

Criterion	WO2-2-5000 Standard	WO2-2-5000 Low Ambient	WO2-2-7500 Standard	WO2-2-7500 Low Ambient	WO2-2-10000 Standard	WO2-2-10000 Low Ambient
Electrical						
Input power	460V, 3Phase, 60Hz					
FLA	61 A	63 A	90	93		
MCA	63 A	65 A	94	96		
MOPD	70 A	70 A	100	110		
SCCR	5 kA					
Refrigeration						
Number of Compressors	4					
Compressor Motor Power, each	5hp (3.7kW)		7.5hp (5.6kW)		10hp (7.5kW)	
Refrigerant	R407c					
Number of Refrigeration Circuits	2					
Nominal Refrigerant Charge (Each Circuit)	29lb (13.2kg)					
Plumbing						
Number of Pumps	2					
Pump Motor Power	5.5hp (4.1kW)					
Nominal Flow Rate (36gpm Flowsetter Configuration)	35gpm (132LPM)					
Nominal Flow Rate (26gpm Flowsetter Configuration)	26gpm (98LPM)					
Nominal Supply Pressure	70 psi (4.8Bar)					
Physical						
Crated weight	3500lb (1588kg)		3750lb (1701kg)		4000lb (1814kg)	
Uncrated weight	3400lb (1542kg)		3650lb (1656kg)		3900lb (1769kg)	
Operational weigh	4300lb (1950kg)		4550lb (2064kg)		4800lb (2177kg)	
Length	134.5" (3417mm)					
Width	44.0" (1118mm)					
Height	87.7" (2454mm)					

4 Labels

Table 3: Labels

Symbol	Description	Symbol	Description
	Caution Fan Starts Automatically		Do No Remove Guards
	Tank Level High		Prop65 Warning
	Tank Level Low		Tank Drain
	Fluid Outlet		Fluid Inlet
	Arc Flash Warning		Arc Flash Warning
	Made in USA		

5   Installation Guidelines

5.1   Exterior Components
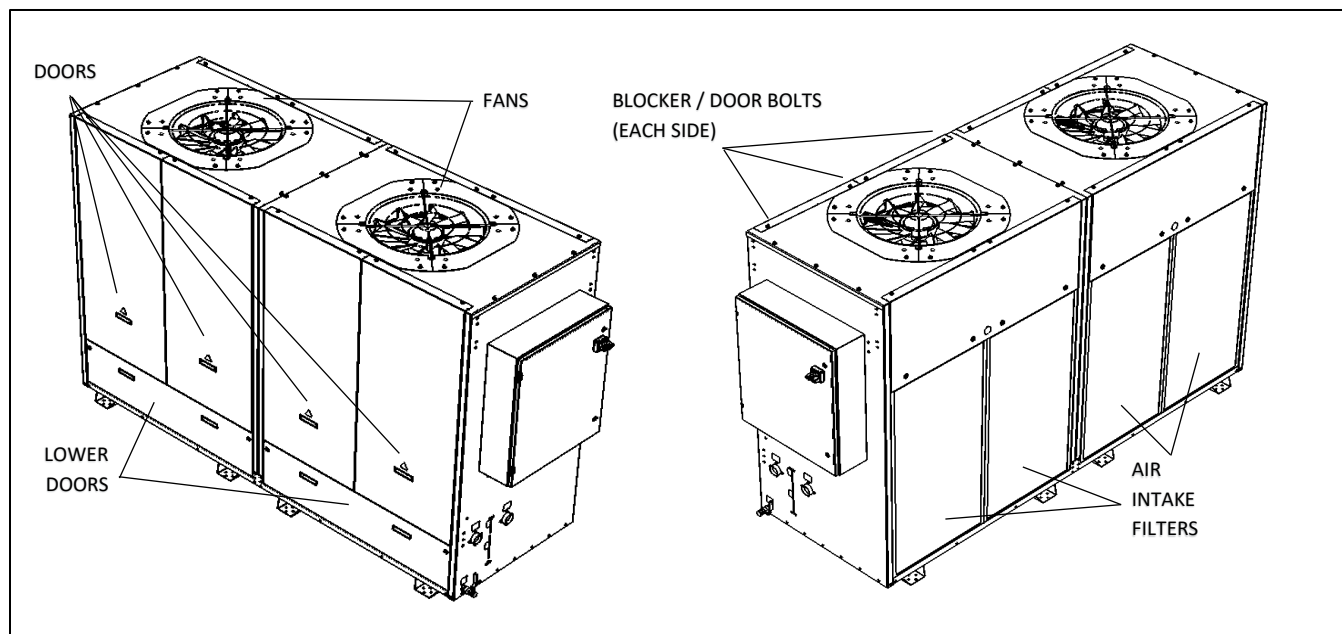
Figure 1: Exterior Components
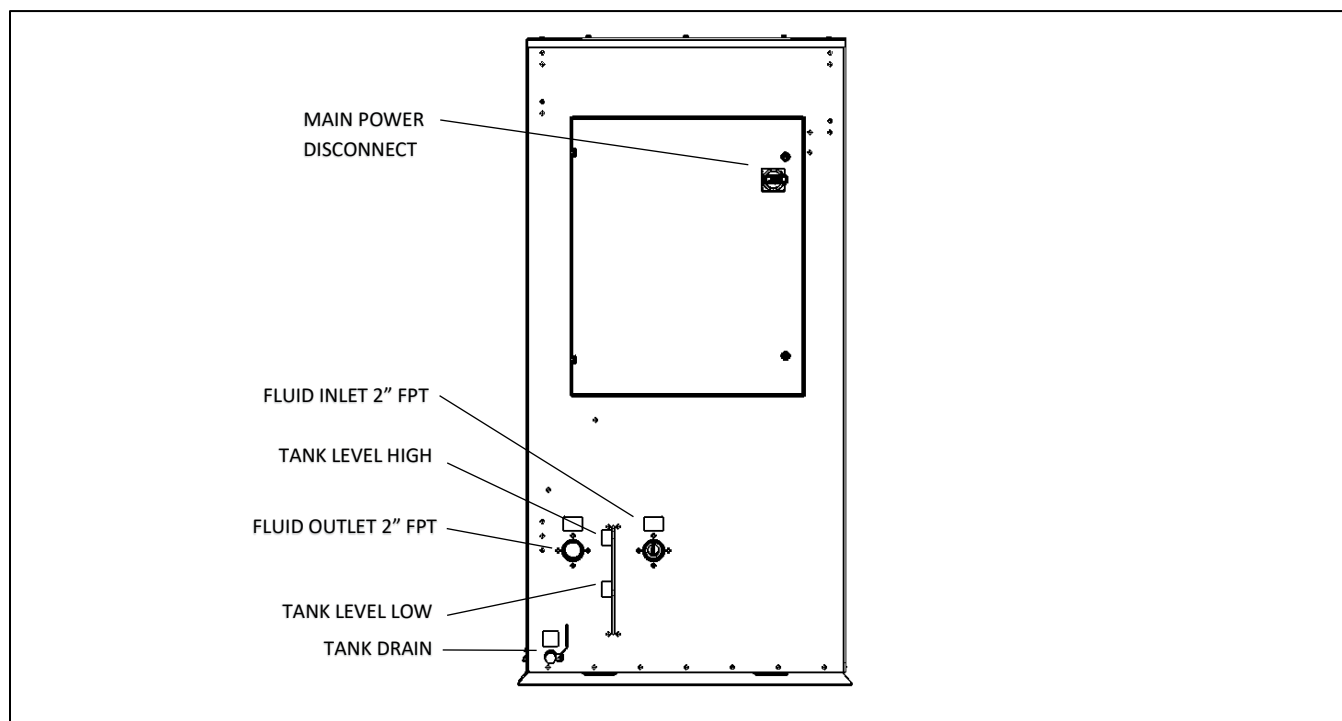
Figure 2: Exterior Components (Electrical Enclosure Side)

5.2   Overall Dimensions
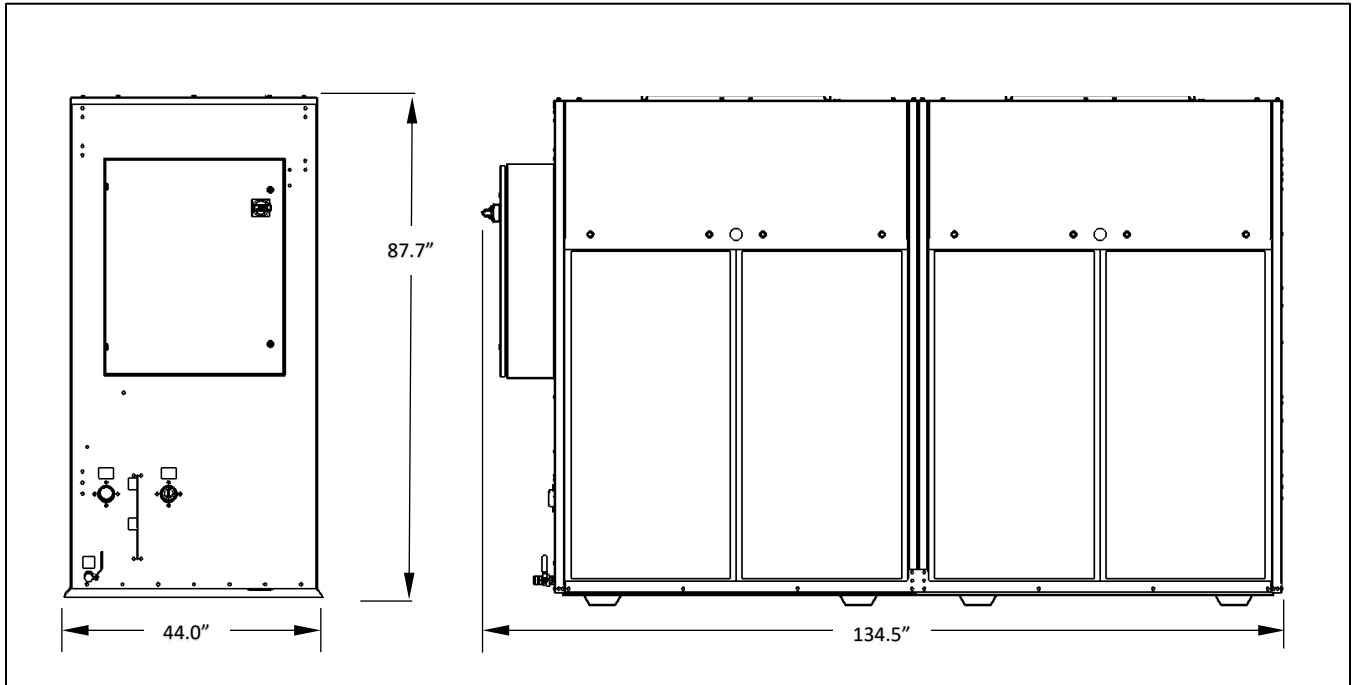
Figure 3: Overall Dimensions

5.3 Location Considerations

The chiller must be installed with enough clearance for service and for unrestricted air intake and exhaust. The chiller must be located sufficiently close to the process to ensure adequate flow rate of coolant by not exceeding the capabilities of the chiller's pumps. The following sections outline recommended installation practices. The chiller has potential for misuse that could result in unplanned downtime. The main disconnect, drain, and field installed service valves can be operated by unauthorized personnel. If unauthorized operation is a concern, then a security fence should be provided to reduce the potential for misuse. Fencing must not obstruct airflow and must leave room or be removable for service. The chiller's air intake and exhaust clearances must adhere to the following:

Table 4: Chiller Air Intake and Exhaust Requirements

Criterion	Value
Vertical clearance	≥ 8ft (2.4m)
Horizontal clearance (Door, Enclosure, and Rear Sides)	≥ 3ft (.9m)
Horizontal clearance (Air intake side)	≥ 6ft (1.8m)

Exhaust air must be freely discharged by the chiller's fans. This air must not be recirculated to the air intake side of the chiller. Avoid installing deflectors that redirect air to the air intake side of the chiller or installing ducting that directly connects to the chiller's top. The chiller uses axial fans that are not compatible with exhausting air through ducting. Ducting increases the pressure drop of the fans severely and lowers the volumetric air flow.

NOTICE

Improper air intake and exhaust clearances can lead to reduced capacity, thermal overloading of the fan motors and/or compressors, high pressure refrigeration faults, and/or rendering the chiller inoperable.

If ducting must be installed at the chiller's location a suitable duct auxiliary fan must be provided. Consult the factory for guidelines and recommendations.

Make sure the unit is placed, on a level, hard surface. The chiller must be level or less than ½ inch of slope per 10 feet. Use shims to correct level if needed. If the chiller is mounted on a concrete slab, the slab should be 4-inch thick and at least 5 feet x 12 feet. If the chiller is roof mounted, two I-beam runners are typically provided to support the chiller feet at both ends. For rooftop mounting, chiller should be anchored through the mounting holes provided in the feet. When the chiller is mounted above an office space, optional vibration mounting springs can be used to isolate the chiller from the building structure.

OBSTRUCTION

MINIMUM 8FT VERTICAL CLEARANCE

OBSTRUCTION

MINIMUM 3FT CLEARANCE ON DOOR SIDE

OBSTRUCTION

MINIMUM 3FT CLEARANCE

MINIMUM 3FT CLEARANCE

OBSTRUCTION

MINIMUM 6FT CLEARANCE ON FILTER SIDE

OBSTRUCTION
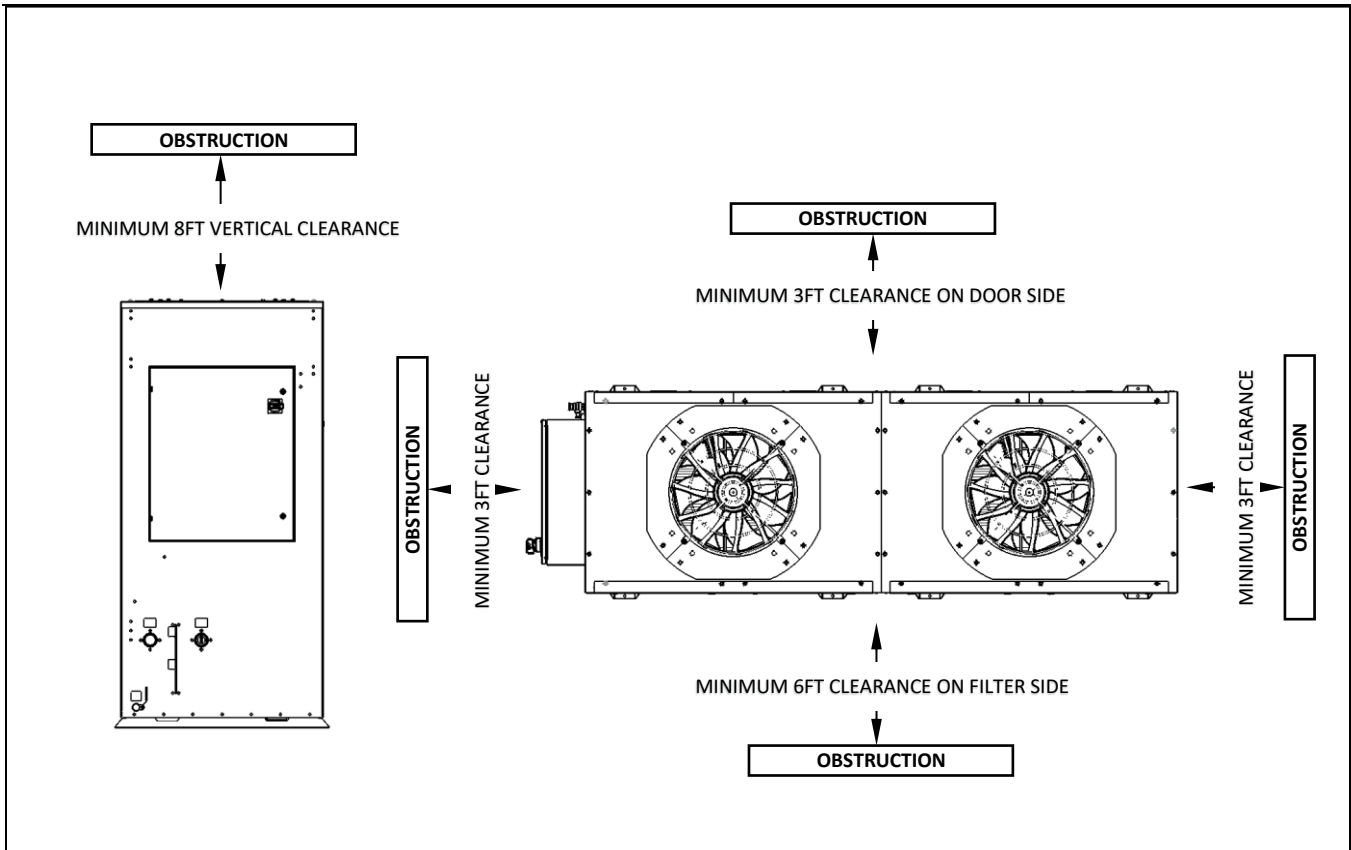
Figure 4: Required Clearances

Checking for Shipping Damage

Upon delivery of the chiller, verify that the shipment matches the bill of lading. Inspect the chiller immediately for signs of shipping damage both visible and concealed. Damaged crating likely indicates damage to the chiller and may require the removal of the panel and/or air filter(s) for further inspection. Any damage must be reported to the shipping carrier and a copy of the damage claim submitted to your sales representative.

5.4 Transportation

The chiller is shipped with protective packing and wrapping that should remain in place until the unit is transported to its final installation location. It is recommended that the chiller (crated or uncrated) be moved with a forklift.

WARNING

The chiller is heavy and there is risk of tilting or falling when moved. Transportation of the chiller must only be performed by trained and qualified personnel using appropriate equipment.

Ensure that the chiller is securely positioned (tines of forklift spread as far as permitted along the chiller's long edge and extend thoroughly through the opposite lifting face) before moving the chiller.

Improper handling or insecure lifting of the chiller during transportation can cause it to tip and fall leading to injury or death.

5.5 Uncrating

The chiller is secured to the skid during shipping with screws. To remove the chiller from its skid:

1. Move the crated chiller as close as practical to its installation location.
2. Cut or unwrap the plastic shrink-wrap from the unit.
3. Uncrate the chiller by removing the screws holding the chiller to the skid.
4. Use a forklift to lift the chiller until its feet clear the top boards of the skid.
5. Pull the skid from under the chiller.
6. Lower the chiller onto the floor.

6 Installation

6.1 Internal Access
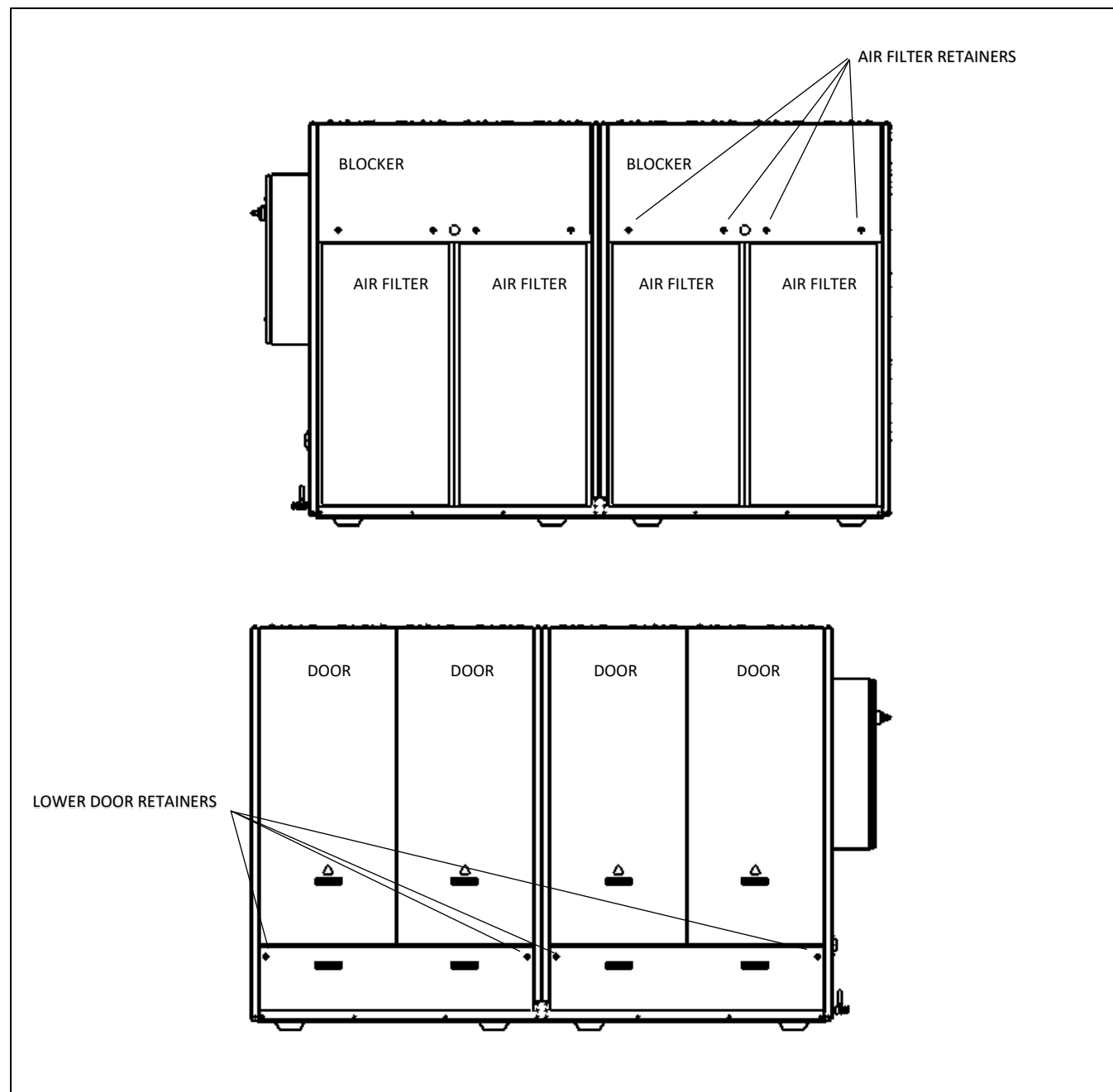
Figure 5: Internal Access
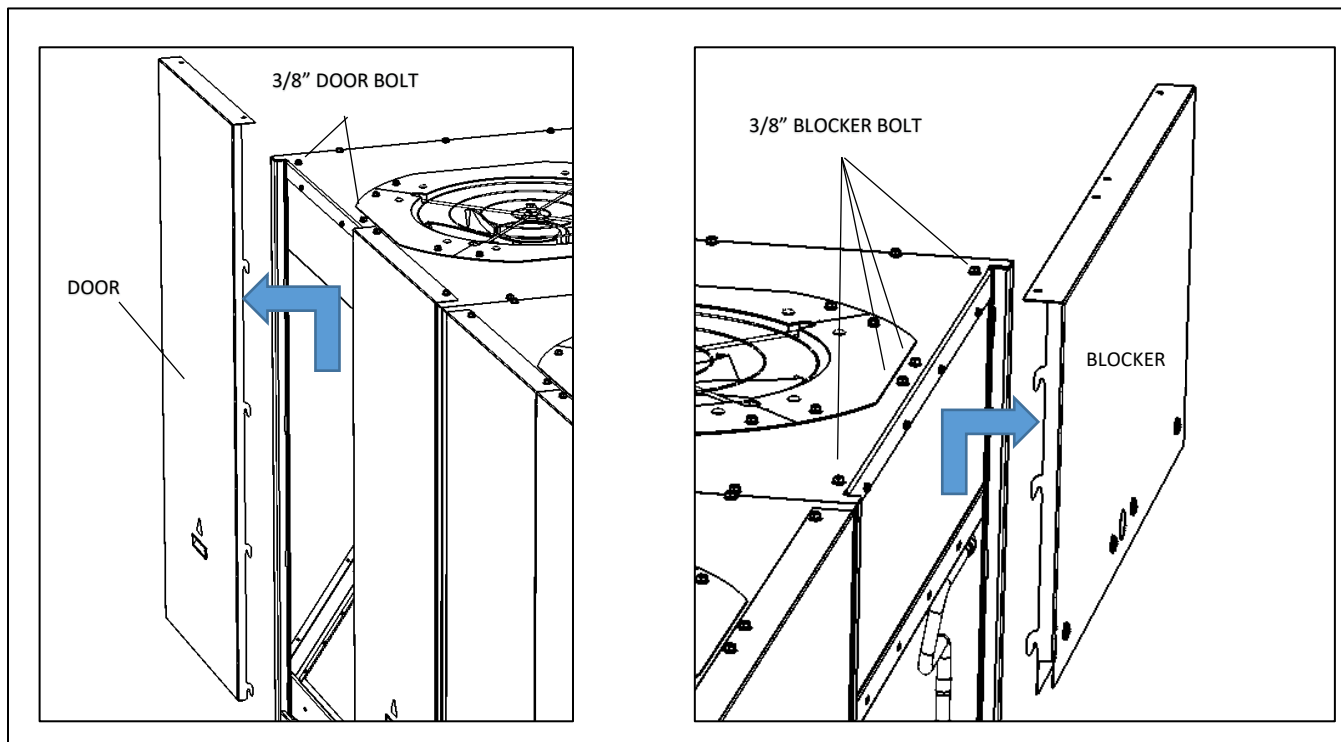
Figure 6: Removal or Doors & Blockers
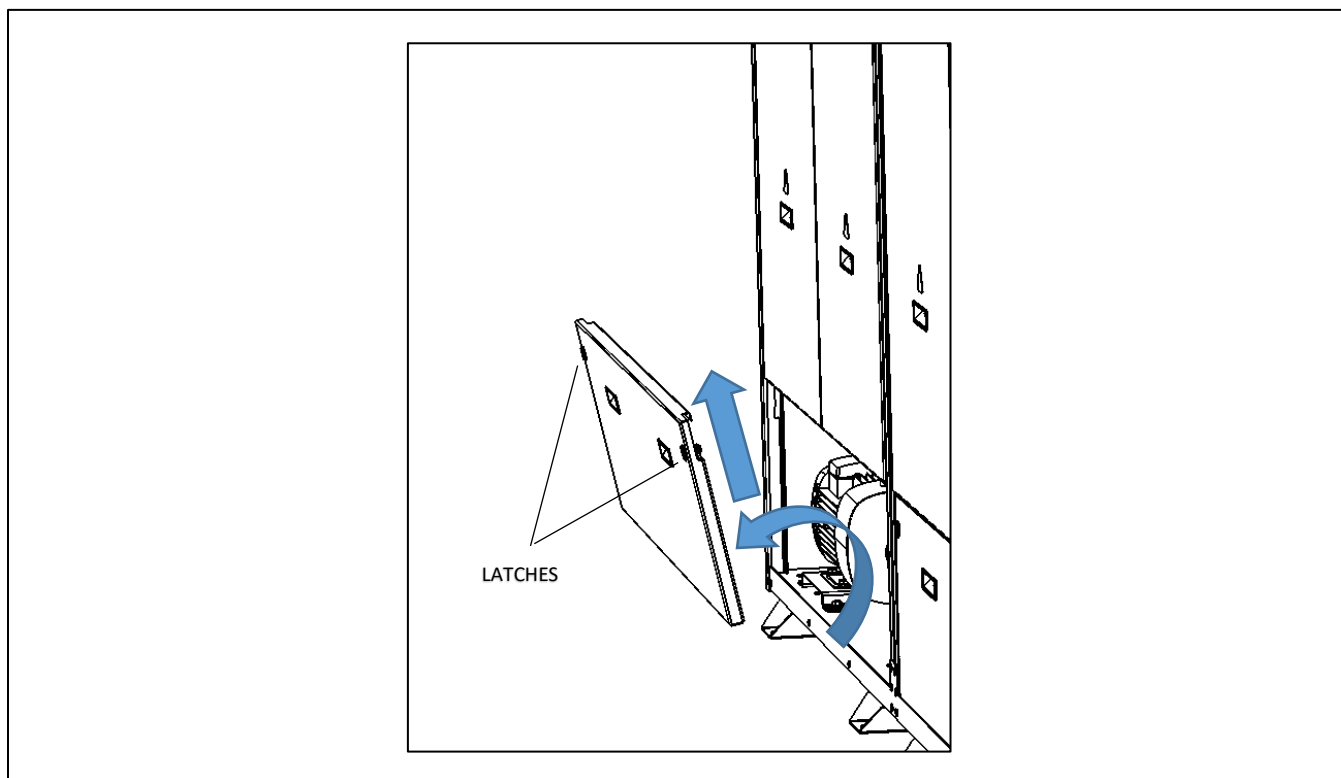
Figure 7: Removal of Lower Doors

11

To access the chiller's internal components (Refer to, Figure 5, Figure 6, Figure 7):

- **From the air intake/filter side**
  1. Use a slotted screwdriver to turn the quarter-turn *Air Filter Retainer* fasteners above the *Air Filters* counterclockwise.
  2. Gently lift the *Air Filter* upward by its mesh and then pull outward to remove the filter.
  3. For more access:
     a. Use a wrench or socket to unscrew the *Blocker Bolts* located on the top of the unit. There are four bolts per blocker, two bolts per door.
     b. Grab the bottom of the *Blocker* and push upwards to disengage the hooks. Once hooks are clear, pull the blocker outward to remove.
  4. Reinstall in the opposite order when access is no longer required.

- **From the door side**
  1. To access the pumps
     a. Use a slotted screwdriver to turn the *Lower Door Retainer* on the left of the door clockwise, and the *Lower Door Retainer* on the right counterclockwise.
     b. Gently pull outward and lift to remove lower panels.
  2. To access the coil and fans
     a. Use a wrench or socket to unscrew the *Door Bolts* located on the top of the unit. There are two bolts per door.
     b. Lift the *Door* upward to disengage the hooks. Once the hooks are disengaged, pull the door outward to remove the door.
     c. Reinstall in the opposite order when access is no longer required.

NOTICE

The chiller must have all air filters and panels properly and securely installed when operating. Failure to do so can result in refrigeration circuit faults that will interrupt cooling to the system. When changing a pump, it is permissible to remove the lower door while the unit is running if the pump has been disabled.

6.2   Fan Removal

To remove fan:

1. Ensure power is disconnected
2. Detach electrical connections
3. Unbolt the eight 3/8" bolts on the lid
4. Lift fan assembly out of machine
5. Remove mounting plates by loosening 3/8" carriage bolts

3/8" CARRIAGE BOLT   3/8" BOLT   MOUNTING PLATE
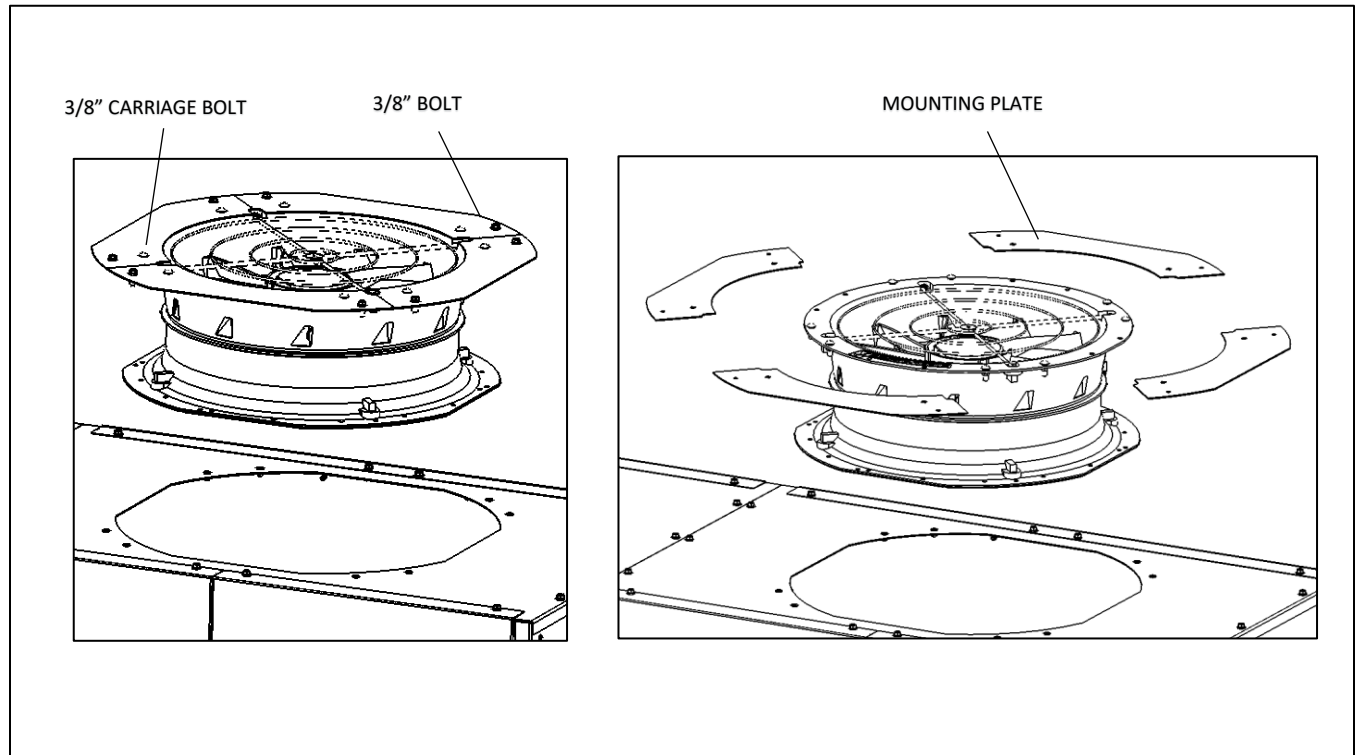
Figure 8: Fan Removal WO2-2-5000

13

6.3   Pump Removal

To remove pump:

1. Ensure power is disconnected
2. Access pumps from lower doors
3. Remove wiring
4. Close ball valve
5. Remove flange clamps
6. Remove 3/8" mounting bolts
7. Slide pump assembly out from retention tabs and remove
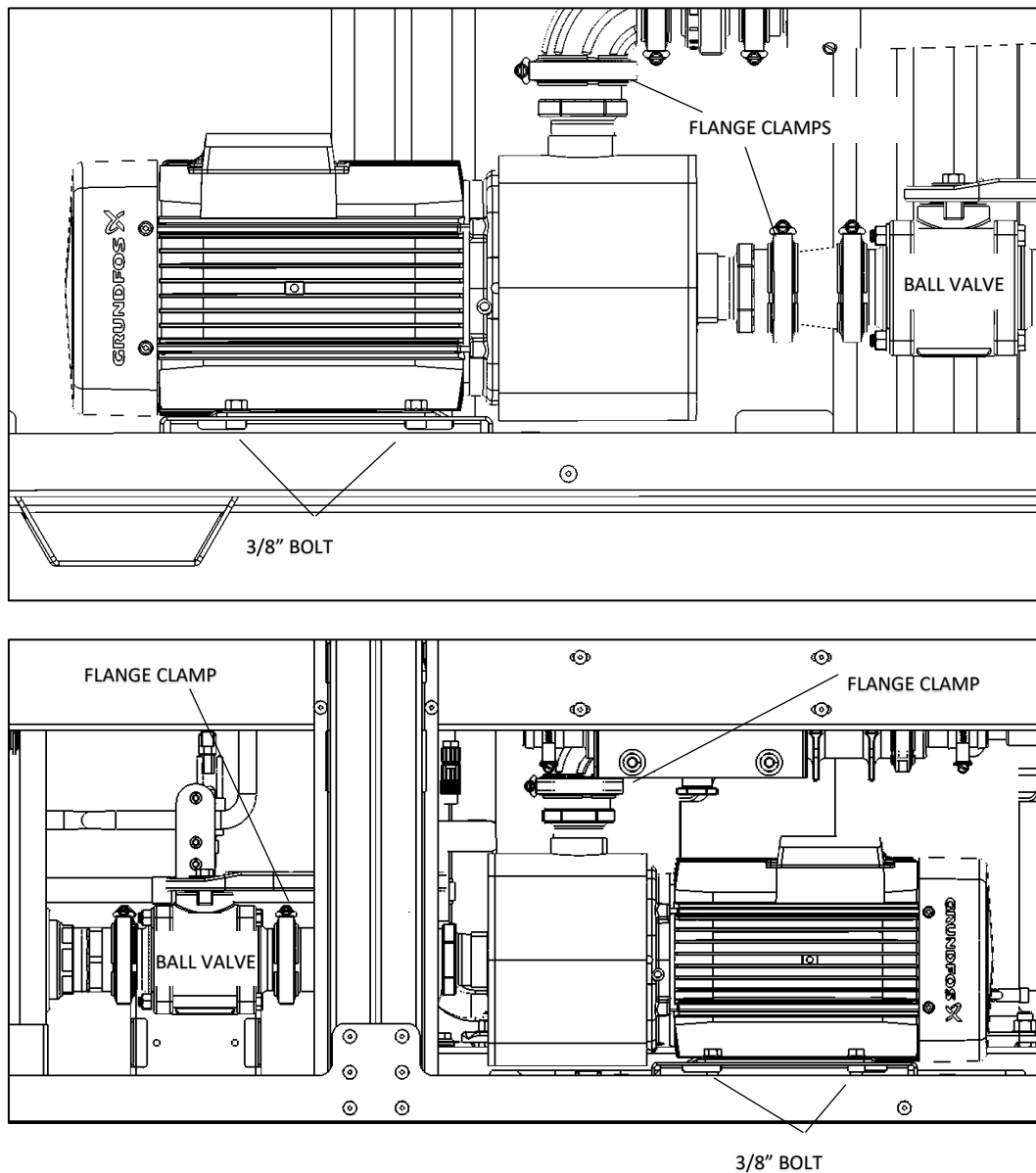
Figure 9: Pump Removal

6.4   Units Equipped with a Tank Heater

Tank heaters are mounted on the front of the tank with an over temperature switch mounted directly above it.
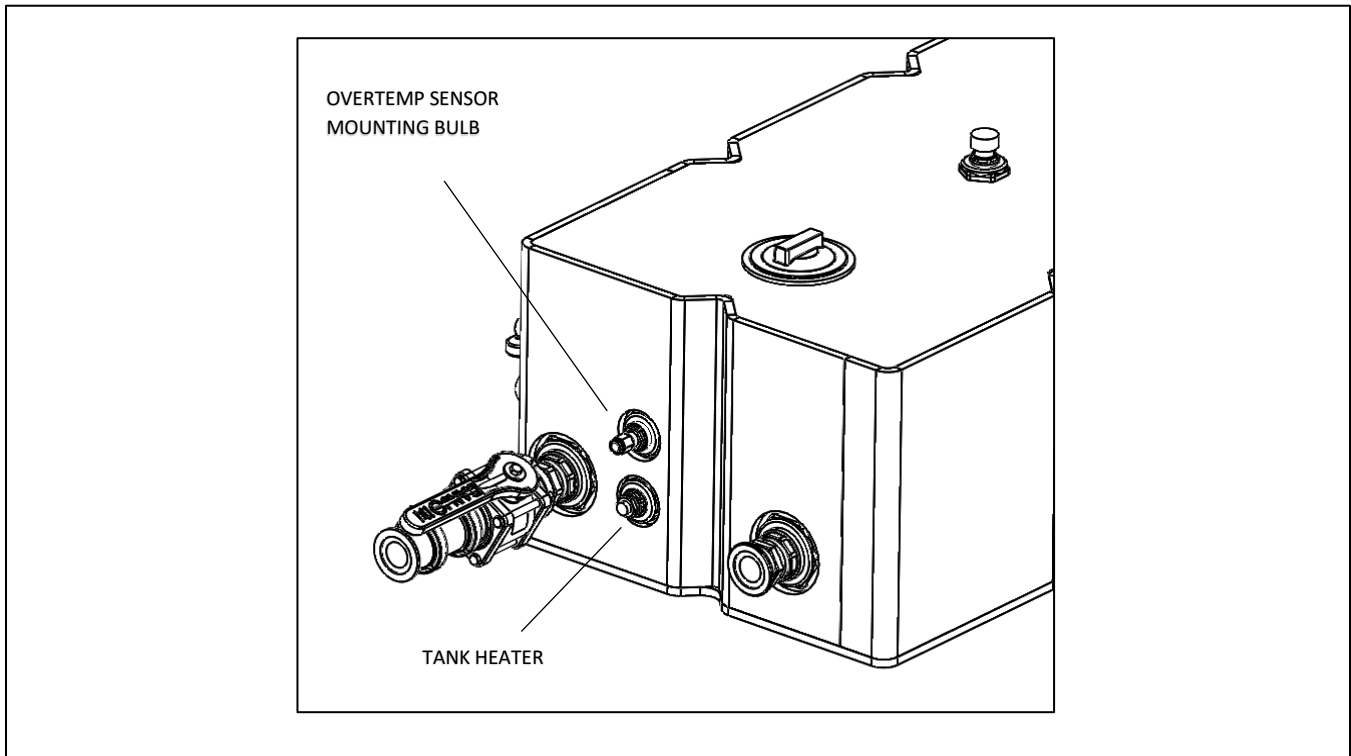
Figure 10: Tank Heater
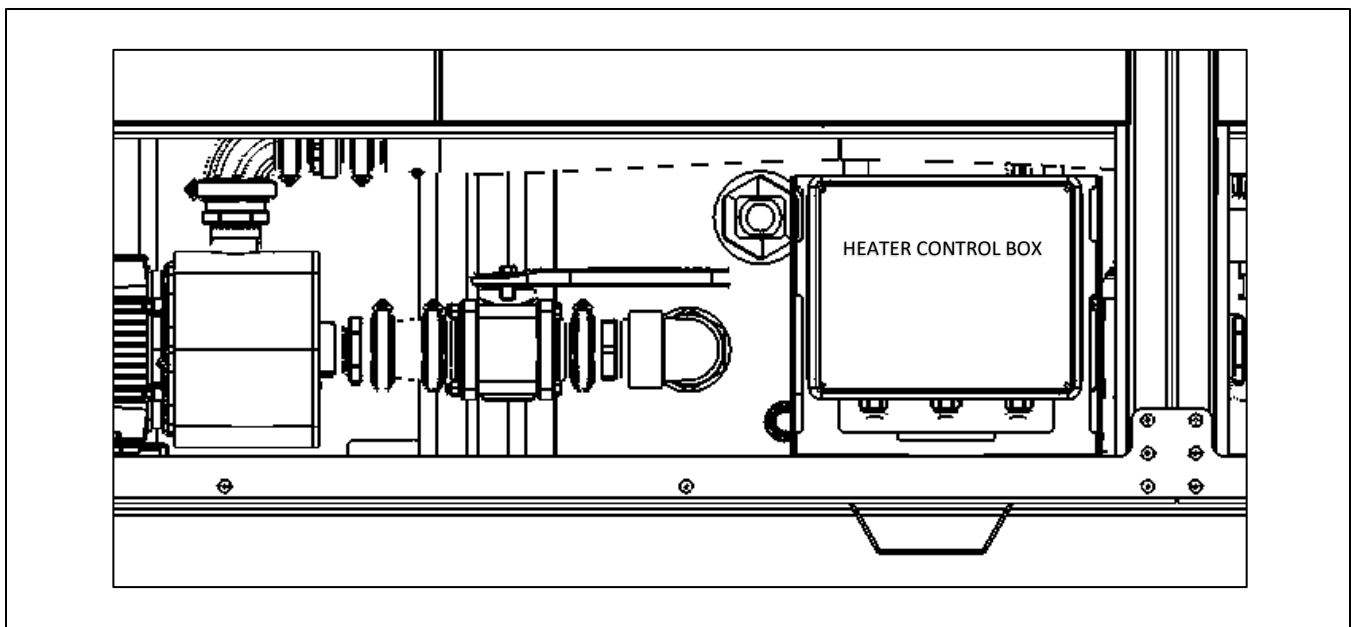
Figure 11: Tank Heater Control Box

6.4.1 Electrical

⚠ WARNING

This procedure involves a risk of electric shock that could cause property damage, injury and/or death.

All electrical connections should be performed only by properly trained and certified electricians wearing proper protective gear and using properly insulated tools.

Before attempting to make any electrical connections or disconnections to the chiller:

- Verify that the chiller's main disconnect handle is in the OFF position
- Verify that the incoming power to the chiller has been turned off
- Lock out and tag out main electrical connecting points
- Use a voltmeter to verify there is no incoming power to the chiller

Ensure that the supply power is enough to meet the chiller electrical requirements as found on the unit's data tag. The data tag is found on the front of the electrical enclosure. If a remote display is provided with the unit, install the provided 150-foot communications cable between the chiller electrical panel and the remote display location. For distances over 150 feet, an optional Long Distance Remote Display kit is required.

Connect power as follows:

1. Open the electrical enclosure by turning the main disconnect handle to the OFF position and releasing the quarter-turn latches using a flathead screwdriver.
2. Use a step bit or knockout punch to install appropriate conduit fittings in the electrical enclosure.

⚠ WARNING

Take care to prevent any metal chips from falling on the electrical components in the enclosure while installing conduit fittings. Metal chips can cause shorts in electrical components and introduce arc flash hazards.

3. Wire mains power to the main disconnect. Wire the ground lead to the provided ground lug.
4. Close the electrical enclosure and fasten the quarter-turn latches.

6.4.2 Coolant plumbing

The chiller must not be installed more than 65 feet above the heat exchangers and cryo compressor. The chiller pumps can deliver up to 165 feet of head. The heat exchangers and cryo compressor are rated at 230 feet maximum. If the chiller is mounted more than 65 feet above the heat exchangers and cryo compressor, the maximum allowable pressure on the heat exchangers and cryo compressor may be exceeded. Consult the factory for installations requiring the chiller to be installed more than 65 feet above the Heat Exchanger. The maximum equivalent linear feet of 2" piping which may be installed external to the chiller is 500ft.

Table 5: Standard Fitting Losses in Equivalent Feet of Pipe

Fitting Description	Feet of loss
2" 90° Standard Elbow	5.0
2" 90° Street Elbow	8.2
2" 45° Standard Elbow	2.6
2" 45° Street Elbow	4.5
2" Globe Valve	55.0
2" Gate Valve	2.3
2" Angle Valve	24.0

The chiller has the following plumbing connections:

Table 6: Chiller Plumbing Connections

Connection Description	Connection Type
Supply	2" Female NPT
Return	2" Female NPT

NOTICE

Exceeding recommended plumbing lengths can increase system pressure beyond the capabilities of the pumps and can cause the pumps to supply less than the required flow rate for proper operation. Consult the factory if recommended lengths are to be exceeded.

NOTICE

Do not allow the fluid pumps to run dry. This will damage the pump seals and will not be covered under warranty.

To install connecting plumbing between the chiller and process:

1. Remove all caps at each plumbing port on the chiller.
2. Pipe installation should adhere to ASME B1.20.1 for best practices.
3. Ensure that all plumbing is routed in an orderly fashion and free of kinks.
4. Fully open all valves (if present) on plumbing lines.

WARNING

All plumbing connections should be performed only by properly trained and certified operators wearing proper protective gear and using appropriate tools.

Failure to correctly install plumbing fittings can lead to leaks, loss of coolant, and/or water damage to nearby equipment.

NOTICE

Ferrous and galvanized steel fittings are incompatible with the coolant. Brass, plastic or stainless-steel fittings are recommended. The use of incompatible materials will lead to excessive corrosion.

6.5   Coolant Reservoir Filling

When the chiller's plumbing connections have been completed the reservoir must be filled with 50% water and 50% glycol.

To fill the chiller's coolant reservoir:

1. Remove the tank fill port cap.
2. Fill the reservoir with 50% water / 50% glycol. The fluid level should be between the high and low tank level labels.
3. The tank low level mark is the "break" point for the float switch
4. The chiller's reservoir capacity is 80 gal (300L).
5. Reinstall the reservoir fill port cap and hand tighten.
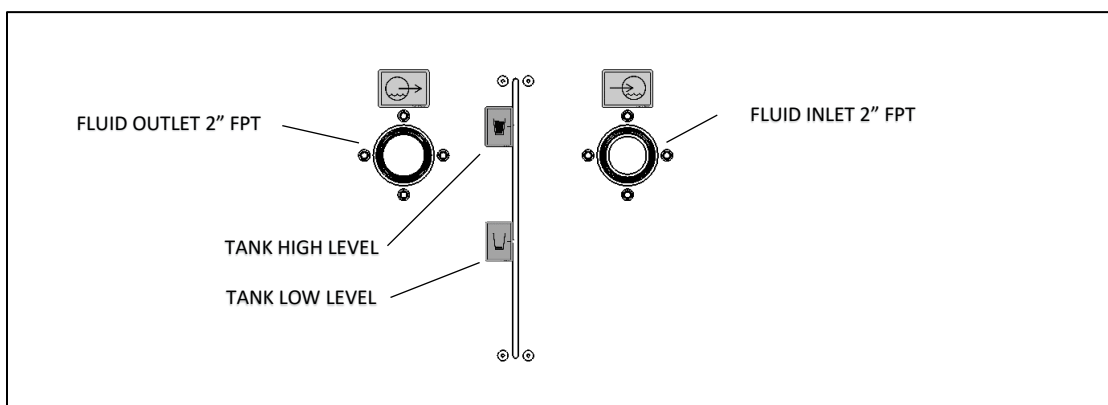
Figure 12: Reservoir Visual Level Indicator Marks

NOTICE

The chiller will require more coolant than the volumes listed above to fill the connecting hoses and the chillers internal plumbing components.

Additional coolant will most likely be required if the chiller is being commissioned for the first time after the pumps have begun running as this coolant will fill any empty plumbing components.

6.6 Installation Checklist

- **Transport and Location of Chiller**
  - ☐ Chiller has been unpacked and inspected for visual damage from shipping.
  - ☐ Required clearance for intake and exhaust air has been maintained around the chiller.
  - ☐ Required clearance for service access has been maintained around the chiller.
- **Electrical**
  - ☐ Supply voltage, current, phase and frequency match chiller's requirement.
  - ☐ Incoming main power is wired correctly.
  - ☐ Incoming power ground wire is connected to ground lug on electrical panel.

7 Chiller has been energized (main disconnect turned to ON position) for at least 8 hours prior to first run (refer to section 8 Operation

    ☐ Initial Startup for more information).
    ☐ Electrical service conforms to all applicable national and local codes.

- **Plumbing**
    ☐ Supply and return connections are correct
    ☐ Plumbing is not dead-headed: no kinks in hoses, valves between chiller and process are fully opened, etc.)
    ☐ Plumbing has been checked for leaks.
    ☐ Coolant reservoir is filled with the correct quality and to the correct level.

8   Operation

8.1   Initial Startup

⚠️ **WARNING**

Risk of improper startup. Failing to complete the installation checklist could cause damage to the chiller.

The following startup procedures must be adhered to in sequence. This outline should be used as a checklist for the initial startup and for subsequent startups if the chiller is taken out of service for a prolonged period.

1. Verify that the main power source to the chiller meets the requirements on the chiller's data tag (located on the electrical enclosure).
2. Verify that all electrical connections have been correctly and securely wired.
3. Verify that all process plumbing connections between the chiller and process are installed correctly, securely, free of leaks and are not dead-headed (no kinks in hoses, valves fully opened, etc.).
4. Verify that the coolant reservoir level on the visual indicator is between the high and low levels
5. Enable the main power to the chiller (turn on any breakers or switches upstream of the chiller if required).
6. Allow the chiller to be energized in this state for at least 8 hours prior to commissioning.
7. Phase monitor light must be green and master controller alarms should be clear.
8. If pump motors do not start, check incoming power for correct sequence. If incoming power is present, check any faults on the master controller. Reset any faults which may be present.
9. Proceed to run the chiller pump for five minutes or more to allow any air in the system to be vented. Check the fluid level after the air has been purged from the piping and refill the reservoir as needed.
10. Check the controller for fault messages. Clear faults that may have occurred during startup procedure. If faults do not re-occur, the system is ready for continuous duty.

NOTICE

The chiller must be powered (supplied with incoming power and main disconnect handle turned to the ON position) for at least 8 hours before being started for the first time. (Power can be off for 30 minutes without observing the 8-hour pre-heat requirement) This is required to energize the compressor's crankcase heaters to vaporize any liquid refrigerant in the compressor crankcase. ***Starting the chiller with liquid refrigerant in the compressor crankcase will damage the compressor and eventually lead to failure of the compressor and refrigeration circuit. This will also void the warranty.***

8.1.1   Temperature control

The chiller will maintain coolant supply temperatures to the process according to its set-point. Temperature control over a wide range of heat loads is achieved through closed-loop control mechanisms. No manual intervention is required other than during the occurrence of faults.

9 Controller

9.1 Controller Layout

This system uses 3 controllers to control the chiller. These controllers are located inside the electrical enclosure.
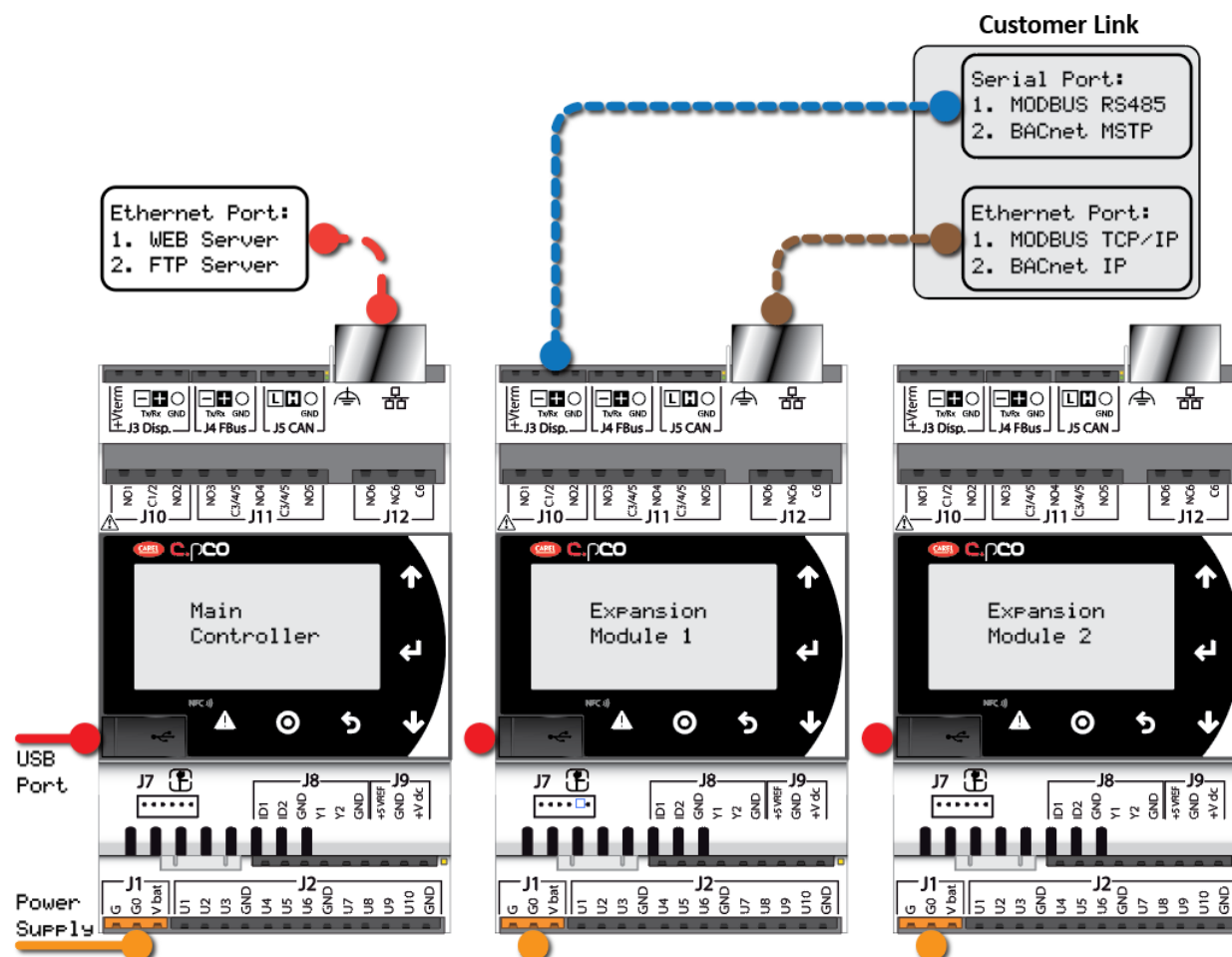
Figure 13: Controller Layout

The **Main Controller** executes the application logic and hosts the control user interface. All setting changes and program monitoring is done on this controller. **Expansion Modules 1 & 2** provide additional IO needed to control refrigeration circuits 1 & 2. The three controllers are functionally equivalent. In the event of a failure on the **Main Controller** either **Expansion Module** can be swapped in and the system can be operated with only two controllers. In this event only one refrigeration circuit will be operational.

Please contact the Dimplex Thermal Solution's sales department if interested in **Customer Link** functionality.

9.2 Button Layout
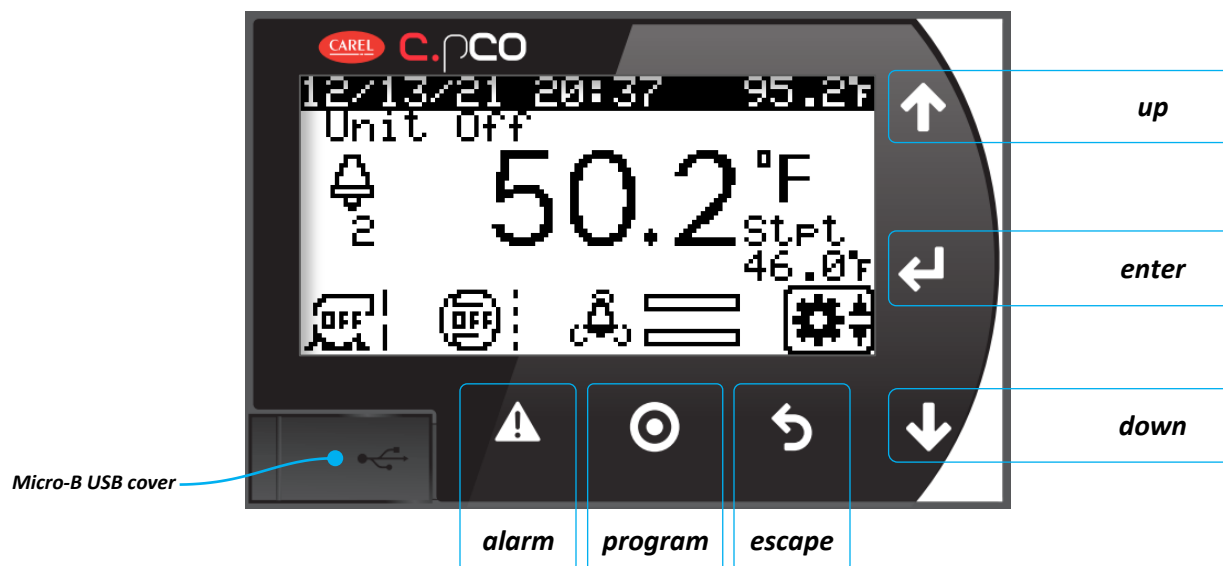
Figure 14: Button Layout

If accessing the application through a remote display the button symbols and functions are the same. Note that the external display in not equipped with a USB port.

Alarms are logged in the controller's memory based on their time and date of occurrence.

A USB storage device can be connected to the controller via its micro-B USB port to update the controller's software and/or to extract alarm logs. Open the micro-B USB cover to access this port (refer to Figure 14). To extract alarm logs, refer to section **9.6.2 Alarm Log Export.**

9.3 Home Screen
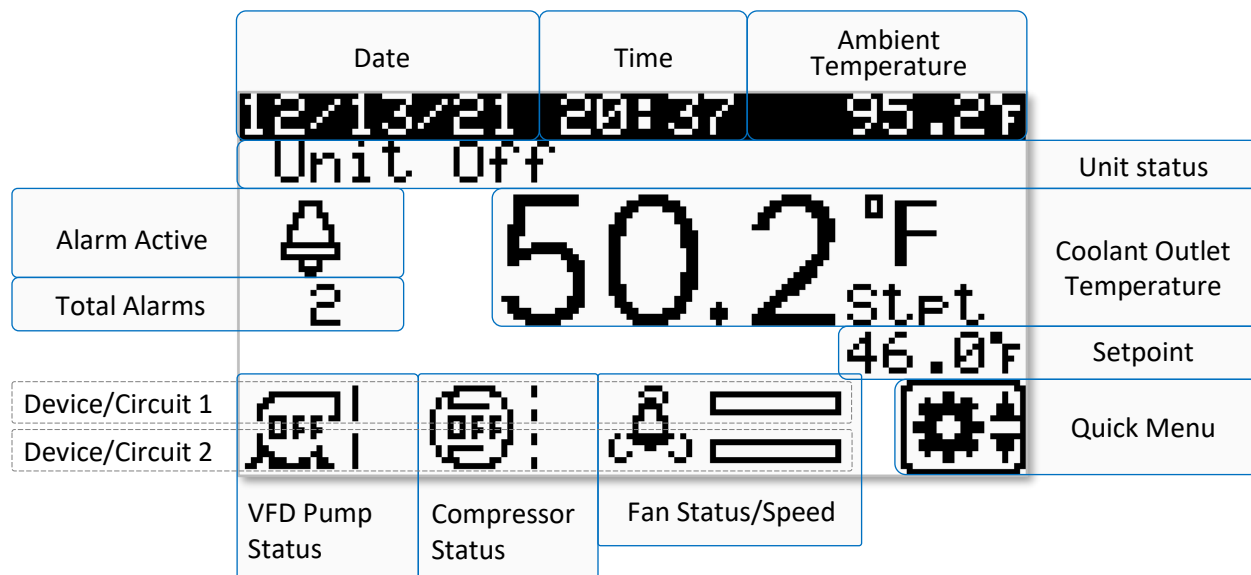
Figure 15: Home Screen Details

9.3.1   Home Screen Quick Start Guide

The Home Screen conveys critical information. Subsequent information can be quickly viewed by navigating to the "Quick" menu or "Alarm" list. Repeatedly press *escape* to return to the home screen.

9.3.1.1   Quick Menu

Use the *up* and *down* buttons to select the desired item on the "Quick" menu icon, press *enter* to navigate.

> **Monitoring:** Process status and sensor values
> **Program Info:** Software version
> **On/Off:** Unit on/off via "soft" button (if enabled)
> **User Settings:** Process setpoints and user settings

*See *Section 9.4* for more details

9.3.1.2   Alarm List

Press the *alarm* button to navigate to the active alarm list. Use the *up* and *down* arrows to travers all active alarms.

Press and hold the *alarm* button to clear an active alarm. If the alarm does not clear the error condition is still present in the machine.

Table 7: Unit Status Description

Unit Status	Description	Action/Response
Unit Off	The chiller is turned off.	None required
Unit On	The chiller is on and operating normally.	None required.
On with Alarms	The chiller is currently operating but with alarms active.	Refer to section 10.1 for troubleshooting.
On with Rfrg Alarms		Refer to section 10.1 for troubleshooting.
Crit Cooling Alarms	The chiller has encountered one or more alarms that preventing it from cooling.	Refer to section 10.1 for troubleshooting.
Crit Rfrg Alarms	The chiller's process coolant circuit is operational, but one or more alarms are preventing the refrigeration circuit from operating. No refrigeration cooling is available.	Refer to section 10.1 for troubleshooting.
Starting	The chiller is in the process of starting up.	None required.
Shutting Down	The chiller is in the process of shutting down.	None required. *Do not disconnect power to the chiller until the **Unit Off** status is present.*
Crit System Alarms	The chiller has encountered one or more alarms that prevent it from operating.	Refer to section 10.1 for troubleshooting.
System Timeout	(if enabled) The coolant system shutdown because all compressors are in fault.	Refer to section 10.1 for trouble shooting refrigeration faults.
Initializing	Unit is powering up.	Wait until the initializing complete before starting up the unit.
Unconfigured	System was not configured on startup	Refer to section 10.1 for troubleshooting.

9.4 Quick Menu Details

9.4.1 Menu Navigation

Traverse menu items and pages using the *up* and *down* buttons. Press *enter* to navigate into a menu item or to select editable fields. Change field values using the *up* and *down* buttons.

9.4.2 Monitoring

Process Coolant Temperature

1. Coolant Temperature Details
   a. Outlet Temperature
   b. Inlet Temperature
   c. Outlet Temperature Setpoint
2. Reference Sensor
   a. Inlet or Outlet?
3. Cooling Demand

Monitoring

Process Coolant Pressure

1. Outlet Flow Setter
   a. Flow Setter Inlet Pressure
   b. Flow Setter Outlet Pressure
   c. Inlet Pressure – Outlet Pressure

Monitoring

Refrigeration System Status

1. Screen Layout
   a. Left Side: Refrigeration Circuit 1
   b. Right Side: Refrigeration Circuit 2
2. Compressor Device Status/Timers
3. Refrigeration Information
   a. L: Liquid Line Pressure
   b. S: Super Heat
   c. Liquid Line Solenoid: lls=closed, LLS= Open
   d. Fan Speed (vertical bar)

Monitoring

Refrigeration System Circuit 1

1. Liquid Line
   a. Liquid Line Pressure
   b. Liquid Line Temperature
   c. Sub Cooling
2. Evaporator
   a. Suction Pressure
   b. Suction Temperature
   c. Super Heat

Monitoring

```
      Circuit 2    5/10
LiqdLin P:    275.0Psi
LiqdLin T:    104.2°F
   SubCool:      9.8°F

 Suction P:     98.8Psi
 Suction T:     71.8°F
 SuperHeat:     10.8°F
```

Refrigeration System Circuit 2

2. Liquid Line
   d. Liquid Line Pressure
   e. Liquid Line Temperature
   f. Sub Cooling
3. Evaporator
   a. Suction Pressure
   b. Suction Temperature
   c. Super Heat

Monitoring

```
   Discharge Temp 6/10

       Circuit 1
    Dscg T: 140.2°F

       Circuit 2
    Dscg T: 143.8°F
```

Compressor Discharge Temperature

1. Circuit 1 Compressor Discharge Temperature
2. Circuit 2 Compressor Discharge Temperature

Monitoring

```
  Circuit 1 Cond 7/10
LiqdLin P:    273.4Psi
  Fan Spd:      0.0%
    Circuit 2 Cond
LiqdLin P:    275.0Psi
  Fan Spd:      0.0%
 Cond Pressure StPt
   P Stpt:     280.0Psi
```

Condenser Pressure Fan Control

1. Refrigeration Circuit 1
   a. Liquid Line Pressure
   b. Fan Speed
2. Refrigeration Circuit 2
   a. Liquid Line Pressure
   b. Fan Speed
3. Liquid Line Pressure Setpoint

Monitoring

```
   Pump Status   8/10
       Flow: YES
 Tank Level: Normal
              |Pump1||Pump2
               [OFF]  [OFF]

 Flow Est:|   NO  |   NO
 Run Hrs:|    0|       0
```

Redundant Pump Control Status

1. Coolant Flow Switch Status
2. Tank Level Switch Status
3. Pump Device Status
4. Flow Established Status
5. Pump Run Time (hours)

Monitoring

```
   Tank Heater    9/10



 Htr:Off

   On at:    41.0°F
  Off at:    51.0°F
```

Tank Heater (if equipped)

1. Heater Status
   a. Heater Status
   b. On at: Setpoint
   c. Off at: Setpoint

Monitoring

```
Device Network 10/10
                Status
Exp Module 1: Online
Exp Module 2: Online
        Fan 1A:Offline
        Fan 2A:Offline
```

Device Network Status

1. Device Status
   a. Expansion Module 1
   b. Expansion Module 2
   c. Circuit 1 Fan 1
   d. Circuit 2 Fan 1

Monitoring

9.4.3   Program Information

```
Software Info

Program: 923146
 SW Ver: 1.0.002
Beta Ver:    1

- Configuration -
  Main Module
```

Software Information

1. Program
2. Software Version
3. Beta Version (Where Applicable)
4. Module Configuration (Position)

Program Info

```
Info
   OS Ver: 4.8.001
 BOOT Ver: 4.8.001
Board type: c.pCO mini
Board size:    High End
     Core:    1

UID:0002000000004BBD
```

Operating System Information

1. Operating System Version
2. BOOT Version
3. Board Type
4. Board Size
5. Board Core
6. UID (Unique Identifier)

Program Info

```
Info

Ret mem writes:    3031
Main task:
   97ms      10.3Cycle/s
```

Memory Information

1. Total Lifetime Non-Volatile Memory Writes
2. Main Task Cycle Times
   a. Cycle Period
   b. Cycles Per Second

Program Info

```
Info
Work hours
Unit:          000000h
```

Unit Work Hours

1. Total Unit Work Hours

Program Info

```
Device Hours
                    RSet
  Pump1:      0h  |  NO
  Pump2:      0h  |  NO
  CompA1:     0h  |  NO
  CompA2:     0h  |  NO
  CompB1:     0h  |  NO
  CompB2:     0h  |  NO
```

Recorded Work Hours (Resettable)

1. Pump 1 Run Hours
2. Pump 2 Run Hours
3. Circuit 1 Compressor 1 (A1) Run Hours
4. Circuit 1 Compressor 2 (A2) Run Hours
5. Circuit 2 Compressor 1 (B1) Run Hours
6. Circuit 2 Compressor 2 (B2) Run Hours

Program Info

```
Info
Blackout info
Current time:
12/01/21        15:18:14
PowerOff time:
12/01/21        12:36:45
Length last time off:
   0Days    0Hrs    1Min
```

Power Loss Records

1. Blackout Information
    a. Current Time
    b. Power Off Time
    c. Length of Time Off

Program Info

```
Unit Config

 Heater:Enable

   Wipe Retain to
   re-configure
```

Application Configuration Status

1. Current Configuration Status
    a. Wipe Retain to re-enter setup wizard
    b. Press *program* to enter setup wizard if unit is unconfigured.
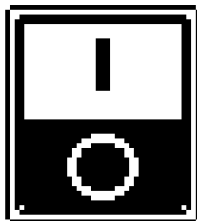
Program Info

9.4.4 On/Off

```
Unit On/Off


          |
OFF       O
```

"Screen" On/Off Selector (if enabled)
Must be enabled from "User Settings"

On/Off

9.4.5   User Settings
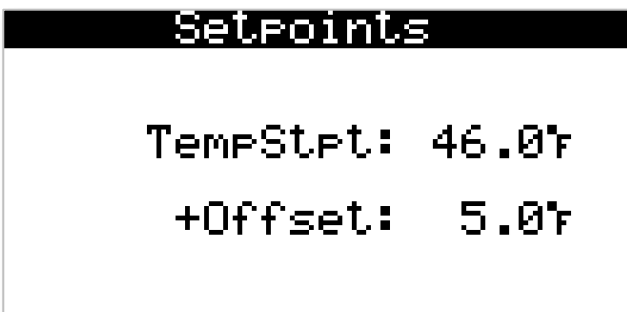
Temperature Setpoint

1. Temperature Setpoint Control
   a. Default reference is **Outlet Temperature**. If outlet temp sensor is unavailable the system will use **Inlet Temperature**.
   b. +Offset: The offset will be added to the setpoint when the **Inlet Temperature** sensor is referenced (view Monitoring 1/10 to see sensor currently referenced).

<div align="right">User Settings</div>
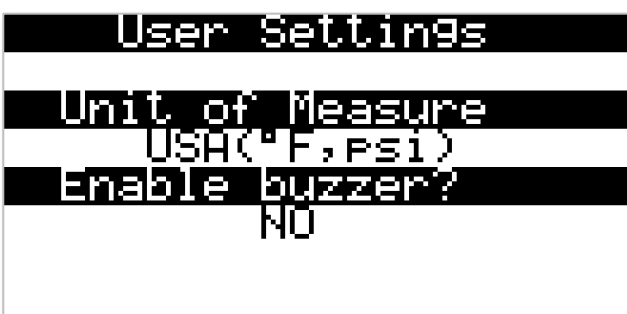
User Defined Settings

1. Unit of Measure used in User Interface
2. Alarm Buzzer Enable/Disable

<div align="right">User Settings</div>

Table 8: Controller Units of Measure

	None	SI	USA	UK	CAN	LON	SI (Bar)
Temperature	N/A	°C	°F	°C	°C	-	°C
Pressure	N/A	kPa	psi	bar	psi	-	bar

9.5   Program Menu Tree

Use "User Password" 1010 to navigate into the "Main Menu" and beyond. The "User Password" has restricted access to critical settings. Please contact the Dimplex Thermal Solution service team if restricted settings need to be modified. When prompted, use the ***enter***, ***up***, and ***down*** buttons to enter the password.

Press ***up*** and ***down*** to change field value

Press ***enter*** to travers input fields
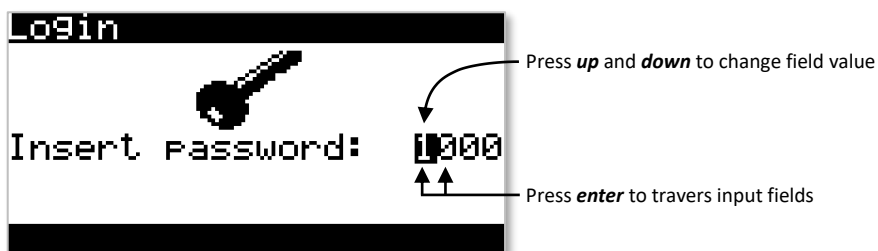
Figure 16: Program Password Entry

NOTICE

The program settings have been verified by the factory prior to shipping. For optimal chiller operation these settings should not be altered.

Program setting changes should only be performed by qualified technicians or operators under the supervision or guidance of the factory. ***Altering the program settings beyond factory settings without approval from the factory can lead to incorrect chiller operation, damage to the chiller and/or wafer processing***

equipment, and/or void warranty. Always consult the factory if program settings need to be changed.
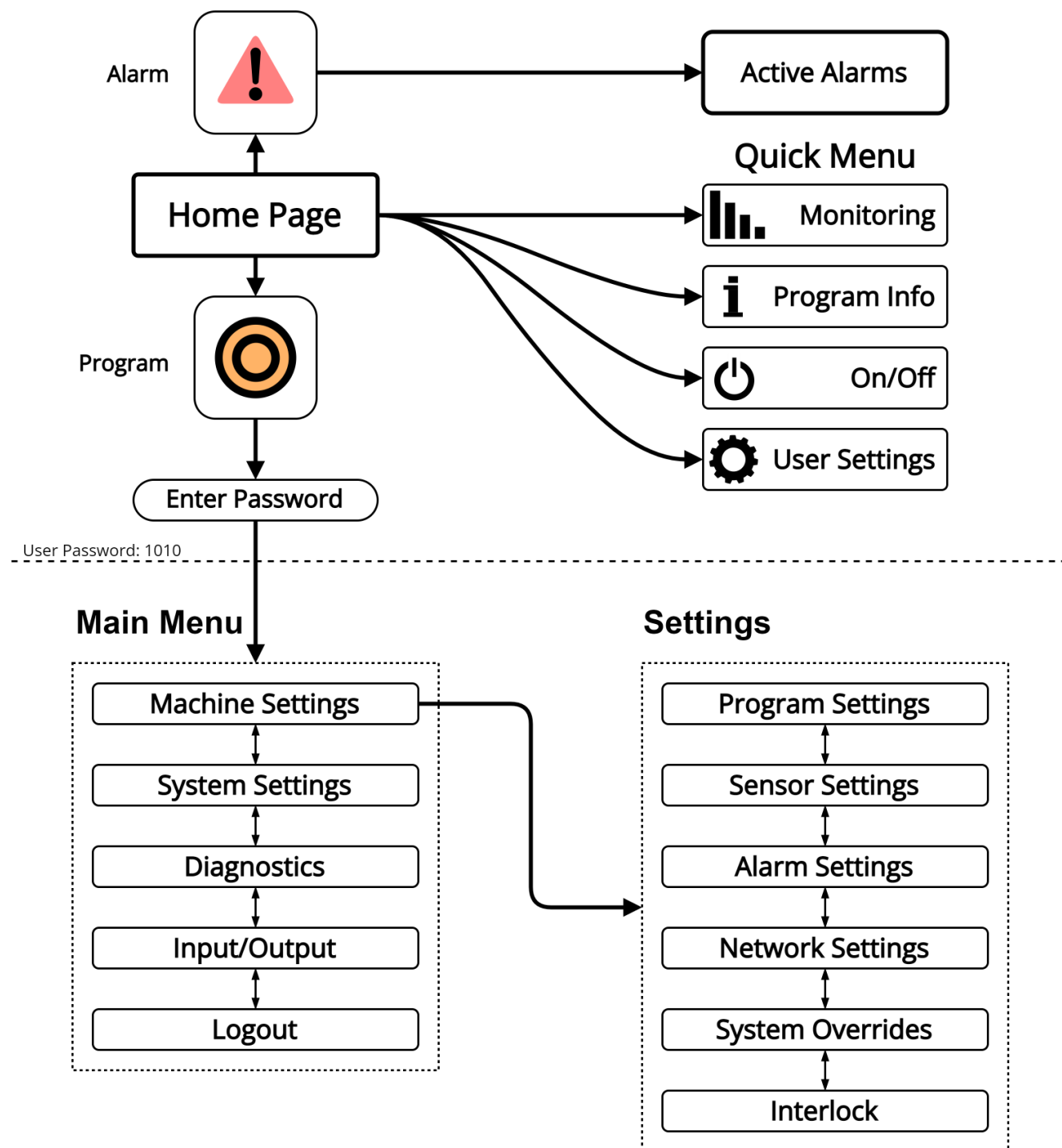
Figure 17: Program Menu Tree Diagram

9.6   Alarm Logs

9.6.1   Viewing Alarm Logs

The alarm logs are different that the active alarm list. Alarm logs allow the user to view the alarm list history. To view the alarm log press the **alarm** button. Once in the alarm list press the **up** button.
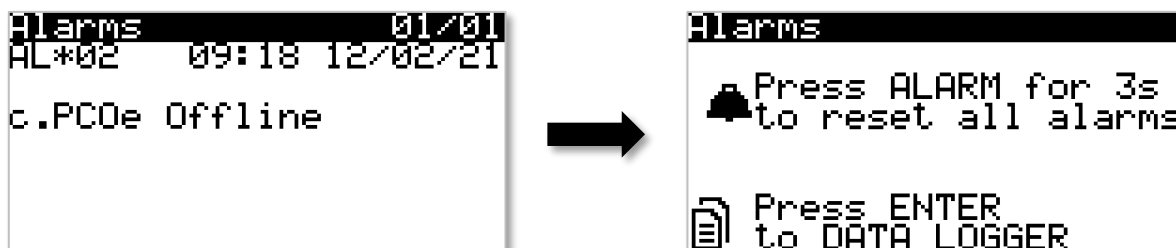
Next press **enter** to navigate to the alarm logs. Once in the alarm logs use the **up** and **down** buttons to traverse the alarm log.
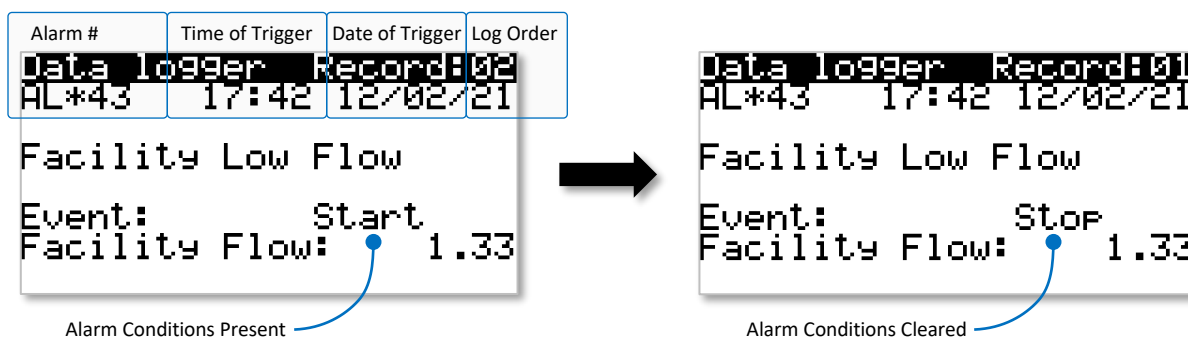
9.6.2   Alarm Log Export

The alarm log outlined above can be exported for external reference. To export the alarm logs press the **program** button to navigate to the "Main Menu". Enter the "User Password" if prompted. From the "Main Menu" use the **down** button to navigate to "Diagnostics" and press **enter**. Next press **down** and navigate to the "Export Alarm" page. Insert a micro-B USB storage device into the USB port found on the front of the controller (See Figure 14: Button Layout).

Main Menu → Diagnostics → Export Alarm
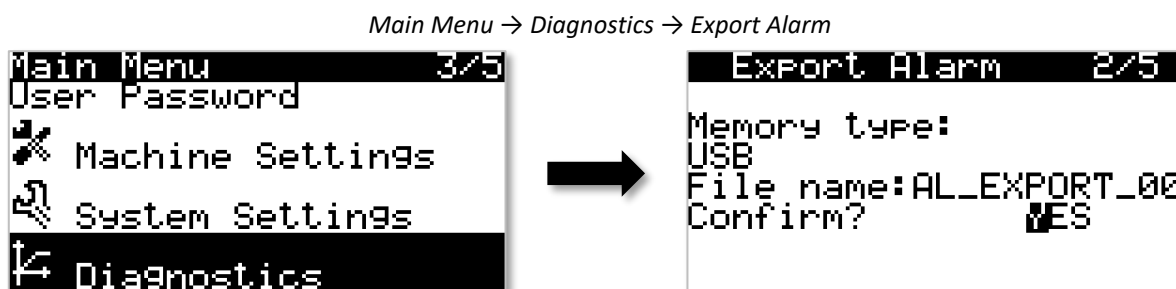
Use the **enter**, **up**, and **down** buttons to select the memory type **USB** and confirm yes to initiate export. There should now be a file (AL_EXPORT_0.csv) on the USB storage device.

9.7 Controller Setup

9.7.1 Date & Time Setup

It is highly recommended to set the local date and time during installation. The time is configured to the 24-hour format. To set the date and time press the **program** button to navigate to the "Main Menu". Enter the "User Password" if prompted. From the "Main Menu" use the **down** button to navigate to "System Settings" and press **enter**. The Date/Time change page is the first page in the submenu.

Main Menu → System Settings → Date/Time Change
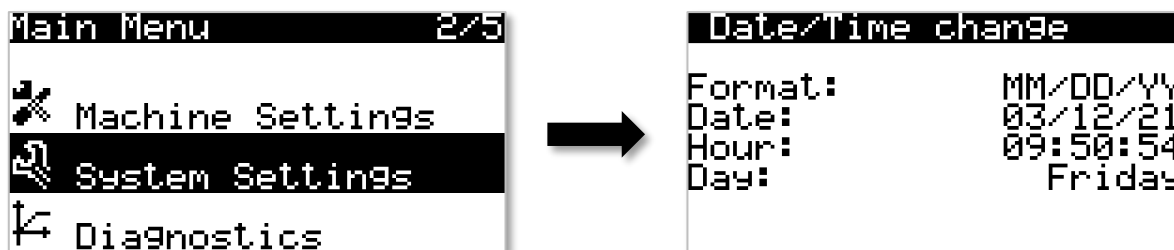
Use the **enter**, **up**, and **down** buttons to set the date (according to Format) and time (HH:MM:SS). The Day will update to show the correct weekday according to the date entered.

9.7.2 IP Address Setup

The controller is equipped with an ethernet port. This port can be used for Modbus communication (if enabled) or used to access the controller's web interface for remote monitoring. To set the IP address press the **program** button to navigate to the "Main Menu". Enter the "User Password" if prompted. From the "Main Menu" press **enter** to navigate into "Machine Settings". Next use the **down** button to navigate to "Network Settings" and press **enter** to find the "Network Configuration" page. Use the **enter**, **up**, and **down** buttons to configure the network settings. Please contact your IT department for assistance in selecting the appropriate values.

Main Menu → Machine Settings → Network Settings → Network Configuration → IP Settings

Network Configurations

1. Network Settings
   a. DHCP: Dynamic Host Control Protocol
   b. IP: IP Address
   c. MASK: Subnet Mask
   d. GW: Gateway
   e. DNS: Domain Name System
   f. Update: Confirm Settings Change Yes/No?
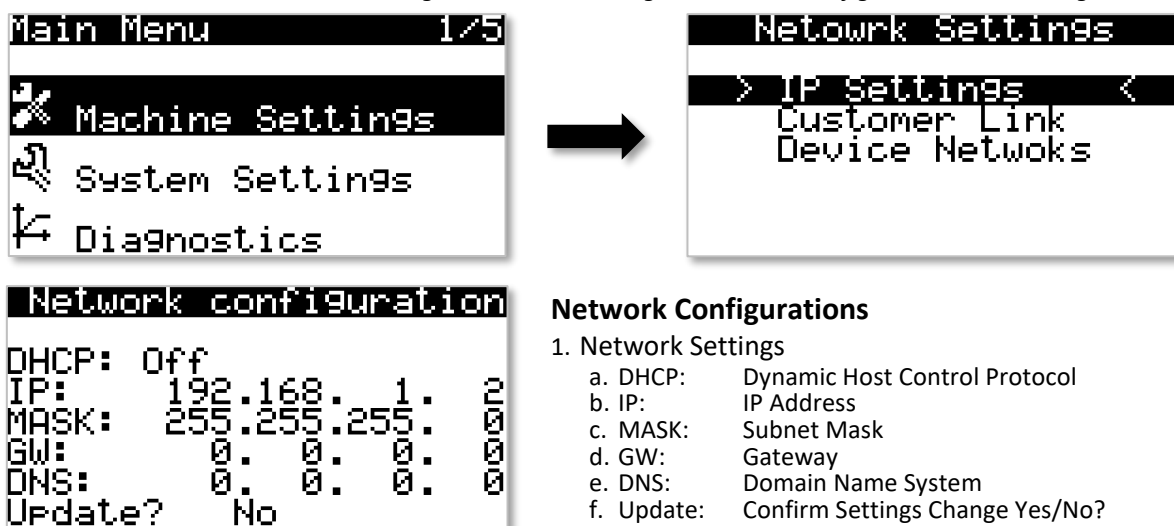
9.7.2.1 Main Controller Web Interface

To access the **Main Controller's** web interface unsure the controller is on the same subnet as the computer used for access. On the computer enter the IP Address set above into any web browser. Once the initial webpage is accessed select the "PGD" tab to pull up the controller emulator.
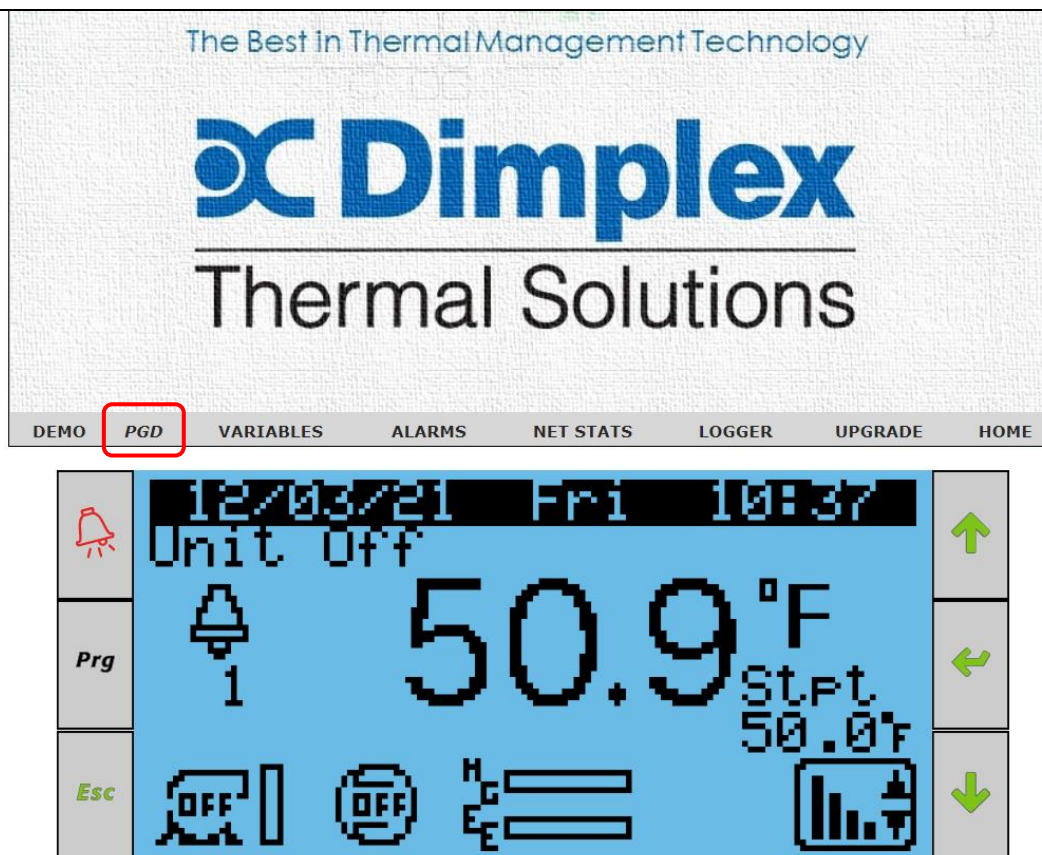
Figure 18: Controller Web Interface

9.8   Application Log Export

The controller is equipped with event and periodic logs that allow data to be captured when certain conditions are triggered or periodically during operation. This is used to capture critical information during certain alarms and record high level state variables periodically throughout the day.

To export the application logs press the **program** button to navigate to the "Main Menu". Enter the "User Password" if prompted. From the "Main Menu" use the **down** button to navigate to "Diagnostics" and press **enter**. Next press **down** and navigate to the "Export Logs" page. Insert a micro-B USB storage device into the USB port found on the front of the controller (See Figure 14: Button Layout).

Main Menu → Diagnostics → Export Logs
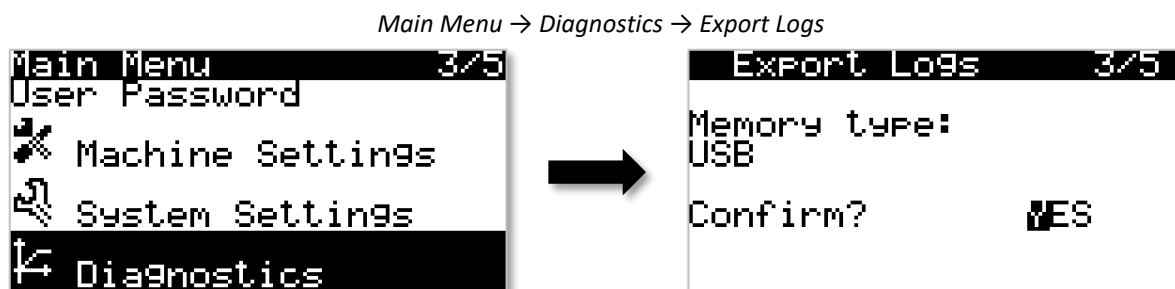
Use the **enter**, **up**, and **down** buttons to select the memory type **USB** and confirm yes to initiate export. The export may take several minutes to complete. Once export is started a status page will appear.

```
Operation result
    Progress:   1%
Exporting...

Press ESC to back
```

```
Operation result
    Progress:100%
Operation done

Press ESC to back
```

Press *escape* when export is complete. There should now be several .csv log files on the USB storage device.

9.9   USB Storage Device

Please see Figure 19: USB Storage Device as reference for a common USB storage device that can be used for extracting data from the controller. This device allows a user to connect to either the controller or a computer.

USB Micro-B   USB Type A

Figure 19: USB Storage Device

9.10   Customer Link

Customer Link ("Cust Link") is a feature that allows customers to interface with the chiller application over a network. This allows for remote monitoring and remote On/Off and Temperature setpoint control. Refer to DTS document *ENG-SVC-0047* for setup and function details.

Please contact the Dimplex Thermal Solution's sales department for more information.

10 Troubleshooting

10.1 Troubleshooting Guide

Table 9 Troubleshooting Service Guide

Symptoms	Possible Cause
Selector switch is in "ON" position & pump will not start.	1. Open disconnect switch 2. Tripped overloads 3. Phase monitor fault 4. Low tank level
Pump is rotating but no pressure is established.	1. Improper rotation 2. No water in reservoir 3. Valves not open 4. No back pressure 5. Pump suction blocked 6. Pump seal leaking
Pump runs properly, but compressor does not start.	1. Compressor is not getting energized-flow switch not activated
Compressor hums but will not start.	1. Low line voltage 2. Motor windings shorted to ground 3. Internal compressor damage 4. Improperly wired
Compressor will not start (no hum).	1. Open disconnect 2. Thermal overload open 3. Relay not closing to start compressor 4. Bad motor windings 5. Loss of refrigerant charge
Compressor starts but trips on internal protector	1. High suction or discharge pressure 2. Low line voltage 3. Bad motor windings
The unit short cycles.	1. Low refrigerant charge 2. Defective expansion valve
High refrigerant pressure fault	1. Dirty air filters 2. Refrigerant overcharge 3. Dirty condenser 4. Malfunction of fan motor 5. Excessive ambient air temperature
Low refrigerant pressure fault	1. Extreme low ambient temperature 2. Refrigerant leak 3. Lack of fluid flow through heat exchanger 4. Liquid line solenoid valve stuck or not opening 5. Expansion valve stuck or lost bulbwell charge.
Fluid flow fault	1. Pump not running 2. System not filled 3. Air in the system 4. Flow switch paddle stuck
Pump Overload fault	1. Overload setting incorrect 2. Bad motor windings 3. Low pump pressure due to low piping resistance
Phase Monitor fault	1. Incorrect line phasing 2. Low/High incoming voltage 3. Voltage imbalance between phases
Low Tank Level fault	1. Low/no fluid in Heat Exchanger reservoir 2. Float switch stuck in the open position

10.2 Refrigeration High Pressure Switch

⚠ WARNING

The refrigeration discharge lines may be extremely hot – avoid contact. Resetting of the refrigeration high pressure switch should only be performed by qualified personnel equipped with proper safety gear and tools.

The chiller's refrigeration circuit is equipped with a mechanical, high pressure switch that disengages (trips) the refrigeration circuit when dangerously high pressures occur to prevent damage to the refrigeration system. If the switch has tripped it can be reset by performing the following steps:

1. Access the chiller's air intake/filter side (refer to section 6.1).
2. Depress the red reset button until a tactile click is felt.
3. Reinstall the air intake filter(s) before restarting Chiller.

10.3 Maintenance

Establishing a proper maintenance schedule will extend the lifetime of the chiller. A suggested checklist has been provided in section 10.3.1.

10.3.1 Suggested maintenance checklist.

Items in this list should initially be performed on a weekly basis to determine how often they need to be serviced. Time between servicing must be re-established when operating conditions have changed.

10.3.1.1 *Inspect and clean the condenser coil and air intake filter*

Excessive buildup of dirt, oil, and/or other debris on the condenser coil and air intake filters will cause reduced air flow rates for heat dissipation leading to lower capacities. Ensure that the fins of the condenser coil are clean and undamaged. Use compressed air at no more than 120psi (8.3bar) to blow out the condenser coil and air intake filters in the direction opposite to normal air flow. For the condenser coil the cleaning air should enter the discharge side and exit from the intake side. If the air filters cannot be cleaned, then they must be replaced.

10.3.1.2 *Inspect the supply pressures*

Record the supply pressure after the initial startup and then periodically. If plumbing connections between the chiller and process have remain unchanged, the supply pressures should remain constant. An increase in pressure indicates a clogged filter/strainer or buildup of debris in the fittings.

10.3.1.3 *Inspect and clean fluid strainer*

Fluid strainers protect the brazed plate heat exchanger from becoming clogged. Inspect and clean strainer after first hour of operation, after first week of operation, and annually thereafter.

10.3.1.4 *Inspect the quality of the coolant in the reservoir*

Access the coolant in the reservoir via the access cap. System fluid should be clean and free of contaminants. Test the glycol concentration level to ensure levels are within the rated conditions. Refill tank as needed with pre-mixed glycol to maintain proper concentration. An inhibited glycol solution is recommended to prevent algae and bacteria from growing. If low toxicity glycol is desired or required, use an inhibited propylene glycol.

⚠️ **WARNING**

Do not mix brand names or types of glycol as this may result in the inhibitors precipitating out of solution. Do not use automotive antifreeze in the Chiller Unit as it can cause extensive damage to the cooling system. The use of automotive anti-freeze can affect the heat transfer of the system, fluid flow, and attack the pump seals.

⚠️ **WARNING**

Galvanized piping is not recommended because the zinc will react with the inhibitor in the fluids, causing precipitate formation, depletion of the inhibitor package, and removal of the protective zinc coating, particularly above 100°F. Precipitation can also lead to localized corrosion.

10.3.1.5 Inspect fluid system for leaks of loose connections

Visually check fluid connections for any leaks in the system. Ensure there are no plumbing parts that show any significant wear including chafing or cracking.

10.3.1.6 Inspect and test refrigeration system for leaks

Inspect the inside of the chiller for any visual evidence of refrigeration leaks. Spots of oil on the inside of the unit or on the refrigeration lines may signify a potential leak. Have a certified refrigeration technician inspect the unit for proper operation.

10.3.1.7 Check all wiring for loose connections, chaffing or damage

Turn off the main disconnect. Check all wiring inside of electrical panel and inside the chiller for loose or damaged wires. Tighten any loose terminals and replace any damaged wires.

Table 10: Electrical Component Torque

Component	Torque (in-lb)
Pump/fan contactor power term.	22
Pump contactor overload term.	12
Pump/fan contactor control term.	8.9-13
Pump overload power terminals	22
Pump overload control term.	5
Compressor contactor - power	13.3-22
Compressor contactor - control	8.9-13
Fused terminal	25
Disconnect wire terminal	35
Disconnect fuse screw	35
Disconnect shaft set screw	12
Fuse block terminal	35
Transformer - Allen Bradley	10
Transformer - Dongan	16-18
Power Dist. Block - Primary	120
Power Dist. Block - Secondary	25
Power Dist. Block - Sec	20
Control relay socket terminals	5-9

Component	Torque (in-lb)
Controller plug screws - large	5
Controller plug screws - small	2

10.3.1.8 Schedule planned maintenance services

Consult the factory to schedule and perform planned maintenance services on the chiller by qualified refrigeration technicians.

10.4 Alarm List

Table 11: Alarm List

Alarm	Description	Reset	Type
01	Pump 1 Overload	User	Fault
02	Pump 2 Overload	User	Fault
03	Low Tank Level	User	Fault
04	Flow Switch	Auto	Warn
05	Flow Switch Pump 1	Count	Fault
06	Flow Switch Pump 2	Count	Fault
07	Phase Monitor	Count	Fault
08	Rfrg Circuit 1 Hi Pressure Switch	User	Fault
09	Rfrg Circuit 2 Hi Pressure Switch	User	Fault
10	Coolant Hi Temperature Limit	User	Fault
11	Coolant Low Temperature Limit	User	Warn
12	Coolant Outlet Low Pressure	User	Fault
13	Coolant Outlet Hi Pressure	User	Warn
14	Coolant Over Temperature	Auto	Warn
15	Coolant Under Temperature	Auto	Fault
16	Rfrg Circuit 1 Hi Liquid Line Pressure	Auto	Warn
17	Rfrg Circuit 2 Hi Liquid Line Pressure	Auto	Warn
18	Rfrg Circuit 1 Low Suction Pressure	Auto	Warn
19	Rfrg Circuit 2 Low Suction Pressure	Auto	Warn
20	Rfrg Circuit 1 Low Suction Pressure Limit	User	Fault
21	Rfrg Circuit 2 Low Suction Pressure Limit	User	Fault
22	Rfrg Circuit 1 Compressor 1 Overload	User	Fault
23	Rfrg Circuit 1 Compressor 2 Overload	User	Fault
24	Rfrg Circuit 1 Fan 1 Overload	User	Fault
25	Rfrg Circuit 1 Fan 2 Overload	User	Fault
26	Rfrg Circuit 2 Compressor 1 Overload	User	Fault
27	Rfrg Circuit 2 Compressor 2 Overload	User	Fault
28	Rfrg Circuit 2 Fan 1 Overload	User	Fault
29	Rfrg Circuit 2 Fan 2 Overload	User	Fault
30	Coolant Outlet Pressure Flow Setter Inlet Probe Error	Auto	Warn
31	Coolant Outlet Pressure Flow Setter Outlet Probe Error	Auto	Warn
32	Coolant Inlet Temperature Probe Error	Auto	Warn

Alarm	Description	Reset	Type
33	Coolant Outlet Temperature Probe Error	Auto	Warn
34	Coolant Temp Probe Error	Auto	Fault
35	Ambient Temperature Probe Error	Auto	Warn
36	Rfrg Circuit 1 Liquid Line Pressure Probe Error	Auto	Warn
37	Rfrg Circuit 1 Suction Pressure Probe Error	Auto	Warn
38	Rfrg Circuit 1 Discharge Temperature Probe Error	Auto	Warn
39	Rfrg Circuit 1 Suction Temperature Probe Error	Auto	Warn
40	Rfrg Circuit 1 Liquid Line Temperature Probe Error	Auto	Warn
41	Rfrg Circuit 2 Liquid Line Pressure Probe Error	Auto	Warn
42	Rfrg Circuit 2 Suction Pressure Probe Error	Auto	Warn
43	Rfrg Circuit 2 Discharge Temperature Probe Error	Auto	Warn
44	Rfrg Circuit 2 Suction Temperature Probe Error	Auto	Warn
45	Rfrg Circuit 2 Liquid Line Temperature Probe Error	Auto	Warn
46	Expansion Module 1 Offline	Auto	Fault
47	Expansion Module 2 Offline	Auto	Fault
48	Rfrg Critical Timeout Error	User	Warn
49	Retain	User	Fault
50	Error Retain Write	User	Fault
51	Rfrg Circuit 1 Fan 1 Offline	Auto	Warn
52	Rfrg Circuit 1 Fan 1 Line Fault	Auto	Warn
53	Rfrg Circuit 1 Fan 1 Motor Blocked	Auto	Warn
54	Rfrg Circuit 1 Fan 1 Fire Alarm	Auto	Warn
55	Rfrg Circuit 1 Fan 1 Uin Low	Auto	Warn
56	Rfrg Circuit 1 Fan 1 Uin High	Auto	Warn
57	Rfrg Circuit 1 Fan 1 UZK Low	Auto	Warn
58	Rfrg Circuit 1 Fan 1 UZK High	Auto	Warn
59	Rfrg Circuit 1 Fan 1 IGBT Fault	Auto	Warn
60	Rfrg Circuit 1 Fan 1 Earth Ground Flt	Auto	Warn
61	Rfrg Circuit 1 Fan 1 Peak Current Err	Auto	Warn
62	Rfrg Circuit 1 Fan 1 Hall Sensor Error	Auto	Warn
63	Rfrg Circuit 1 Fan 2 Offline	Auto	Warn
64	Rfrg Circuit 1 Fan 2 Line Fault	Auto	Warn
65	Rfrg Circuit 1 Fan 2 Motor Blocked	Auto	Warn
66	Rfrg Circuit 1 Fan 2 Fire Alarm	Auto	Warn
67	Rfrg Circuit 1 Fan 2 Uin Low	Auto	Warn
68	Rfrg Circuit 1 Fan 2 Uin High	Auto	Warn
69	Rfrg Circuit 1 Fan 2 UZK Low	Auto	Warn
70	Rfrg Circuit 1 Fan 2 UZK High	Auto	Warn

Alarm	Description	Reset	Type
71	Rfrg Circuit 1 Fan 2 IGBT Fault	Auto	Warn
72	Rfrg Circuit 1 Fan 2 Earth Ground Flt	Auto	Warn
73	Rfrg Circuit 1 Fan 2 Peak Current Err	Auto	Warn
74	Rfrg Circuit 1 Fan 2 Hall Sensor Error	Auto	Warn
75	Rfrg Circuit 2 Fan 1 Offline	Auto	Warn
76	Rfrg Circuit 2 Fan 1 Line Fault	Auto	Warn
77	Rfrg Circuit 2 Fan 1 Motor Blocked	Auto	Warn
78	Rfrg Circuit 2 Fan 1 Fire Alarm	Auto	Warn
79	Rfrg Circuit 2 Fan 1 Uin Low	Auto	Warn
80	Rfrg Circuit 2 Fan 1 Uin High	Auto	Warn
81	Rfrg Circuit 2 Fan 1 UZK Low	Auto	Warn
82	Rfrg Circuit 2 Fan 1 UZK High	Auto	Warn
83	Rfrg Circuit 2 Fan 1 IGBT Fault	Auto	Warn
84	Rfrg Circuit 2 Fan 1 Earth Ground Flt	Auto	Warn
85	Rfrg Circuit 2 Fan 1 Peak Current Err	Auto	Warn
86	Rfrg Circuit 2 Fan 1 Hall Sensor Error	Auto	Warn
87	Rfrg Circuit 2 Fan 2 Offline	Auto	Warn
88	Rfrg Circuit 2 Fan 2 Line Fault	Auto	Warn
89	Rfrg Circuit 2 Fan 2 Motor Blocked	Auto	Warn
90	Rfrg Circuit 2 Fan 2 Fire Alarm	Auto	Warn
91	Rfrg Circuit 2 Fan 2 Uin Low	Auto	Warn
92	Rfrg Circuit 2 Fan 2 Uin High	Auto	Warn
93	Rfrg Circuit 2 Fan 2 UZK Low	Auto	Warn
94	Rfrg Circuit 2 Fan 2 UZK High	Auto	Warn
95	Rfrg Circuit 2 Fan 2 IGBT Fault	Auto	Warn
96	Rfrg Circuit 2 Fan 2 Earth Ground Flt	Auto	Warn
97	Rfrg Circuit 2 Fan 2 Peak Current Err	Auto	Warn
98	Rfrg Circuit 2 Fan 2 Hall Sensor Error	Auto	Warn
101	Coolant Temperature Probe Error Timeout	User	Fault
102	Rfrg Circuit 1 High Discharge Temperature	Auto	Warn
103	Rfrg Circuit 2 High Discharge Temperature	Auto	Warn
104	Rfrg Circuit 1 Low Pressure Switch	User	Fault
105	Rfrg Circuit 2 Low Pressure Switch	User	Fault
106	Rfrg Circuit 1 Low Super Heat	Auto	Warn
107	Rfrg Circuit 1 Low Super Heat Limit	User	Fault
108	Rfrg Circuit 1 High Super Heat	Auto	Warn
109	Rfrg Circuit 2 Low Super Heat	Auto	Warn
110	Rfrg Circuit 2 Low Super Heat Limit	User	Fault
111	Rfrg Circuit 2 High Super Heat	Auto	Warn

11 Internal Components
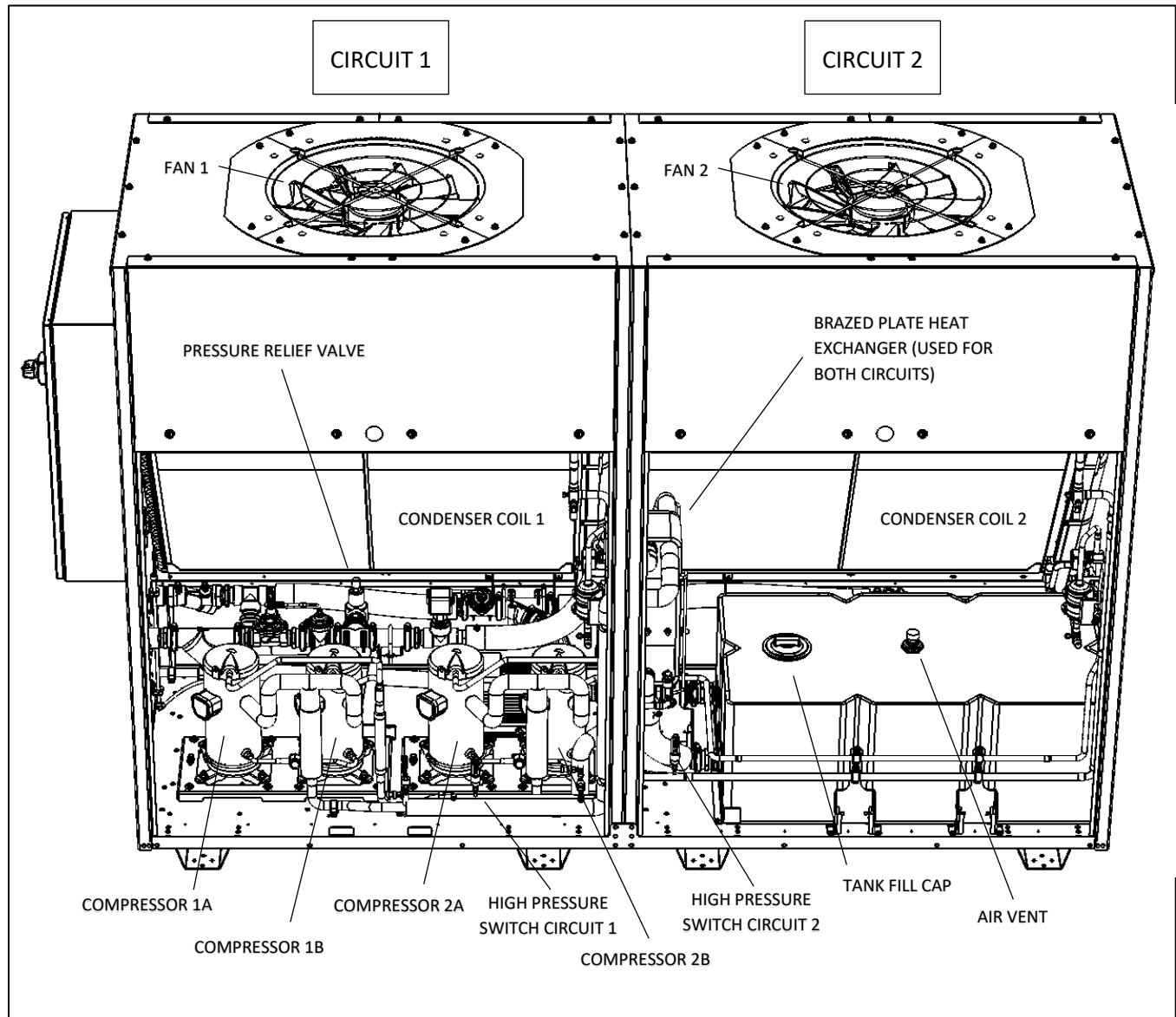
Figure 20: WO2-2-5000 Air Filter Side
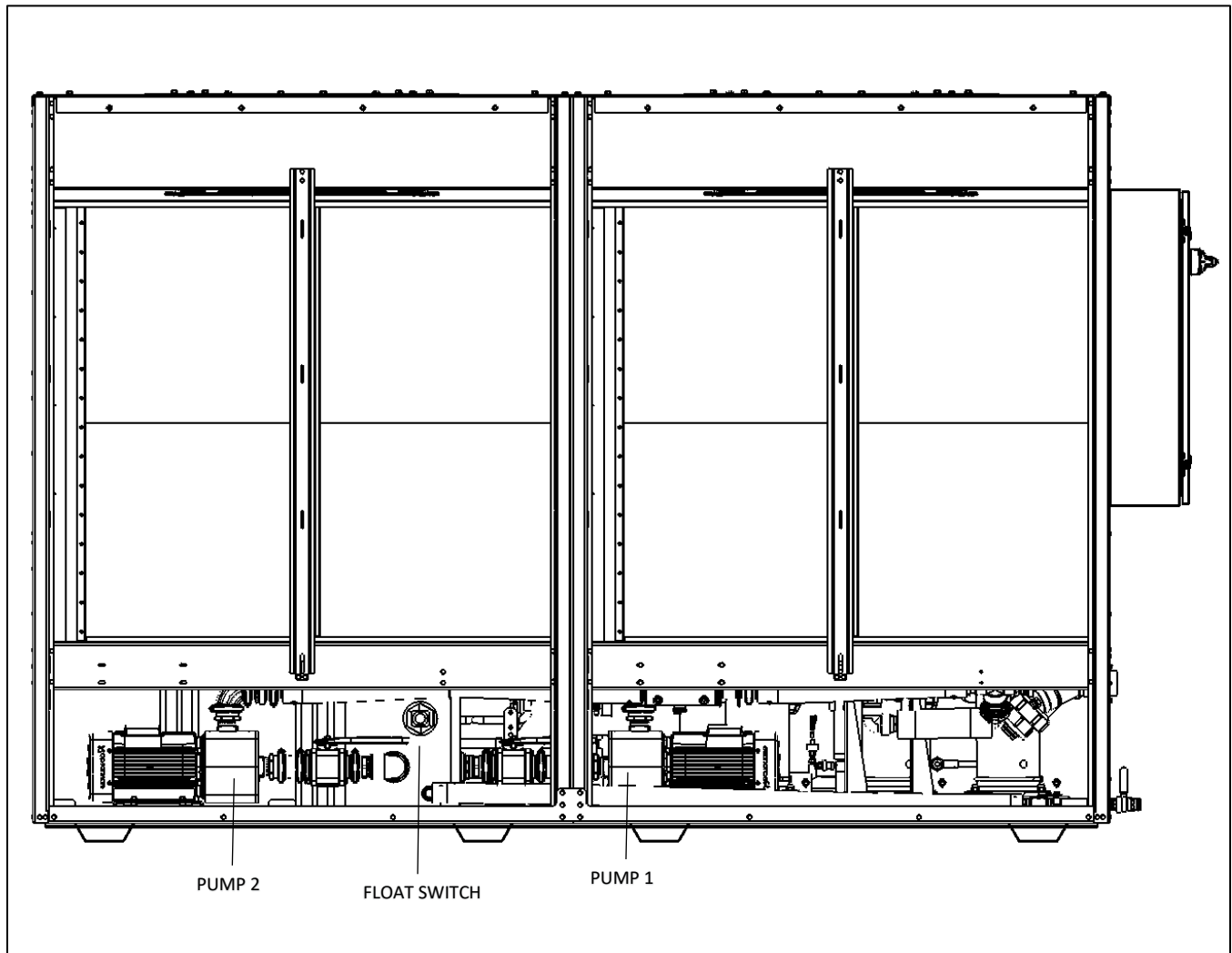
Figure 21: WO2-2-5000 Door Side

FAN 1   CIRCUIT 1   FAN 2   CIRCUIT 2

PRESSURE RELIEF VALVE

BRAZED PLATE HEAT
EXCHANGER (USED FOR
BOTH CIRCUITS)

CONDENSER COIL 1   CONDENSER COIL 2

HIGH PRESSURE   HIGH PRESSURE   TANK FILI
COMPRESSOR 1A   SWITCH CIRCUIT 1   SWITCH CIRCUIT 2   AIR VENT
                       COMPRESSOR 2A
COMPRESSOR 1B   COMPRESSOR 2B
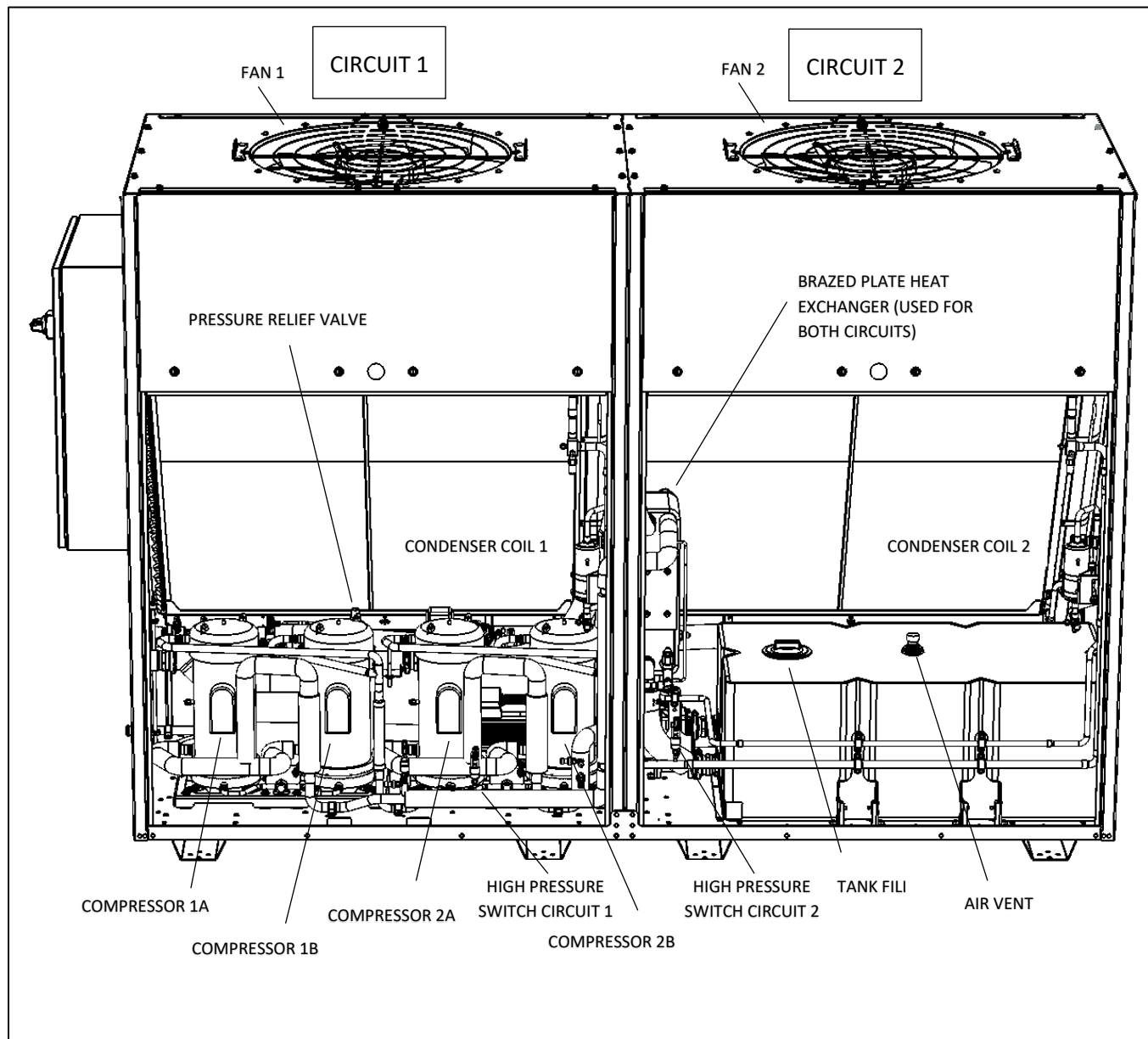
Figure 22: WO2-2-7500 Air Filter Side
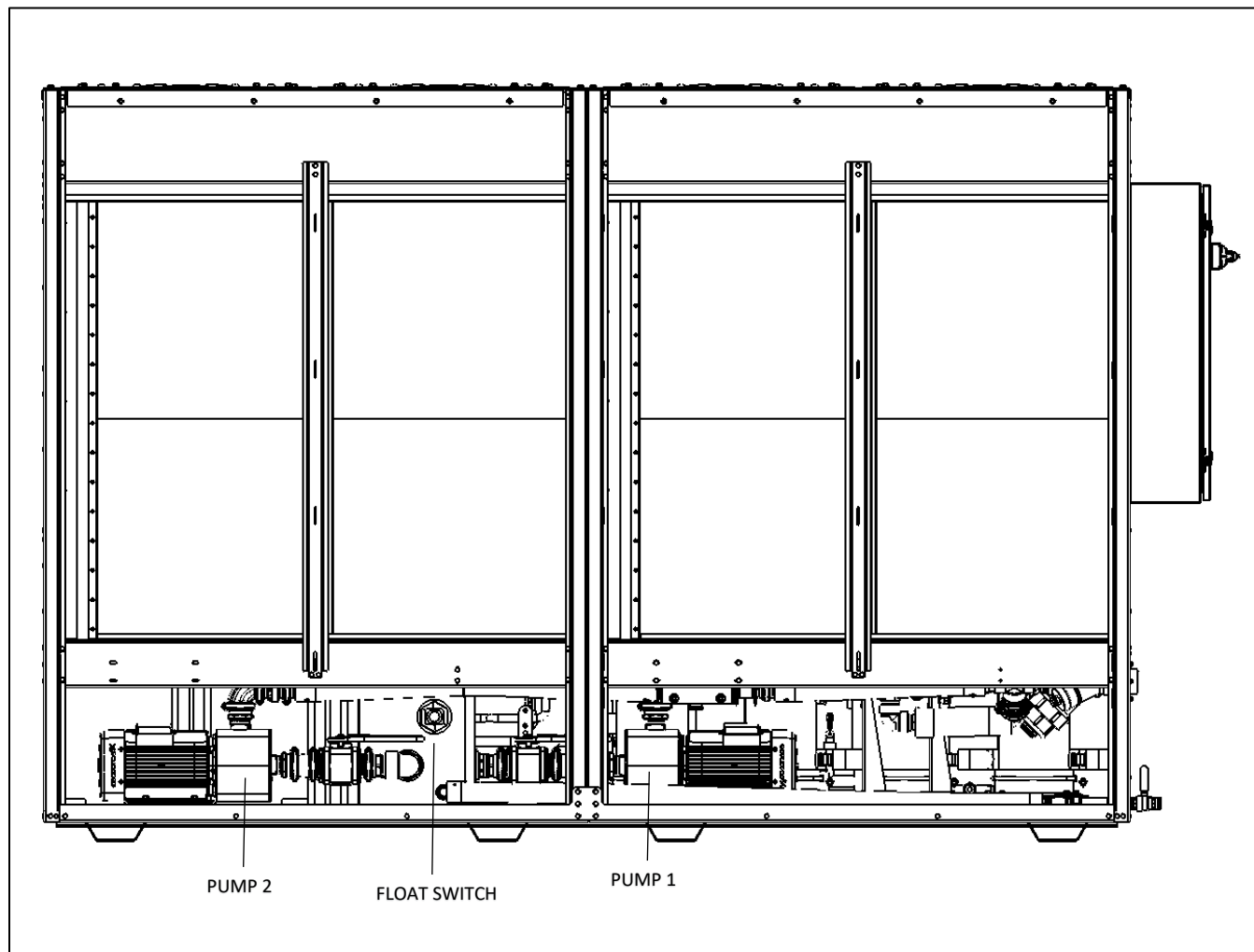
Figure 23: WO2-2-7500 Door Side
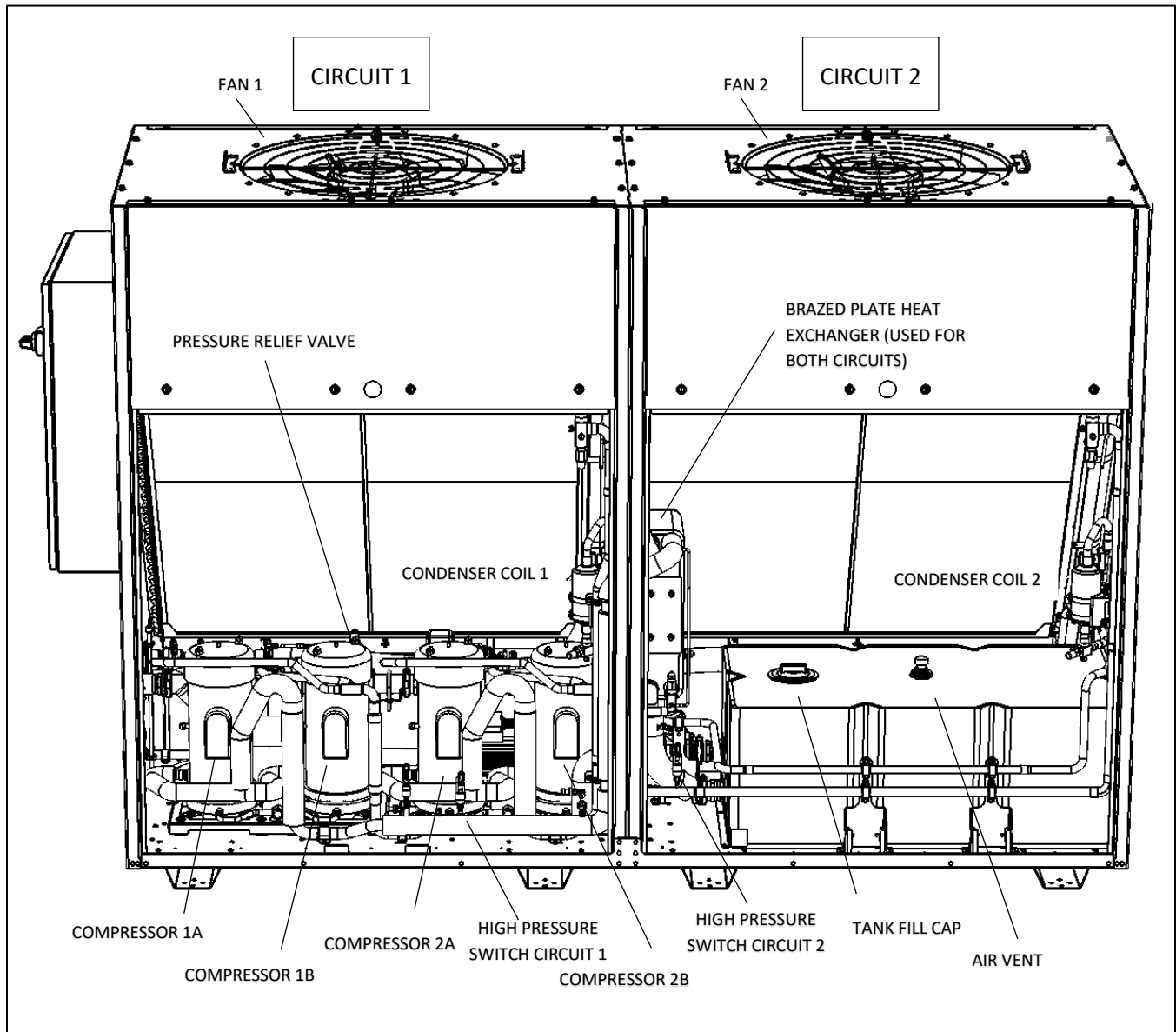
Figure 24: WO2-2-10000 Air Filter Side
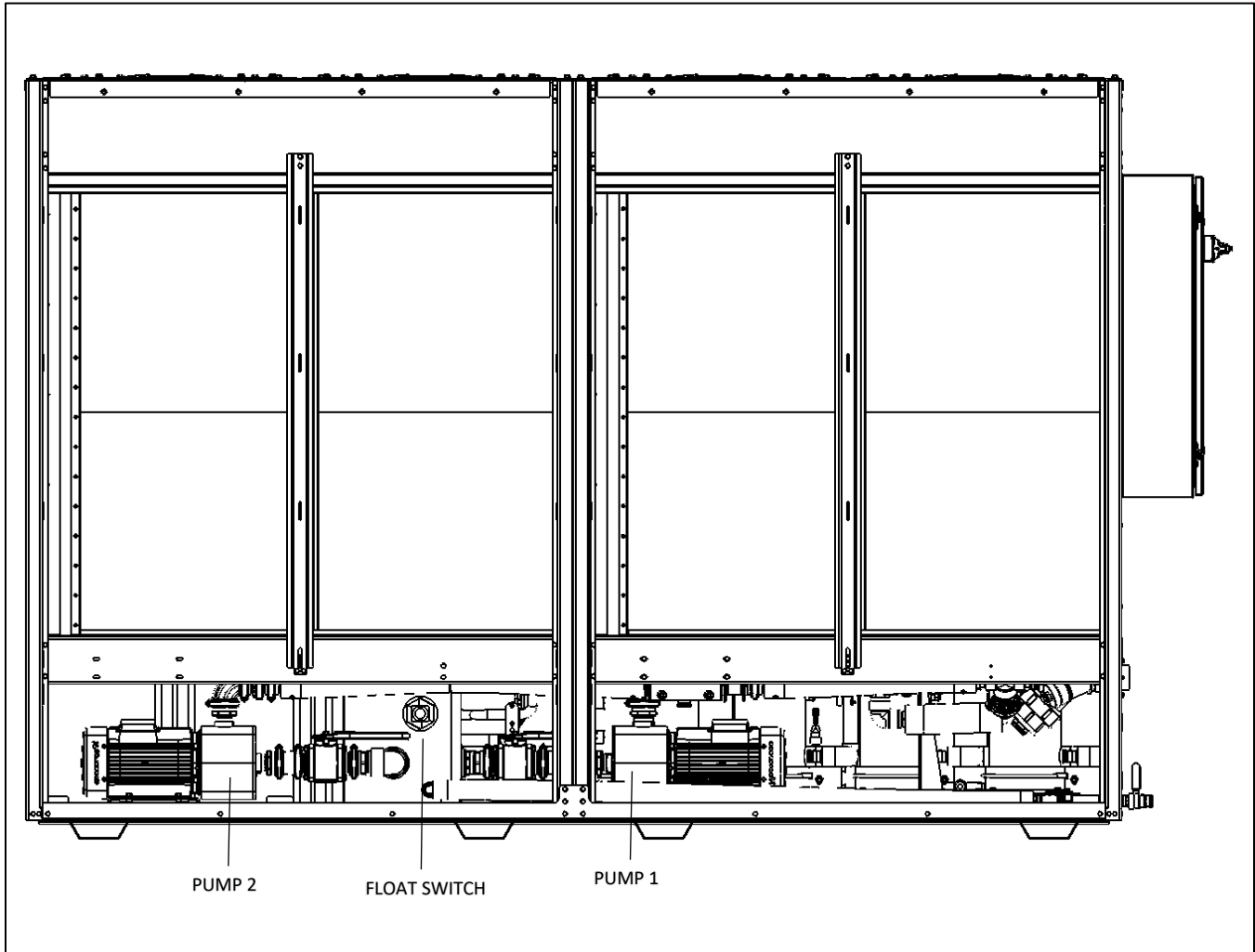
Figure 25: WO2-2-10000 Door Side

12 Spare Parts List

Description	WO2-2-5000 Standard	WO2-2-5000 Low Ambient	WO2-2-7500 Standard	WO2-2-7500 Low Ambient	WO2-2-10000 Standard	WO2-2-10000 Low Ambient
Electrical						
Controller	5002081					
Power Supply	5004669					
Phase Monitor	5000472 (Crouzet) 5006857 (Phoenix)					
Enclosure Heater	3835107					
2-Pole Relay	5001058					
Pump MMP	5001241					
Pump Contactor	5000752					
Compressor MMP	5001243		5001244		5001245	
Compressor Contactor	5000754		5000756			
Fan MMP	5001570		5001241			
Refrigeration						
Compressors	1450064		1450077		1450106	
Fan	5005778		5006484			
Crank Case Heater	709679					
High P-Switch	708124					
Low P-Switch	710959					
Discharge Temp Sensor	5002920					
Liquid Line Temp Sensor	5002920					
Suction Line Temp Sensor	5002920					
Liquid Line P-Transducer	4807739					
Suction Line P-Transducer	5000493					
Filter Dryer	2730006		2730005		2730039	
Liquid Line Sol Valve	2710006		2710008		2610004	
Liquid Line Sol Coil	2710109				2640017	
Liquid Line Sol Coil Pigtail	712017					
Expansion Valve	2760105		2760112		2760008	
Plumbing						
Pump	710854					
Suction Ball Valve	7408939					
Check Valve	5003906					
Discharge P-Transducer	5000493					
Fluid Sol Valve	710351					
Fluid Temp Sensor	711551					
Flow Switch	4807303					
Float Switch	3896118					
Tank Heater	N/A	3890103	N/A	3890103	N/A	3890103

13 Revisions

Rev	Description	By	Date
A	Initial Release	B. Post	12/21/2021
B	Add phase monitor page, update Q7 and Q10 refrigeration pages	B. Post	4/25/2022

Glen Dimplex Thermal Solutions — **Koolant Koolers**

T
1X AMBIENT TEMPERATURE
312NTC

SUCTION PRESSURE TRANSDUCER
CIRCUIT #1 463PT
CIRCUIT #2 563PT

P

P

LOW PRESSURE SWITCH
CIRCUIT #1 435PS
CIRCUIT #2 535PS

SCHRADER PORT

1-1/8" OD

VIBRATION ELIMINATOR

T
SUCTION TEMPERATURE
CIRCUIT #1 411NTC
CIRCUIT #2 511NTC

SCROLL COMPRESSORS

CIRCUIT #1
105MTR / 107MTR

1-1/8" OD

7/8" OD   5/8" OD

7/8" OD   5/8" OD

1/4" OD   1-1/8" OD

VARIABLE SPEED FAN
CIRCUIT #1 114MTR
CIRCUIT #2 127MTR

DISCHARGE PRESSURE TRANSDUCER
CIRCUIT #1 460PT
CIRCUIT #2 560PT

HIGH PRESSURE SWITCH
CIRCUIT #1 467PS
CIRCUIT #2 567PS

CIRCUIT #2
109MTR / 111MTR

VIBRATION ELIMINATOR

P

CONDENSER

SUB COOLER

P

SOL

TWO CIRCUITS REQUIRED;
REFRIGERATION CIRCUIT #2
SAME AS CIRCUIT #1

7/8" OD

7/8" OD

5/8" OD

5/8" OD

SERVICE VALVE

FUSE PLUG

SERVICE VALVE

LIQUID LINE FILTER-DRIER

LIQUID LINE SOLENOID VALVE
CIRCUIT #1 450SOL
CIRCUIT #2 550SOL

LIQUID LINE SIGHT GLASS

THERMOSTATIC EXPANSION VALVE

T
DISCHARGE TEMPERATURE
CIRCUIT #1 410NTC
CIRCUIT #2 510NTC

T
LIQUID LINE TEMPERATURE
CIRCUIT #1 412NTC
CIRCUIT #2 512NTC

52

NOTE :
DUE TO PART AVAILABILITY, DTS IS USING
THE SHOWN PHASE MONITORS INTERCHANGEABLY.
THE DIFFERENCE BEING RELAY PIN# WIRING.

DTS PART#: 5000472   MFG: CROUZET   DTS PART#: 5006857   MFG: PHOENIX

L1 L2 L3

L1	124PM		NC	12
L2	PHASE MONITOR		COM	11
L3	CROUZET		NO	14

L1	124PM		NC	16
L2	PHASE MONITOR		COM	15
L3	PHOENIX		NO	18

12 11 14

L3

L1 L2

15

16 18
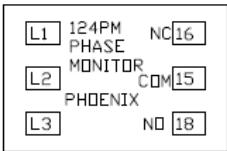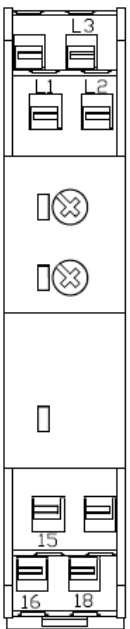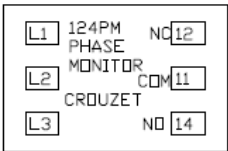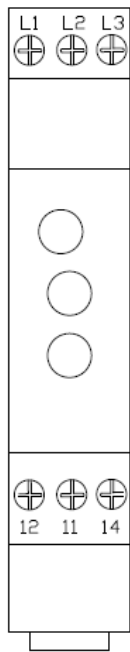
FUNCTION	CROUZET	PHOENIX
COM	11	15
NO	14	18
NC	12	16

ALL DIMENSIONS ARE IN INCHES

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DESIGN BY: WW	DRAWN BY: WW
DATE: 03/15/22	PAGE 1 OF 1

Dimplex
Thermal Solutions

KALAMAZOO, MI.
PH (800) 968-5665
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PHASE MONITOR CHANGE

ELECTRICAL

DRAWING NO.
103842

03/11/22	INITIAL RELEASE	WW,A, N/A>
DATE	DESCRIPTION OF REVISION	APPROVED BY

Appendix E (Default Program Settings)

Program Settings

Table 12: Default Programming Settings

Category	Parameter	Value	UoM
Cooling PID Cooling Demand Control	Dead Band: DB	0.0 (0.0)	Δ°F (Δ°C)
	Gain: Kp	5.0	~
	Integral Time: Ti	60	S
	Derivative Time: Td	0	S
Fan PID Fan Speed Control	Liquid Line Setpoint	280.0 (19.3)	ΔPSI (ΔBAR)
	Dead Band: DB	0.0 (0.0)	ΔPSI (ΔBAR)
	Gain: Kp	10.0	~
	Integral Time: Ti	25	S
	Derivative Time: Td	0	S
Compressor Staging Compressor staging based on cooling demand value	Comp 1 On	5.0	%
	Comp 1 Off	0.0	%
	Comp 2 On	25.0	%
	Comp 2 Off	20.0	%
	Comp 3 On	50.0	%
	Comp 3 Off	45.0	%
	Comp 4 On	75.0	%
	Comp 4 Off	70.0	%
Compressor Control Settings Timers and rotation control	Minimum On Time	90	S
	Minimum Off Time	90	S
	Minimum Time Between Two Starts	90	S
	Load Up Time	20	S
	Load Down Time	10	S
	Max Pump Down Time	20	S
	Power Division	Equalized	~
	Rotation Type	Timed	~
Refrigeration Staging	Request Delay	5	S
	Shutdown Delay	5	S
Fan — Compressor Start Control Fan speed on compressor start	Enable	YES	~
	Start Time	10	S
	Fan Speed	50.0	%
Fan — Liquid Line Press Probe Error Fan speed on probe error	Enable	YES	~
	Fan Speed	50.0	%
Fan — Offline Recovery PID pre-set for online re-entry	Enable	YES	~
	Fan Speed	50.0	%
Circuit 1 Fan — Settings	Ramp-Up Time	5	S
	Ramp-Down Time	10	S
	Speed Control Mode	%	~
	Running Direction	CW	~
Circuit 1 Fan — Emergency Mode	Emerg Lag Time	2	S
	Speed	600	rpm

Category		Parameter	Value	UoM
		Enable	YES	~
Circuit 2 Fan	Settings	Ramp-Up Time	5	S
		Ramp-Down Time	10	S
		Speed Control Mode	%	~
		Running Direction	CW	~
	Emergency Mode	Emerg Lag Time	2	S
		Speed	600	rpm
		Enable	YES	~
Pump Settings Redundant pump rotation control and times		Request Delay	5	S
		Shutdown Delay	10	S
		Rotation Time	168	Hrs
		Rotation Inhibit	300	S
		Pump Selection	Auto	~
Tank Heater		On at	10.0 (5.6)	Δ°F (Δ°C)
		Off at	0.0 (0.0)	Δ°F (Δ°C)
		Heater (set during program setup)	~	~
Suction Pressure Bypass Timer Settings Settings for dynamic low pressure alarm bypass timer based on ambient temperature		Temp X1	-32.0 (-35.6)	°F (°C)
		Temp X2	55.0 (12.8)	°F (°C)
		Time Y1	120.0	S
		Time Y2	5.0	S
		Time Low Limit	5	S
		Time Hight Limit	120	S
		Alarm Offset	60	S
		Override Value	30	S
		Override	Disable	~
Temperature Inlet Reference Used when the chiller must reference inlet temperature sensor		Setpoint Offset	5.0 (2.8)	Δ°F (Δ°C)
Customer Link Setpoint Control Limits		Setpoint Minimum Value	40.0 (4.4)	°F (°C)
		Setpoint Maximum Value	60.0 (15.6)	°F (°C)
Control Modes Settings that dictate control authority source		On/Off Mode [Screen, Input, Customer Link]	Screen	~
		Setpoint Mode [Screen, Customer Link]	Screen	~

I/O Settings

Table 13: I/O Settings - Main Controller

Main Controller I/O	Parameter	Value	UoM
	Inputs		
Coolant Outlet Pressure Flow Setter Inlet (0.5-4.5VDC)	Min: 0.5VDC	-15.0 (-1.0)	ΔPSI (ΔBAR)
	Max: 4.5VDC	185.0 (12.8)	ΔPSI (ΔBAR)
	Offset	0.0 (0.0)	ΔPSI (ΔBAR)
	Filter	5	~
Coolant Outlet Pressure Flow Setter Outlet (0.5-4.5VDC)	Min: 0.5VDC	-15.0 (-1.0)	ΔPSI (ΔBAR)
	Max: 4.5VDC	185.0 (12.8)	ΔPSI (ΔBAR)
	Offset	0.0 (0.0)	ΔPSI (ΔBAR)
	Filter	5	~

Main Controller I/O	Parameter	Value	UoM
Coolant Inlet Temperature (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	6	~
Coolant Outlet Temperature (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	6	~
Ambient Temperature (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Overload Pump 1 (Digital)	Filter	2	~
	Logic	FALSE	~
Overload Pump 2 (Digital)	Filter	2	~
	Logic	FALSE	~
Tank Level Switch (Digital)	Filter	2	~
	Logic	FALSE	~
Flow Switch (Digital)	Filter	2	~
	Logic	TRUE	~
Remote Start (Digital)	Logic	TURE	~
Phase Monitor (Digital)	Logic	FALSE	~
Outputs			
Pump 1	Logic	FALSE	~
Pump 2	Logic	FALSE	~
Anti-Backflow Solenoid	Logic	FALSE	~
Tank Heater	Logic	FALSE	~
Chiller OK	Logic	FALSE	~

Table 14: I/O Settings - Expansion Module 1

Expansion Module 1 I/O	Parameter	Value	UoM
Inputs			
Liquid Line Pressure Circuit 1 (0.5-4.5VDC)	Min: 0.5VDC	0.0 (0.0)	ΔPSI (ΔBAR)
	Max: 4.5VDC	500.0 (34.5)	ΔPSI (ΔBAR)
	Offset	0.0	ΔPSI (ΔBAR)
	Filter	5	~
Suction Pressure Circuit 1 (0.5-4.5VDC)	Min: 0.5VDC	-15.0 (-1.0)	ΔPSI (ΔBAR)
	Max: 4.5VDC	185.0 (12.8)	ΔPSI (ΔBAR)
	Offset	0.0 (0.0)	ΔPSI (ΔBAR)
	Filter	5	~
Discharge Temperature Circuit 1 (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Suction Temperature Circuit 1 (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Liquid Line Temperature Circuit 1 (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Overload Compressor 1 Circuit 1 (Digital)	Filter	2	~
	Logic	FALSE	~
Overload Compressor 2 Circuit 1 (Digital)	Filter	2	~
	Logic	FALSE	~

Expansion Module 1 I/O	Parameter	Value	UoM
Overload Fan Circuit 1 (Digital)	Filter	2	~
	Logic	FALSE	~
High Pressure Switch Circuit 1 (Digital)	Logic	FALSE	~
Low Pressure Switch Circuit 1 (Digital)	Logic	FALSE	~
Outputs			
Compressor 1 Circuit 1 (Digital)	Logic	FALSE	~
Compressor 2 Circuit 1 (Digital)	Logic	FALSE	~
Liquid Line Solenoid Circuit 1 (Digital)	Logic	FALSE	~

Table 15: I/O Settings - Expansion Module 2

Expansion Module 2 I/O	Parameter	Value	UoM
Inputs			
Liquid Line Pressure Circuit 2 (0.5-4.5VDC)	Min: 0.5VDC	0.0 (0.0)	ΔPSI (ΔBAR)
	Max: 4.5VDC	500.0 (34.5)	ΔPSI (ΔBAR)
	Offset	0.0	ΔPSI (ΔBAR)
	Filter	5	~
Suction Pressure Circuit 2 (0.5-4.5VDC)	Min: 0.5VDC	-15.0 (-1.0)	ΔPSI (ΔBAR)
	Max: 4.5VDC	185.0 (12.8)	ΔPSI (ΔBAR)
	Offset	0.0 (0.0)	ΔPSI (ΔBAR)
	Filter	5	~
Discharge Temperature Circuit 2 (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Suction Temperature Circuit 2 (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Liquid Line Temperature Circuit 2 (NTC)	Offset	0.0 (0.0)	Δ°F (Δ°C)
	Filter	5	~
Overload Compressor 1 Circuit 2 (Digital)	Filter	2	~
	Logic	FALSE	~
Overload Compressor 2 Circuit 2 (Digital)	Filter	2	~
	Logic	FALSE	~
Overload Fan Circuit 2 (Digital)	Filter	2	~
	Logic	FALSE	~
High Pressure Switch Circuit 2 (Digital)	Logic	FALSE	~
Low Pressure Switch Circuit 2 (Digital)	Logic	FALSE	~
Outputs			
Compressor 1 Circuit 2 (Digital)	Logic	FALSE	~
Compressor 2 Circuit 2 (Digital)	Logic	FALSE	~
Liquid Line Solenoid Circuit 2 (Digital)	Logic	FALSE	~

Alarm Settings

Table 16: System Alarm Settings

System Alarm Settings	Parameter	Value	UoM
Phase Monitor	Count	3	~
	Window	3600	S
	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Err Retain Write	Alarm Type	Fault	~
Retain	Alarm Type	Fault	~

Table 17: Coolant Alarm Settings

Coolant Alarm Settings	Parameter	Value	UoM
Coolant Outlet Pressure Flow Setter Inlet Probe Error	Running Inhibit	0	S
	Enable	YES	~
Coolant Outlet Pressure Flow Setter Outlet Probe Error	Running Inhibit	0	S
	Enable	YES	~
Coolant Inlet Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
Coolant Outlet Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
Ambient Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
Coolant Temperature Probe Error	Running Inhibit	30	S
	Alarm Type	Fault	~
	Enable	YES	~
Overload Pump 1	Running Inhibit	1	S
	Alarm Type	Fault	~
	Enable	YES	~
Overload Pump 2	Running Inhibit	1	S
	Alarm Type	Fault	~
	Enable	YES	~
Low Tank Level	Running Inhibit	5	S
	Alarm Type	Fault	~
	Enable	YES	~
Pump 1 Flow	Flow Established Delay	10	S
	Start Inhibit (Pump)	10	S
	Running Inhibit	4	S
	Count	2	~
	Window	3600	S
	Alarm Type	Fault	~
	Enable	YES	~
Pump 2 Flow	Flow Established Delay	10	S
	Start Inhibit (Pump)	10	S
	Running Inhibit	4	S

Coolant Alarm Settings	Parameter	Value	UoM
	Count	2	~
	Window	3600	S
	Alarm Type	Fault	~
	Enable	YES	~
Coolant Over Temperature	On at (above setpoint)	10.0 (5.6)	Δ°F (Δ°C)
	Off at (above setpoint)	9.0 (5.0)	Δ°F (Δ°C)
	Starting Inhibit (Flow Established)	600	S
	Running Inhibit	60	S
	Enable	YES	~
Coolant Under Temperature	On at (below setpoint)	10.0 (5.6)	Δ°F (Δ°C)
	Off at (below setpoint)	9.0 (5.0)	Δ°F (Δ°C)
	Starting Inhibit	600	S
	Running Inhibit	60	S
	Alarm Type	Fault	~
	Enable	YES	~
Coolant High Temperature Limit	On at	120.0 (48.9)	°F (°C)
	Off at	115.0 (46.1)	°F (°C)
	Starting Inhibit (Flow Established)	600	S
	Running Inhibit	60	S
	Alarm Type	Fault	~
	Enable	YES	~
Coolant Low Temperature Limit	On at	25.0 (-3.9)	°F (°C)
	Off at	30.0 (-1.1)	°F (°C)
	Starting Inhibit (Flow Established)	3600	S
	Running Inhibit	60	S
	Alarm Type	Fault	~
	Enable	YES	~
Coolant High Outlet Pressure	On at	95.0 (6.6)	PSI (BAR)
	Off at	93.0 (6.4)	PSI (BAR)
	Running Inhibit	10	S
	Enable	YES	~
Coolant Low Outlet Pressure	On at	25.0 (-3.9)	°F (°C)
	Off at	30.0 (-1.1)	°F (°C)
	Starting Inhibit (Flow Established)	3600	S
	Running Inhibit	60	S
	Alarm Type	Fault	~
	Enable	YES	~
Flow Errors Both Pumps	Running Inhibit	0	S
	Enable	YES	~
Coolant Temperature Probe Error Timeout	Running Inhibit	600	S
	Alarm Type	Fault	~
	Enable	YES	~

Table 18: Refrigeration Alarm Settings

Refrigeration Alarm Settings	Parameter	Value	UoM
Refrigeration Error Timeout	Running Inhibit	3600	S
	Alarm Type	Warn	~
	Enable	NO	~

Table 19: Refrigeration Circuit 1 Alarm Settings

Rfrg Circuit 1 Alarm Settings	Parameter	Value	UoM
Expansion Module 1 Offline	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Liquid Line Pressure Probe Error	Running Inhibit	0	S
	Alarm Type	Warn	~
	Enable	YES	~
Suction Pressure Probe Error	Running Inhibit	0	S
	Enable	YES	~
Discharge Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
Suction Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
Liquid Line Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
High Pressure Switch	Running Inhibit	1	S
	Alarm Type	Fault	~
	Enable	YES	~
Circuit 1 Compressor 1 Overload	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Circuit 1 Compressor 2 Overload	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Circuit 1 Fan	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Liquid Line Pressure High	On at	420.0 (29.0)	PSI (BAR)
	Off at	410.0 (28.3)	PSI (BAR)
	Running Inhibit	0	S
	Enable	YES	~
Low Suction Pressure Switch	Stop Inhibit (Last compressor)	5	S
	Start Inhibit (Calculated through bypass timer)	~	~
	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Low Suction Pressure	On at	25.0 (1.7)	PSI (BAR)
	Off at	30.0 (2.1)	PSI (BAR)

Rfrg Circuit 1 Alarm Settings	Parameter	Value	UoM
	Stop Inhibit (Last compressor)	5	S
	Start Inhibit (Calculated through bypass timer)	~	~
	Running Inhibit	30	~
	Enable	YES	~
Low Suction Pressure Limit	On at	-1.0 (-0.1)	PSI (BAR)
	Off at	1.0 (0.1)	PSI (BAR)
	Running Inhibit	1	S
	Alarm Type	Fault	~
	Enable	YES	~
Discharge Temperature High	On at	250.0 (121.1)	°F (°C)
	Off at	240.0 (115.6)	°F (°C)
	Running Inhibit	0	S
	Enable	YES	~
Super Heat Low	On at	5.0 (2.8)	Δ°F (Δ°C)
	Off at	7.0 (3.9)	Δ°F (Δ°C)
	Start Inhibit	30	S
	Running Inhibit	60	S
	Enable	YES	~
Super Heat Low Limit	On at	2.0 (1.1)	Δ°F (Δ°C)
	Off at	4.0 (2.2)	Δ°F (Δ°C)
	Start Inhibit	30	S
	Running Inhibit	60	S
	Alarm Type	Fault	~
	Enable	YES	~
Super Heat High	On at	25.0 (13.9)	Δ°F (Δ°C)
	Off at	23.0 (12.8)	Δ°F (Δ°C)
	Start Inhibit	30	S
	Running Inhibit	120	S
	Enable	YES	~
Fan Offline	Alarm Type	Warn	~
Fan Control Alarms	Alarm Type	Warn	~

Table 20: Refrigeration Circuit 2 Alarm Settings

Rfrg Circuit 2 Alarm Settings	Parameter	Value	UoM
Expansion Module 2 Offline	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Liquid Line Pressure Probe Error	Running Inhibit	0	S
	Alarm Type	Warn	~
	Enable	YES	~
Suction Pressure Probe Error	Running Inhibit	0	S
	Enable	YES	~
Discharge Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~

Rfrg Circuit 2 Alarm Settings	Parameter	Value	UoM
Suction Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
Liquid Line Temperature Probe Error	Running Inhibit	0	S
	Enable	YES	~
High Pressure Switch	Running Inhibit	1	S
	Alarm Type	Fault	~
	Enable	YES	~
Circuit 2 Compressor 1 Overload	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Circuit 2 Compressor 2 Overload	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Circuit 2 Fan	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Liquid Line Pressure High	On at	420.0 (29.0)	PSI (BAR)
	Off at	410.0 (28.3)	PSI (BAR)
	Running Inhibit	0	S
	Enable	YES	~
Low Suction Pressure Switch	Stop Inhibit (Last compressor)	5	S
	Start Inhibit (Calculated through bypass timer)	~	~
	Running Inhibit	0	S
	Alarm Type	Fault	~
	Enable	YES	~
Low Suction Pressure	On at	25.0 (1.7)	PSI (BAR)
	Off at	30.0 (2.1)	PSI (BAR)
	Stop Inhibit (Last compressor)	5	S
	Start Inhibit (Calculated through bypass timer)	~	~
	Running Inhibit	30	~
	Enable	YES	~
Low Suction Pressure Limit	On at	-1.0 (-0.1)	PSI (BAR)
	Off at	1.0 (0.1)	PSI (BAR)
	Running Inhibit	1	S
	Alarm Type	Fault	~
	Enable	YES	~
Discharge Temperature High	On at	250.0 (121.1)	°F (°C)
	Off at	240.0 (115.6)	°F (°C)
	Running Inhibit	0	S
	Enable	YES	~
Super Heat Low	On at	5.0 (2.8)	Δ°F (Δ°C)
	Off at	7.0 (3.9)	Δ°F (Δ°C)
	Start Inhibit	30	S
	Running Inhibit	60	S
	Enable	YES	~

Rfrg Circuit 2 Alarm Settings	Parameter	Value	UoM
Super Heat Low Limit	On at	2.0 (1.1)	Δ°F (Δ°C)
	Off at	4.0 (2.2)	Δ°F (Δ°C)
	Start Inhibit	30	S
	Running Inhibit	60	S
	Alarm Type	Fault	~
	Enable	YES	~
Super Heat High	On at	25.0 (13.9)	Δ°F (Δ°C)
	Off at	23.0 (12.8)	Δ°F (Δ°C)
	Start Inhibit	30	S
	Running Inhibit	120	S
	Enable	YES	~
Fan Offline	Alarm Type	Warn	~
Fan Control Alarms	Alarm Type	Warn	~

Appendix F (Warranty)

Warranty Coverage

Chiller warranty terms are full parts and labor coverage for 18 months from ship date or 12 months from chiller commissioning, whichever comes first. Parts and labor cover entire chiller up to the first external piping connection and conduit seal of electrical panel. Any issues with MR operation caused by issues outside of these terms will not be covered under the warranty and will require a service PO for Dimplex to address.

What is Included

- Full parts and labor warranty on chiller related failures as described above.
- 1 chiller startup visit, to be completed by DTS certified technician prior to magnet arrival.
- 2 Planned Maintenance (PM) visits to be completed by DTS certified technician at any time during the warranty term.
- Please refer to R-M002 for detailed instructions on the above visits.

What is Not Included

- Any failure that is not related to the chiller. i.e. site power failure, site plumbing leaks, environmental caused failures, service requests placed in error (i.e. a call to work on the chiller, to find there are no existing issues), issues caused by MRI equipment, etc.
- Startup visits on overtime or exceeding the 4 hour on-site limit due to installation delays and issues
- Please Note: Any service issues related to the above statements will be billable events to the customer.
- Customer Training – this must be purchased separately to be provided to the customer.
- Additional PMs or startup visits – this must be purchased separately to be provided to the customer.
- Installation of accessories that were purchased as add-ons (i.e. long distance remotes, BACnet cards, etc.) – this must be purchased separately to be provided to the customer.
- Additional Glycol required due to site installation issues or extensive pipe runs.

Appendix G (General Warranty Procedures)

Warranty Work

Before doing any work on a chiller covered under warranty, call Dimplex Thermal Solutions (DTS) and explain the problem to one of our service technicians who can then determine the best course of action. DTS will not be obligated to pay for warranty service performed without our prior approval.

Please Note: It is the service contractor's responsibility to enclose a service report/work order with each invoice. Unless pre-authorized for special circumstances, DTS will not honor invoices for work done by two or more people at a time, or for overtime labor charges. If the customer requests work that falls into either of these categories, the customer is responsible for the extra charges incurred.

Warranty Parts

All replacement parts under warranty must come from Dimplex Thermal Solutions. When it is necessary for DTS to replace parts which are under warranty, we will issue a Returned Goods Authorization (RGA) for all parts we wish to have shipped back to our factory, freight prepaid. RGAs are valid for a period of thirty (30) days. If DTS has not received the requested parts by the expiration date, the customer will be invoiced for the replacement cost at that time.

Please Note: While DTS is willing to pay freight charges one way for replacement parts, special freight charges, such as next day service, Saturday delivery, etc., are not included. If the customer requests one of these special services, they are responsible for the charges incurred.

Please note DTS standard warranty terms can change and be updated at any time. Please view our website for the most recent version.

Appendix H (Factory Contact)

Hours of operation are 8:00 a.m. to 5 p.m. EST, Monday to Friday.

Website: https://www.dimplexthermal.com

Service Support Team
- medicalservice@dimplexthermal.com
- (800) 968-5665 ext. 710
- (269) 349-6800

Parts Department
- partsdept@dimplexthermal.com
- (800) 968-5665 ext. 709
- (269) 349-6800

Appendix I (Chiller Registration)

The registration form must be submitted within 30 days of installation date or warranty coverage will be calculated from the date the chiller was shipped from the factory.

http://www.dimplexthermal.com/service/register-chiller-location

Register Your Chiller's Site Location

Why register your chiller?

Dimplex Thermal Solutions chillers are sold across the globe, and often bundled with other manufacturers' equipment. In order to provide a reliable chiller service network across North America, please register the chiller's site location with our inside service team. The team will map your location and make efforts to provide a reliable service experience in your area for years to come.

Serial Number of Chiller		Model Number of Chiller	
Purchase Information			
OEM/Reseller Company Name			
Contact Name		Contact Position	
Email Address			
Phone Number		Fax Number	
Chiller Location Information			
Installation/Startup Date		Position	
Company Name			
Street Address		Address 2 (Suite/Apt)	
City	State/Province/Region	Country	ZIP/Postal Code
Primary Contact Name		Contact Position	
Email Address			
Phone Number		Fax Number	

Service and Parts:
partsdept@dimplexthermal.com

Technical Support:
medicalservice@dimplexthermal.com

Sales Department:
salesdept@dimplexthermal.com

Assembled in USA. | ISO 9001 Certified

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