SPXFLOW

INSTRUCTION MANUAL

HES Series

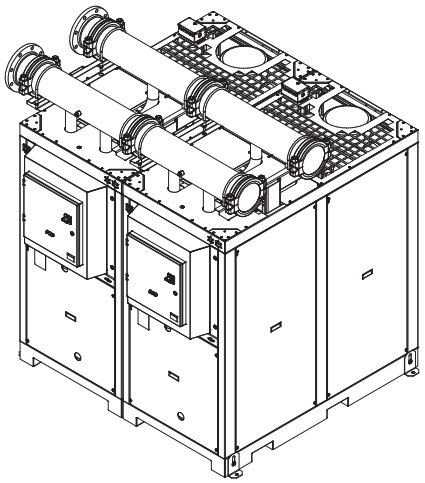
Refrigerated Type Compressed Air Dryers

FORM NO.: 7427751 REVISION: 11/2017

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.

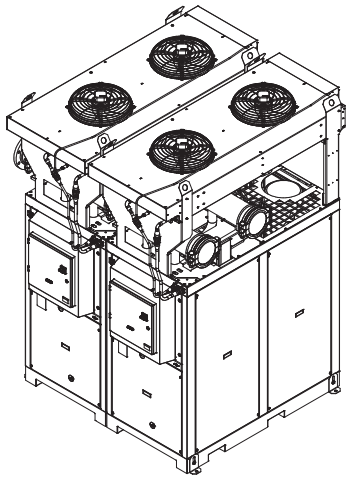
Water Cooled

MODELS	RATED FLOW
HES3750 HES5000 HES6250	3750 SCFM 5000 SCFM 6250 SCFM
HES7500 HES8750 HES10000	7500 SCFM 8750 SCFM 10000 SCFM
HES11250 HES12500	11250 SCFM 12500 SCFM



Air Cooled

MODELS	RATED FLOW
HES3150AC HES4200AC HES5250AC	3150 SCFM 4200 SCFM 5250 SCFM
HES6300AC HES7350AC HES8400AC	6300 SCFM 7350 SCFM 8400 SCFM
HES9450AC HES10500AC	9450 SCFM 10500 SCFM



Hankison®

CONTENTS

1.0 GENERAL SAFETY INFORMATION

1.1 PRESSURIZED DEVICES:

This equipment is a pressure containing device.

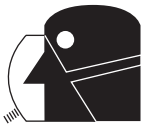
- Do not exceed maximum operating pressure as shown on equipment serial number tag.
- Make sure equipment is depressurized before working on or disassembling it for service.

1.2 ELECTRICAL:

This equipment requires electricity to operate.

- Install equipment in compliance with all applicable electrical codes.
- Standard equipment is supplied with electrical enclosures not intended for installation in hazardous environments.
- Disconnect the power supply to the equipment when performing any electrical service work.

1.3 BREATHING AIR:



- Air treated by this equipment may not be suitable for breathing without further purification.

  Refer to applicable standards and specifications for the requirements for breathing quality air.

2.0 RECEIVING, MOVING, AND UNPACKING

2.1 RECEIVING

This shipment has been thoroughly checked, packed and inspected before leaving our plant. It was received in good condition by the carrier and was so acknowledged.

Check for Visible Loss or Damage. If this shipment shows evidence of loss or damage at time of delivery to you, insist that a notation of this loss or damage be made on the delivery receipt by the carrier's agent.

2.2 UNPACKING

Check for Concealed Loss or Damage. When a shipment has been delivered to you in apparent good order, but concealed damage is found upon unpacking, notify the carrier immediately and insist on his agent inspecting the shipment. Concealed damage claims are not our responsibility as our terms are F.O.B. point of shipment.

2.3 MOVING

In moving or transporting dryer, do not tip dryer onto its side.

2.4 STORAGE/SHUT DOWN

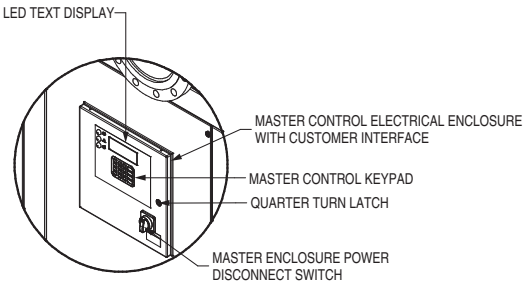
⚠ CAUTION The dryer should not be stored outside (either packaged or unpackaged) or exposed to the weather. Damage to the electrical and control components may result.

IMPORTANT: If the dryer is shut down in below freezing temperatures, the water-cooled condenser may freeze and cause permanent damage. The condenser must be drained when the unit is shut down.

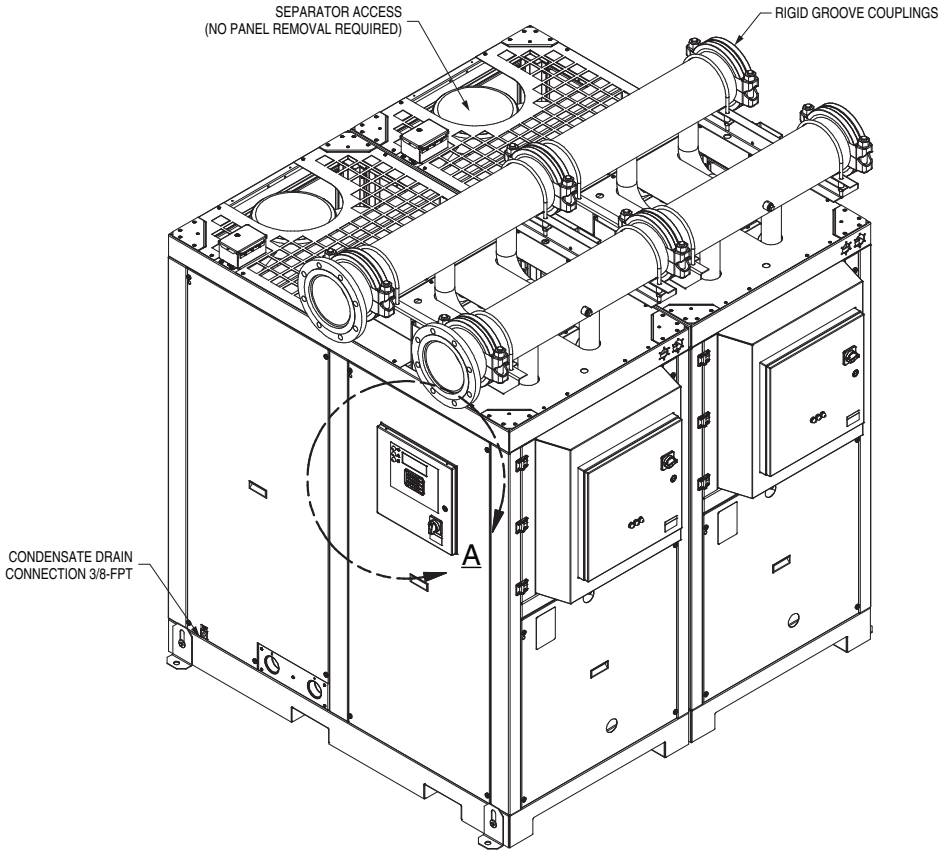
IMPORTANT: Do not store dryer in temperatures above 130°F (54°C).

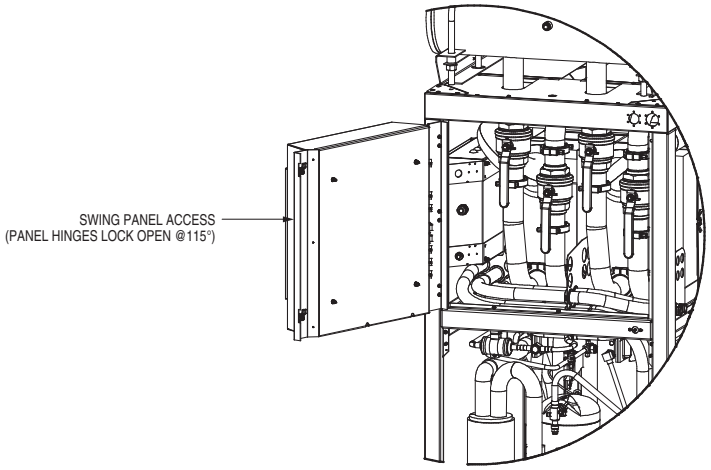
FEATURES AT A GLANCE:

WATER-COOLED UNITS



DETAIL A





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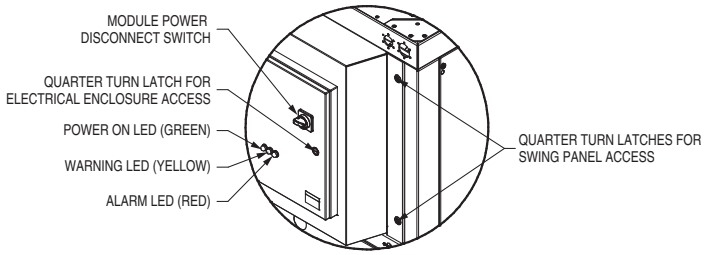
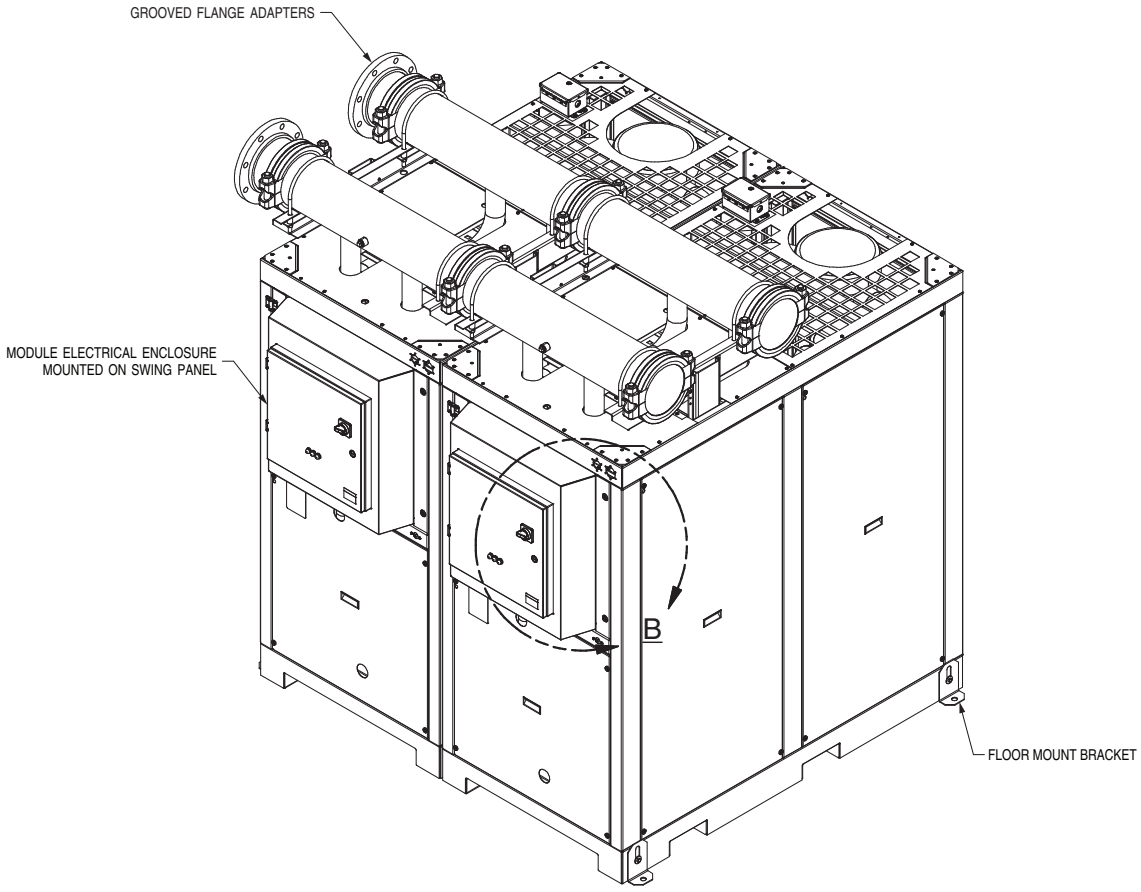
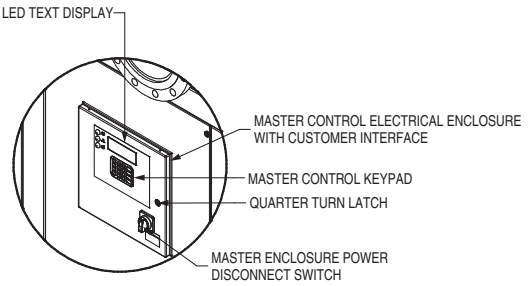


DETAIL B

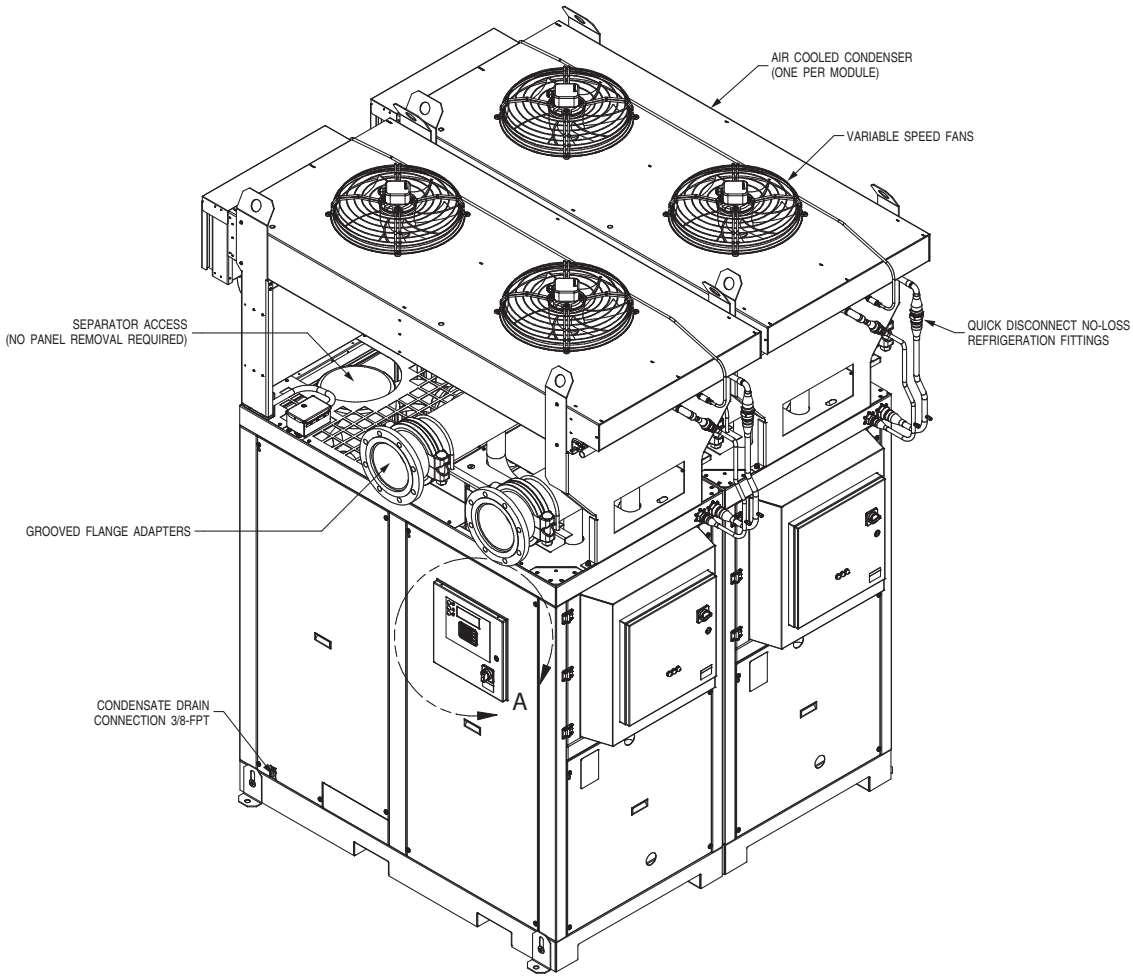


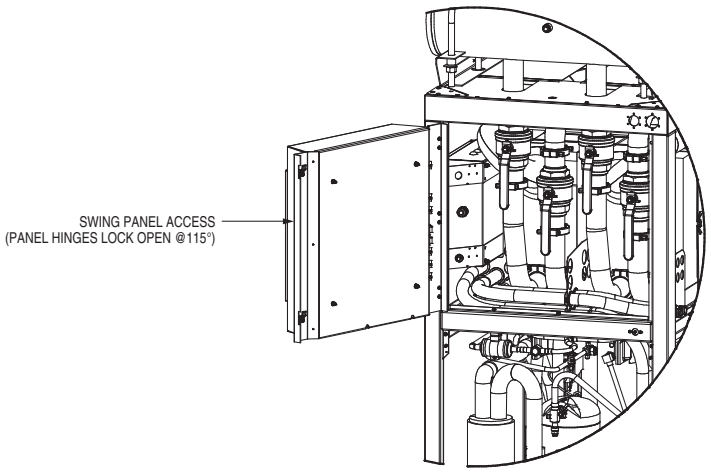
FEATURES AT A GLANCE:

AIR-COOLED UNITS



DETAIL A





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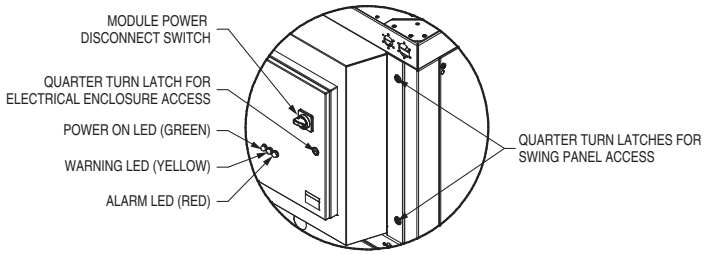
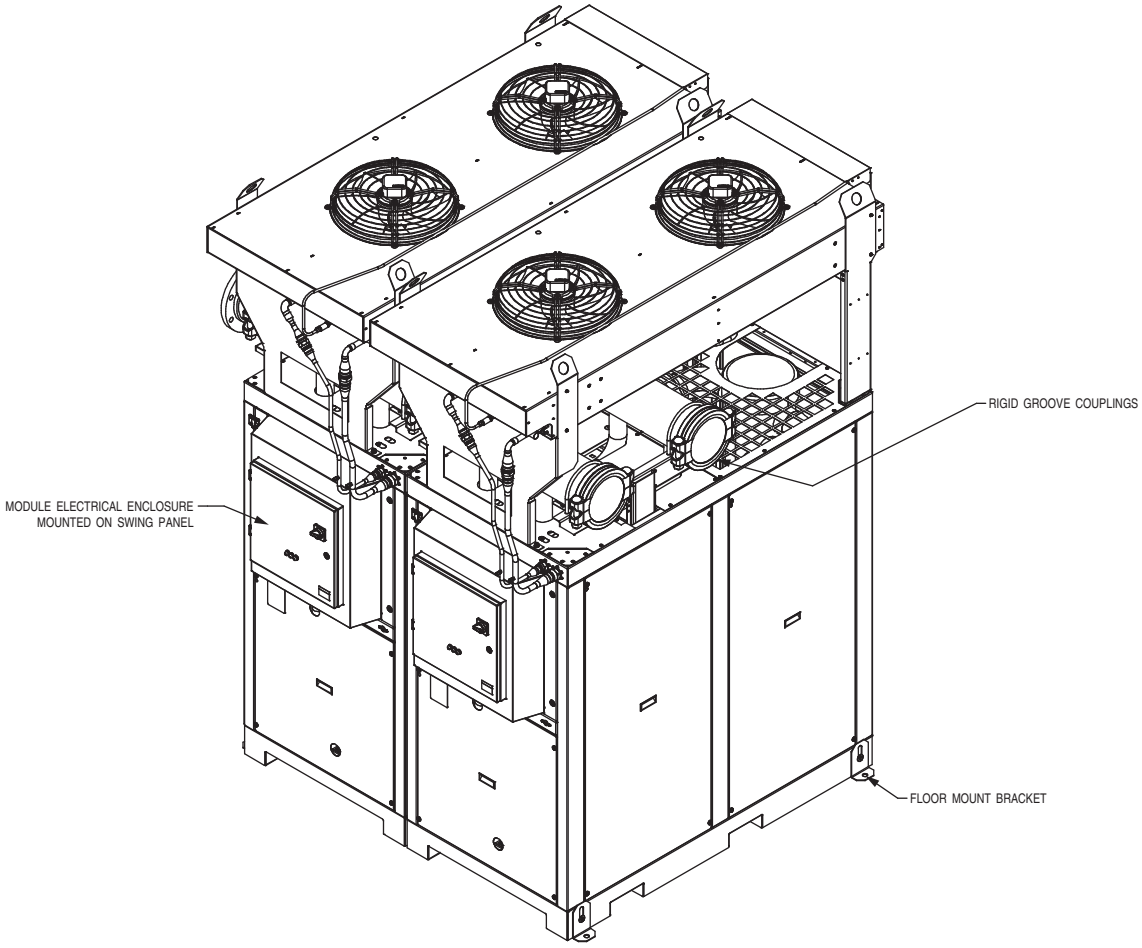


DETAIL B



IMPORTANT: READ PRIOR TO STARTING THIS EQUIPMENT

3.0 INSTALLATION

3.1 LOCATION

A. For typical placement in a compressed air system, see drawing.

B. Air compressor intake – Locate the air compressor so that contaminants potentially harmful to the dryer (e.g. ammonia) are not drawn into the air system.

C. The dryer should be installed in a moderately heated, well ventilated area. Avoid locations immediately adjacent to cold exterior windows or walls, or adjacent to high temperature ovens or boilers.

D. The dryer should be installed in the air system at the highest air pressure possible (e.g. before pressure reducing valves).

E. The dryer should be installed in the air system at the coolest compressed air temperature possible.

F. Clearances:
Service clearance should be a minimum of 48 inches (1220 mm) on all sides to allow adequate space for access and maintenance. Recommended overhead clearance is 36 inches (914mm) from top of cabinet for water cooled unit and top of condenser for air cooled unit.

G. Standard units are designed to operate in ambient:
Water-cooled: 40 to 130°F (4 to 54°C)
Air-cooled: 40 to 110°F (4 to 43°C).

H. Dryer is designed to operate at all altitudes - no adjustment for altitude is required.

I. The installation of a flexible connection prior to the dryer is recommended to prevent possible damage from vibration.

NOTE: Outdoor installation – Standard units are designed for indoor installation. Contact manufacturer if installing outdoors.

3.2 MOUNTING

Mount the dryer on a level solid surface.

3.3 ADDITIONAL INSTALLATION PROCEDURE FOR AIR COOLED CONDENSER OPTION

A. Air Condenser – Locate air condenser and set condenser with brackets on top of unit. Locate brackets per drawing on following page and bolt to frame using Qty (4) 3/8-16 Bolt's supplied.

B. Install discharge and liquid refrigerant piping per drawing. Turn until nut bottoms using quick links. Please note piping is charged with refrigerant.

C. Wire junction box per wiring schematic reference drawing for air cooled units in manual.

3.4 MODULE INSTALLATION

A. Identify customer-to-dryer connection requirements.

NOTE: Inlet and outlet headers on the dryer offer dual installation capability. Either end of the header (inlet or outlet) may be equipped with an adaptor flange or blind flange for the customer connection.

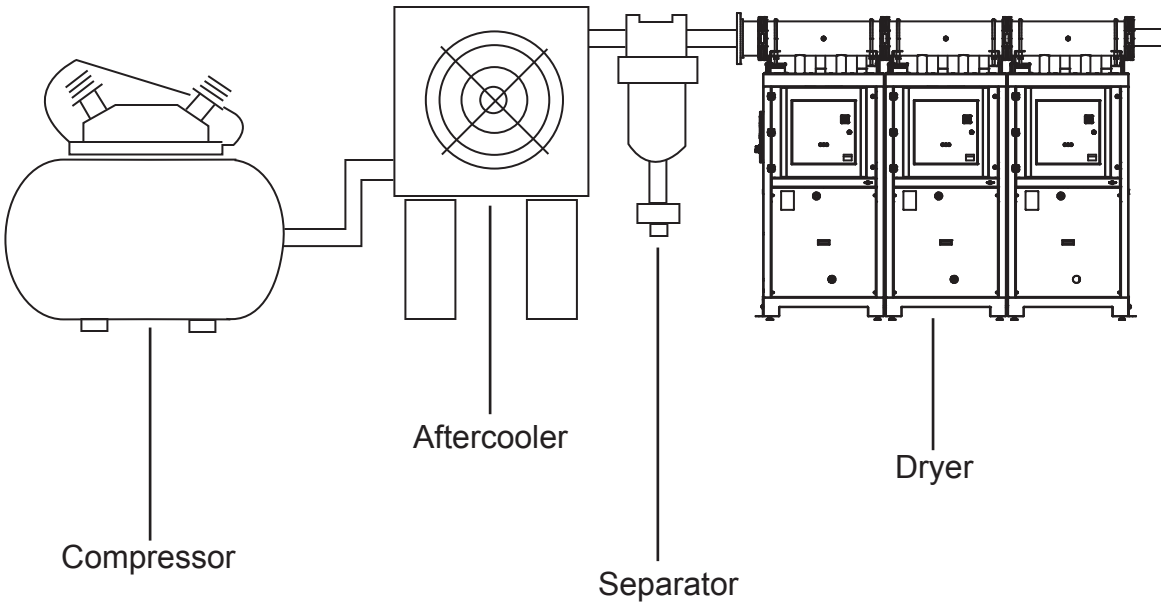
B. Install a grooved adapter flange to the inlet header of the module which is to be connected to the customer inlet connection. (Refer to the General Arrangement drawing for the specific model in Section 8 or 9 of this manual for the correct Inlet location.)

C. Install a grooved adapter flange to the outlet header of the module which is to be connected to the customer outlet connection. (Refer to the General Arrangement drawing for the specific model in Section 8 or 9 of this manual for the correct Outlet location.)

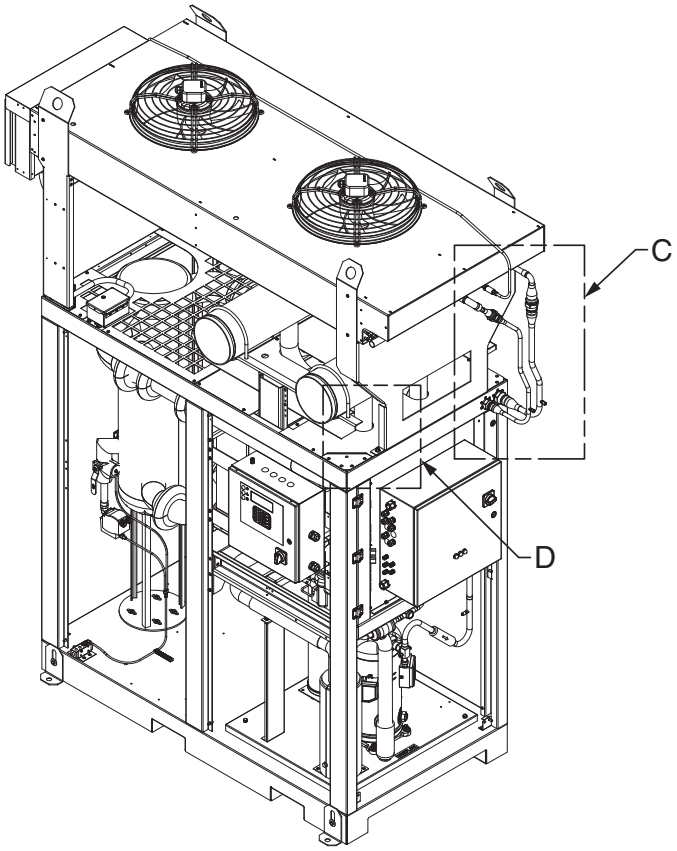
D. **NOTE:** Be sure that the leveling feet are seated completely against the bottom of the cabinet prior to setting the module. This will allow the greatest range of adjustment.

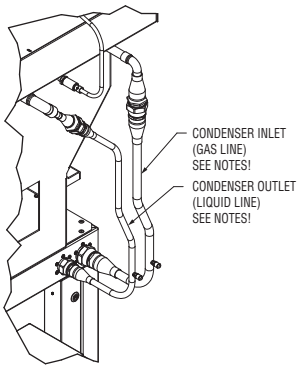
Utilizing a standard floor jack and the fork channels constructed in the base pan of each module, align the module with the grooved adapter flange on the inlet connection with the customer's inlet connection.

Level and plumb the module by adjusting the leveling feet at the bottom of each module.

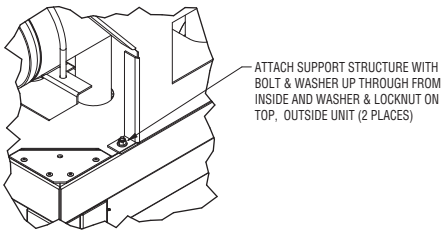


INSTALLATION PROCEDURE FOR AIR COOLED CONDENSER

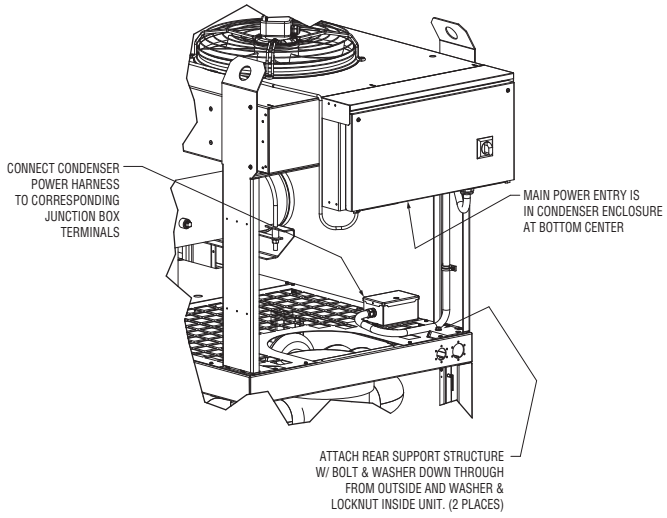




DETAIL C



DETAIL D



NOTES:

1. After installing the condenser unit assembly to the top of the module, apply appropriate amount of approved refrigerant fitting lubricant to the condenser lines quick connect fittings (Detail ‘C’).
2. Connect line assemblies between condenser and dryer module (Detail ‘C’).
3. Use back up wrenches when tightening fittings to prevent twisting lines, making sure the fittings are fully seated.
4. After the lines are connected, use a leak detection device to assure there are no leaks at the connections.

E. Connect the module to the customer's inlet connection. Tighten flange bolts.

NOTE: Tighten flange bolts to customer outlet connection if grooved adapter flange to the outlet header is also installed on module.

F. **CRITICAL ASSEMBLY NOTE!** The permissible gap range between the ends of the adjacent inlet and outlet headers is 0 - 0.25 inches. Also, based on the tolerance of the modules the module cabinets may either be flush or will provide a gap. Check each module cabinet gap prior to tightening the header couplings in place and set the gap to be consistent if so desired.

Repeat step D for installing the remaining modules to the dryer. Connect the modules together using couplings provided. Tighten bolts.

NOTE: The modules are numbered and should be installed in sequential order. If piping begins on the right side, start with the highest numbered module first and work down. Piping that begins on the left side will start with the lowest numbered module and work up. Interior modules can be identified by their open framework on each side of the module.

G. Install blind flanges on module headers not previously fitted with grooved adapter flanges.

H. Secure the dryer to the floor with the floor mounting brackets provided on the Master Module and the end Dryer Module.

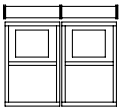
3.5 WATER CONNECTIONS (Standard Water Cooled Unit)

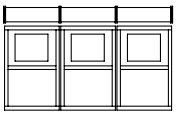
A. Connect the cooling water supply to the cooling water inlet connection of the dryer.

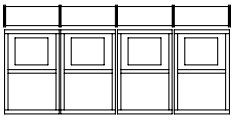
B. Connect the cooling water return line to the cooling water outlet connection of the dryer.

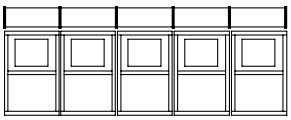
NOTE: It is recommended to add water inlet and outlet temperature and pressure gauges to the water piping at the dryer inlet and outlet connections.

Cooling Water System – Hose Labeling Matrix

Flow Rate	Module Position	Module	Tie Wrap Label Description
3750 - 5000 scfm	 M2 Z	M2	Cooling Water Inlet Wrap - MI
			Cooling Water Outlet Wrap - MO
		Z	Cooling Water Inlet Wrap - ZI
			Cooling Water Outlet Wrap - ZO

Flow Rate	Module Position	Module	Tie Wrap Label Description
6250 - 7500 scfm	 M3 Y Z	M3	Cooling Water Inlet Wrap - MI
			Cooling Water Outlet Wrap - MO
		Y	Cooling Water Inlet Wrap - YI
			Cooling Water Outlet Wrap - YO
		Z	Cooling Water Inlet Wrap - ZI
			Cooling Water Outlet Wrap - ZO

Flow Rate	Module Position	Module	Tie Wrap Label Description
8750 - 10000 scfm	 M4 X Y Z	M4	Cooling Water Inlet Wrap - MI
			Cooling Water Outlet Wrap - MO
		X	Cooling Water Inlet Wrap - XI
			Cooling Water Outlet Wrap - XO
		Y	Cooling Water Inlet Wrap - YI
			Cooling Water Outlet Wrap - YO
		Z	Cooling Water Inlet Wrap - ZI
			Cooling Water Outlet Wrap - ZO

Flow Rate	Module Position	Module	Tie Wrap Label Description
11250 - 12500 scfm	 M5 W X Y Z	M5	Cooling Water Inlet Wrap - MI
			Cooling Water Outlet Wrap - MO
		W	Cooling Water Inlet Wrap - WI
			Cooling Water Outlet Wrap - WO
		X	Cooling Water Inlet Wrap - XI
			Cooling Water Outlet Wrap - XO
		Y	Cooling Water Inlet Wrap - YI
			Cooling Water Outlet Wrap - YO
		Z	Cooling Water Inlet Wrap - ZI
			Cooling Water Outlet Wrap - ZO

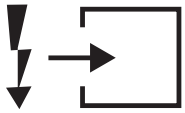
NOTE: Each module is shipped from the factory with the necessary water piping included. A strainer and water regulating valve is supplied on each dryer module.

C. Open the swing panels that hold the module electrical enclosures.

D. Connect the labeled water lines of each module to the barbed fittings of the mating lines located on the module to its left. See the table below for hose identification.

3.6 ELECTRICAL CONNECTIONS

IMPORTANT: Use copper supply wires only.



A. The dryer is designed to operate on the voltage, phase, and frequency listed on the serial number tag.

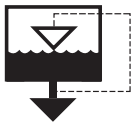
B. Water Cooled Units: The electrical supply connection for each dryer module is made in the junction box located at the top of each module. Refer to the dryer serial tag or the electrical data table for the maximum overcurrent protection to be used with each dryer module circuit.

NOTE: The dryer is designed to run continuously and should NOT be wired to cycle on/off with the air compressor.

C. Air Cooled Units: The electrical supply connection for each dryer module is made in the junction box located at the end of the air cooled condenser. Refer to the dryer serial tag or the electrical data table for the maximum overcurrent protection to be used with each dryer module circuit.

NOTE: The dryer is designed to run continuously and should NOT be wired to cycle on/off with the air compressor.

3.7 CONDENSATE AND ELECTRONIC DEMAND DRAIN (EDD) CONNECTIONS



A. Connect customer supplied condensate line to condensate drain connection located at the bottom left of the dryer.

NOTE: Condensate may contain oil. Comply with applicable laws concerning proper disposal.

B. All dryer modules are supplied with one EDD as standard. Modules with the additional (optional) oil removal filters are supplied with two additional EDDs each.

C. From the back of each module, remove the panel and connect each drain line to the adjacent module using the push-to-connect drain connections.

3.8 COMMUNICATION CONNECTIONS

A. Open the swing panels that hold the module electrical enclosures.

B. Locate the communications cable located at the top right corner of the module.

C. Plug the cable in to the connector located on the back of the swing panel of the module to its right.

4.0 OPERATION

Basic theory of operation: The dryer uses digital scroll technology to achieve energy savings. The refrigeration compressor has a unique mechanism that allows it to be completely "unloaded".

This is accomplished internally, using a piston to "pull" the upper scroll apart from the lower scroll. This stops the compression of the refrigerant and dramatically reduces energy consumption. The compressor motor continues to spin, providing lubrication to the mechanism.

At the rated compressed air flow rate, the compressor runs fully loaded. At reduced flow rates, the control system determines the amount of unloading required to maintain a constant outlet dew point.

NOTE: The compressor sound changes noticeably between the loaded and unloaded state, this occurs every ten to forty seconds.

4.1 MINIMUM/MAXIMUM OPERATING CONDITIONS

A. Inlet air pressure: 30 / 232 psig (2 /16 barg)

B. Inlet air temperature: 40 / 130°F (4 / 54°C)

C. Ambient temperature:
Water Cooled: 40 / 130°F (4 / 54°C)
Air Cooled: 40 / 110°F (4 / 43°C)

4.2 START-UP

(Refer to the Control Panel illustration on the following page and Controller Screen Shots in Section 8 for control panel assistance)

A. Energize the dryer by turning on the red/yellow disconnect switches at the main display control panel and at each module. A green power on light will illuminate and blink on each enclosure.

IMPORTANT: Energize for 24 hours before starting the dryer! All disconnect switches must be turned on. Never use the disconnect switches to shut down the dryer for an extended period of time (except for repair). Failure to follow these instructions may result in a non-warrantable compressor failure.

B. Programming the Dryer Controller (MEM)

Select and press the keypad button associated with each programming function. Use the Up and Down arrow buttons to scroll through the list of sub-menu choices. Press the Enter button to view the sub-menu that is displayed. Press ESC to return to the Main Menu.

1. Setting Date & Time
   a. Press the Clock keypad button to display the Date/Time Set-up Menu.

      NOTE: This menu can also be displayed by pressing the Set-up Menu keypad button.

   b. Use the 'Up' and 'Down' arrow buttons to set year (10 to 99 representing 2010 to 2099). Press 'Enter' to accept new value.

   c. Use the 'Up' and 'Down' arrow buttons to set month (01 to 12). Press 'Enter' to accept new value.

d. Use the ‘Up’ and ‘Down’ arrow buttons to set day (01 to maximum for the month and year selected). Press ‘Enter’ to accept new value.

e. Use the ‘Up’ and ‘Down’ arrow buttons to set hours (00 to 23). Press ‘Enter’ to accept new value.

f. Use the ‘Up’ and ‘Down’ arrow buttons to set minutes (00 to 59). Press ‘Enter’ to accept new value.

g. Use the ‘Up’ and ‘Down’ arrow buttons to set seconds (00 to 59). Press ‘Enter’ to accept new value.

2. Setting Schedule

a. Press the Scheduler keypad button.

b. Use the ‘Up’ and ‘Down’ arrow buttons to select desired “Day of week”. Press ‘Enter’ to accept new value.

c. Use the ‘Up’ and ‘Down’ arrow buttons to set hour (00 to 23). Press ‘Enter’ to accept new value.

NOTE: If the hour setting is ‘IGNORE’, Press ‘Enter’ again.

d. Use the ‘Up’ and ‘Down’ arrow buttons to set minutes. Press ‘Enter’ to accept new value. Repeat steps a through c as needed.

3. Setting Hours To Service

a. Press the Set-up Menu keypad button.

b. Use the Up and Down arrow buttons to scroll to the Service Interval Set-Up menu. Press ‘Enter’ to view the sub-menu.

c. Use the ‘Up’ and ‘Down’ arrow buttons to scroll through the range of permissible values (1000 to 8000) before service reminder is initiated. Press ‘Enter’ to accept new value. (Only hours that refrigeration compressor is operating are counted).

NOTE: All dryers contain an integral 3 micron filter. As the filter element accumulates solid contaminants, differential pressure increases. Solid particulate load in the compressed air supply will determine frequency of service. Typically element change out is recommended at least annually.

4. Energy Cost

a. Press the Set-up Menu keypad button.

b. Use the Up and Down arrow buttons to scroll to the Energy Cost Set-Up menu. Press ‘Enter’ to view the sub-menu.

c. Use the ‘Up’ and ‘Down’ arrow buttons to select the desired currency ($ or €). Press ‘Enter’ to accept new value.

d. Use the ‘Up’ and ‘Down’ arrow buttons to set the energy cost. Press ‘Enter’ to accept new value.

5. Event or Alarm History

a. Press the Event keypad button.

b. Use the Event keypad button to scroll through the Event (Alarm History) menu.

c. Use the ‘Up’ and ‘Down’ arrow buttons to scroll through the last twenty (20) alarms beginning with the most recent alarm.

NOTE: The number at the end of the top line identifies which of the past twenty alarms is being displayed.

C. Starting the Dryer

IMPORTANT: The dryer must be energized 24 hours before starting the refrigeration compressor.

NOTE: It is recommended that dryer be started 15 minutes before compressed air flow begins.

1. Begin cooling water flow prior to starting water cooled units. Turn air condenser disconnect on for air cooled units.

NOTE: If a module must be shut down, refer to section 5.1 – “Procedure for Shutting Down a Single Module” located on page 18.

2. Check for proper electrical voltage.

3. Confirm the module ball valves located behind the electrical enclosure swing panel are open, unless the module is intended to be off-line.

4. The dryer may be operated in either manual or scheduled mode.

a. Manual mode - This mode is initiated by pushing the On/Off button. The modules will run continuously and will not be turned on and off by the controller. All of the modules will be started when pushing the On/Off from the home screen. Individual modules can be started from the module screen. Push the module button and push the On/Off button. Scroll to the next module by using the module button then push the On/Off button. Continue this until all the desired modules are started.

From the home screen, scroll down one screen to see the status of each module.

Module Status Modes: **S - standby, R - running, A - alarm, D - disconnected**

Once turned On, the dryer and modules will begin will begin to register a load percentage value. The modules can also be turned off at the dryer home screen or individually at the module screen.

b. Schedule mode - This mode allows the user to set a weekly schedule for when the dryer will be on and off. See 4.2.B.2 for setting the schedule. Each module can be selected to operate on the preset schedule. Press the module key and press Enter to select either Manual Standby or Scheduled Standby.

NOTE: The dryer may be returned to the manual mode at any time using the ‘On/Off’ button. MANUAL FIXED or MANUAL STANDBY will appear on display panel. To reinstitute Schedule, go to the module screen and push the Enter button.

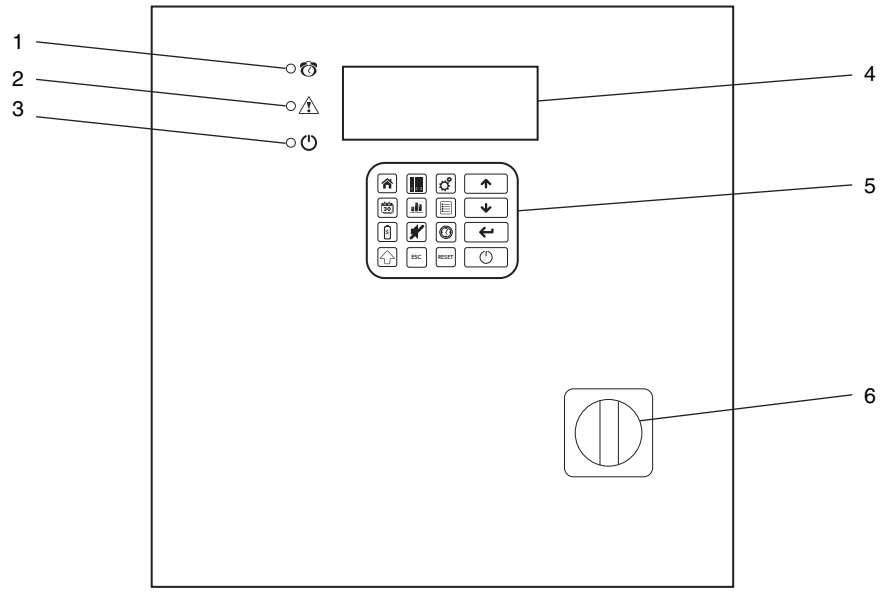
NOTE: The dryer will not automatically restart in the event of a power failure. Consult factory if it is desired to have the equipment automatically restart after power interruption.

NOTE: The dryer will run in FIXED mode for a brief period then switch over to PID control.

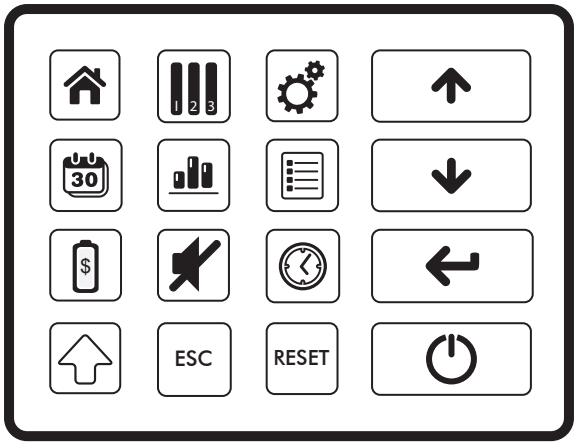
5. Slowly pressurize the unit air side by opening the inlet isolation valve. Check for air leaks.

6. After 15 minutes, slowly open the outlet isolation valve and close the air by-pass valve (if equipped).

CONTROL PANEL



1. Alarm / Service Light
2. Warning Light
3. Power-on Light
4. Operator Interface Display
5. Operator Keypad
6. Disconnect Switch



Operator Keypad

Dryer Status	Module Status	Setup	Up Arrow
Scheduler	Graph	Event	Down Arrow
Energy Savings	Mute	Date/Time Setup	Enter
Shift	Escape/Cancel	Reset	On/Off

D. Operating Check Points

1. Check that no alarms or warnings exist. The green light only should be illuminated on the module and master electrical enclosures. A yellow light indicates a warning which indicates an issue that needs to be addressed. The dryer will continue to operate. A red light indicates an alarm and will shut down the affected module. Refer to the Troubleshooting Guide for addressing Warnings and Alarms.
2. The home screen will indicate an operating load % value for the dryer. Press the module button and scroll through each module to confirm the status is NORMAL and a load % value for the module is displayed.
3. Check the operating parameters of the modules by selecting the modules using the arrow keys to scroll through the list.
4. If equipped with the optional instrumentation package, additional parameters can be viewed on the home screen by using the arrow keys.

E. Using the RS-485 Port Connector (J3)

This connector provides RS-485 compatible signals from the internal master microprocessor. Using jumpers on the headers supplied near the connector (J1 and J2), 120 ohm termination resistors can be connected and the system can be connected for either two-wire or four-wire operation (half or full duplex). To connect the termination resistors, install jumpers on J1 in the direction shown by the white bars printed above the connector.

If the jumpers are removed no termination of the RS-485 bus is in effect. Usually, these jumpers must be in position for proper operation of the bus.

J2 (located above J1) contains the two-wire/four-wire jumpers. If the jumpers are in place, the circuit is set up for two-wire operation. If the jumpers are removed the circuit is set up for four-wire operation. Selection of jumper settings must be determined by the customer's system. The jumpers are supplied as standard and are installed as shown at the factory. Be sure to set the jumpers properly for your system.

RS-485 Pinout

Following is the pinout for J3, the RS-485 communications connector.

1 TX-
2 TX+
3 RX+
4 RX-
5 Data Enable - asserted high (+5 VDC) when transmitting
6 100 Ohms to Ground
7 TX- (spare)
8 TX+ (spare)

When connected in two-wire mode, the bus wires may be connected to pins 1 & 2, Pins 3 & 4 or pins 7 & 8. Also note that when in two-wire mode, one termination resistor jumper should be removed to prevent the termination from being too low in value. It may be stored on the top set of pins on J1. Those pins are not connected. Please make sure that your connections are properly made. This connector is an 8-pin RJ45 connector. Mating connectors are not supplied. The electrical signals supplied by this connector are TIA/EIA-485A compliant. A good cable should be used to transmit signals such as Belden 3109A or equivalent.

Communication Parameters:

RS-485 Parameters	
Baud Rate	19200
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None
Slave ID	1

Modbus Registers

Holding Register		Name	Units	Description
Reference	Address			
40001	0x0000	DRYER_STATUS	Status ID	Status ID for the dryer
40002	0x0001	ALARM_STATUS	Flag Bits	Alarm flag bits
40003	0x0002	WARNING_STATUS	Flag Bits	Warning flag bits
40004	0x0003	SERVICE_STATUS	Flag Bits	Service flag bits
40005	0x0004	DRYER_LOAD	Percent	Dryer load as a percentage of full load
40006	0x0005	AVG_DAILY_LOAD	Percent	Average daily dryer load
40007	0x0006	AVG_MONTHLY_LOAD	Percent	Average monthly dryer load
40008	0x0007	INLET_AIR_TEMP	Celsius	Inlet air temperature
40009	0x0008	WATER_TEMP / AMBIENT_TEMP	Celsius	Water Cooled - Cooling water temperature / Air Cooled - Ambient air temperature
40010	0x0009	OUTLET_AIR_PRESSURE	PSIG	Outlet air pressure
40011	0x000A	WATER_PRESS / RESERVED	PSIG	Water Cooled - Cooling water pressure / Air Cooled - Reserved
40012	0x000B	ANNUAL_SAVINGS	Integer	Projected annual energy savings in dollars / euros
40013	0x000C	CUMULATIVE_SAVINGS	Integer	Total cumulative energy savings in dollars / euros
40017	0x0010	MOD_1_STATUS	Status ID	Status ID for module #1
40018	0x0011	MOD_1_ALARMS	Flag Bits	Alarm flag bits
40019	0x0012	MOD_1_WARNING	Flag Bits	Warning flag bits
40020	0x0013	MOD_1_SERVICE	Flag Bits	Service flag bits
40021	0x0014	MOD_1_LOAD	Percentage	Module load as a percentage of full load
40022	0x0015	MOD_1_PV	PSIG	Process value
40023	0x0016	MOD_1_SUCTION_TEMP	Celsius	Suction temperature
40024	0x0017	MOD_1_SEPARATOR_TEMP	Celsius	Separator temperature
40025	0x0018	MOD_1_DISCHARGE_TEMP	Celsius	Discharge temperature
40026	0x0019	MOD_1_SUCTION_PRESS	PSIG	Suction pressure
40027	0x001A	MOD_1_DISCHARGE_PRESS	PSIG	Discharge pressure
40028	0x001B	MOD_1_SERVICE_TIMER	Hours	Module service timer
40029	0x001C	MOD_1_TOTAL_TIMER	Hours	Module total operating timer
40030	0x001D	MOD_1_ALARM_PHRASE1	Phrase ID	Alarm phrase 1
40031	0x001E	MOD_1_ALARM_PHRASE2	Phrase ID	Alarm phrase 2
40032	0x001F	MOD_1_ALARM_PHRASE3	Phrase ID	Alarm phrase 3
40033	0x0020	MOD_2_STATUS	Status ID	Status ID for module #2
40034	0x0021	MOD_2_ALARMS	Flag Bits	Alarm flag bits
40035	0x0022	MOD_2_WARNING	Flag Bits	Warning flag bits
40036	0x0023	MOD_2_SERVICE	Flag Bits	Service flag bits
40037	0x0024	MOD_2_LOAD	Percentage	Module load as a percentage of full load
40038	0x0025	MOD_2_PV	PSIG	Process value
40039	0x0026	MOD_2_SUCTION_TEMP	Celsius	Suction temperature
40040	0x0027	MOD_2_SEPARATOR_TEMP	Celsius	Separator temperature
40041	0x0028	MOD_2_DISCHARGE_TEMP	Celsius	Discharge temperature
40042	0x0029	MOD_2_SUCTION_PRESS	PSIG	Suction pressure
40043	0x002A	MOD_2_DISCHARGE_PRESS	PSIG	Discharge pressure
40044	0x002B	MOD_2_SERVICE_TIMER	Hours	Module service timer
40045	0x002C	MOD_2_TOTAL_TIMER	Hours	Module total operating timer
40046	0x002D	MOD_2_ALARM_PHRASE1	Phrase ID	Alarm phrase 1
40047	0x002E	MOD_2_ALARM_PHRASE2	Phrase ID	Alarm phrase 2
40048	0x002F	MOD_2_ALARM_PHRASE3	Phrase ID	Alarm phrase 3

Modbus Registers

Holding Register		Name	Units	Description
Reference	Address			
40049	0x0030	MOD_3_STATUS	Status ID	Status ID for module #3
40050	0x0031	MOD_3_ALARMS	Flag Bits	Alarm flag bits
40051	0x0032	MOD_3_WARNING	Flag Bits	Warning flag bits
40052	0x0033	MOD_3_SERVICE	Flag Bits	Service flag bits
40053	0x0034	MOD_3_LOAD	Percentage	Module load as a percentage of full load
40054	0x0035	MOD_3_PV	PSIG	Process value
40055	0x0036	MOD_3_SUCTION_TEMP	Celsius	Suction temperature
40056	0x0037	MOD_3_SEPARATOR_TEMP	Celsius	Separator temperature
40057	0x0038	MOD_3_DISCHARGE_TEMP	Celsius	Discharge temperature
40058	0x0039	MOD_3_SUCTION_PRESS	PSIG	Suction pressure
40059	0x003A	MOD_3_DISCHARGE_PRESS	PSIG	Discharge pressure
40060	0x003B	MOD_3_SERVICE_TIMER	Hours	Module service timer
40061	0x003C	MOD_3_TOTAL_TIMER	Hours	Module total operating timer
40062	0x003D	MOD_3_ALARM_PHRASE1	Phrase ID	Alarm phrase 1
40063	0x003E	MOD_3_ALARM_PHRASE2	Phrase ID	Alarm phrase 2
40064	0x003F	MOD_3_ALARM_PHRASE3	Phrase ID	Alarm phrase 3
40065	0x0040	MOD_4_STATUS	Status ID	Status ID for module #4
40066	0x0041	MOD_4_ALARMS	Flag Bits	Alarm flag bits
40067	0x0042	MOD_4_WARNING	Flag Bits	Warning flag bits
40068	0x0043	MOD_4_SERVICE	Flag Bits	Service flag bits
40069	0x0044	MOD_4_LOAD	Percentage	Module load as a percentage of full load
40070	0x0045	MOD_4_PV	PSIG	Process value
40071	0x0046	MOD_4_SUCTION_TEMP	Celsius	Suction temperature
40072	0x0047	MOD_4_SEPARATOR_TEMP	Celsius	Separator temperature
40073	0x0048	MOD_4_DISCHARGE_TEMP	Celsius	Discharge temperature
40074	0x0049	MOD_4_SUCTION_PRESS	PSIG	Suction pressure
40075	0x004A	MOD_4_DISCHARGE_PRESS	PSIG	Discharge pressure
40076	0x004B	MOD_4_SERVICE_TIMER	Hours	Module service timer
40077	0x004C	MOD_4_TOTAL_TIMER	Hours	Module total operating timer
40078	0x004D	MOD_4_ALARM_PHRASE1	Phrase ID	Alarm phrase 1
40079	0x004E	MOD_4_ALARM_PHRASE2	Phrase ID	Alarm phrase 2
40080	0x004F	MOD_4_ALARM_PHRASE3	Phrase ID	Alarm phrase 3
40081	0x0050	MOD_5_STATUS	Status ID	Status ID for module #5
40082	0x0051	MOD_5_ALARMS	Flag Bits	Alarm flag bits
40083	0x0052	MOD_5_WARNING	Flag Bits	Warning flag bits
40084	0x0053	MOD_5_SERVICE	Flag Bits	Service flag bits
40085	0x0054	MOD_5_LOAD	Percentage	Module load as a percentage of full load
40086	0x0055	MOD_5_PV	PSIG	Process value
40087	0x0056	MOD_5_SUCTION_TEMP	Celsius	Suction temperature
40088	0x0057	MOD_5_SEPARATOR_TEMP	Celsius	Separator temperature
40089	0x0058	MOD_5_DISCHARGE_TEMP	Celsius	Discharge temperature
40090	0x0059	MOD_5_SUCTION_PRESS	PSIG	Suction pressure
40091	0x005A	MOD_5_DISCHARGE_PRESS	PSIG	Discharge pressure
40092	0x005B	MOD_5_SERVICE_TIMER	Hours	Module service timer
40093	0x005C	MOD_5_TOTAL_TIMER	Hours	Module total operating timer
40094	0x005D	MOD_5_ALARM_PHRASE1	Phrase ID	Alarm phrase 1
40095	0x005E	MOD_5_ALARM_PHRASE2	Phrase ID	Alarm phrase 2
40096	0x005F	MOD_5_ALARM_PHRASE3	Phrase ID	Alarm phrase 3

Modbus Registers

Holding Register		Name	Units	Description
Reference	Address			
40129	0x0080	NUM_MODULES	Integer	Number of installed modules
40130	0x0081	SERVICE_INTERVAL	Hours	Service interval
40131	0x0082	ENERGY_COST	Integer	Energy cost in 1/100th Dollars / Euros per kWh
40132	0x0083	CONDENSER_TYPE	Integer	Condenser type selection (0=Water Cooled, 1=Air Cooled)
40133	0x0084	MODBUS_ADDRESS	Integer	Modbus drop number
40134	0x0085	AUDIBLE_ALARM	Boolean	Audible alarm enabled
40135	0x0086	WATER_PRESSURE_SP	PSIG	Low cooling water pressure alarm set point
40136	0x0087	WATER_TEMPERATURE_SP	Celsius	High cooling water temperature alarm set point
40137	0x0088	INLET_TEMPERATURE_SP	Celsius	High inlet air temperature alarm set point
40138	0x0089	OUTLET_PRESSURE_SP	PSIG	Low outlet air pressure alarm set point
40139	0x008A	AMBIENT_TEMPERATURE_SP	Celsius	High ambient air temperature alarm set point
40140	0x008B	MOD_1_TYPE	Integer	Module type (0=None, 1=6HP, 2=10HP)
40141	0x008C	MOD_2_TYPE	Integer	Module type (0=None, 1=6HP, 2=10HP)
40142	0x008D	MOD_3_TYPE	Integer	Module type (0=None, 1=6HP, 2=10HP)
40143	0x008E	MOD_4_TYPE	Integer	Module type (0=None, 1=6HP, 2=10HP)
40144	0x008F	MOD_5_TYPE	Integer	Module type (0=None, 1=6HP, 2=10HP)

Modbus Register Details

Dryer Status Flags	
Register	40001

Bit	Mask	Description
0	0x0001	Module 1 status (0 = not installed, 1 = installed)
1	0x0002	Module 2 status (0 = not installed, 1 = installed)
2	0x0004	Module 3 status (0 = not installed, 1 = installed)
3	0x0008	Module 4 status (0 = not installed, 1 = installed)
4	0x0010	Module 5 status (0 = not installed, 1 = installed)
5	0x0020	Reserved
6	0x0040	Reserved
7	0x0080	Reserved

Dryer Alarm Flags	
Register	40002

Bit	Mask	Description
0	0x0001	Reserved
1	0x0002	Reserved
2	0x0004	Reserved
3	0x0008	Reserved
4	0x0010	Reserved
5	0x0020	Reserved
6	0x0040	Reserved
7	0x0080	Reserved

Dryer Warning Flags	
Register	40003

Bit	Mask	Description
0	0x0001	Inlet temperature sensor failure
1	0x0002	Cooling water temperature sensor failure
2	0x0004	Outlet pressure sensor failure
3	0x0008	High inlet air temperature
4	0x0010	High cooling water temperature
5	0x0020	Low cooling water pressure
6	0x0040	Low outlet air pressure
7	0x0080	Cooling water pressure sensor failure
8	0x0100	Ambient air temperature sensor failure
9	0x0200	High ambient air temperature
10	0x0400	Reserved
11	0x0800	Reserved
12	0x1000	Reserved
13	0x2000	Reserved
14	0x4000	Reserved
15	0x8000	Reserved

Modbus Register Details

Dryer Service Flags	
Register	40004

Bit	Mask	Description
0	0x0001	Service Module #1
1	0x0002	Service Module #2
2	0x0004	Service Module #3
3	0x0008	Service Module #4
4	0x0010	Service Module #5
5	0x0020	Reserved
6	0x0040	Reserved
7	0x0080	Reserved

Module Status	
Register(s)	40017, 40033, 40049, 40065, 40081

Decimal	Hex	Description
0	0x0000	Standby
1	0x0001	Fixed Cycle
2	0x0002	PID Cycle
3	0x0003	Alarm

Module Alarm Flags	
Register(s)	40018, 40034, 40050, 40066, 40082

Bit	Mask	Description
0	0x0001	Compressor failure
1	0x0002	Suction pressure sensor failure
2	0x0004	Discharge pressure sensor failure
3	0x0008	High discharge temperature
4	0x0010	High suction super heat
5	0x0020	Low refrigerant pressure alarm
6	0x0040	High refrigerant pressure alarm
7	0x0080	Compression alarm
8	0x0100	Discharge temperature sensor failure
9	0x0200	Suction temperature sensor failure
10	0x0400	Crank case heater failure
11	0x0800	Reserved
12	0x1000	Reserved
13	0x2000	Reserved
14	0x4000	Reserved
15	0x8000	Reserved

Module Warning Flags		
Register(s)	40019, 40035, 40051, 40067, 40083	
Bit	Mask	Description
0	0x0001	Separator temperature sensor failure
1	0x0002	Drain 1 alarm
2	0x0004	Drain 2 alarm
3	0x0008	Drain 3 alarm
4	0x0010	High separator temperature
5	0x0020	High refrigerant pressure warning
6	0x0040	Reserved
7	0x0080	Reserved
8	0x0100	Reserved
9	0x0200	Reserved
10	0x0400	Reserved
11	0x0800	Reserved
12	0x1000	Reserved
13	0x2000	Reserved
14	0x4000	Reserved
15	0x8000	Reserved

Module Service Flags		
Register(s)	40020, 40036, 40052, 40068, 40084	
Bit	Mask	Description
0	0x0001	Reserved
1	0x0002	Reserved
2	0x0004	Reserved
3	0x0008	Reserved
4	0x0010	Reserved
5	0x0020	Reserved
6	0x0040	Reserved
7	0x0080	Reserved

5.0 MAINTENANCE

5.1 PROCEDURE FOR SHUTTING DOWN A SINGLE MODULE

IMPORTANT: Whenever service work is to be performed on a module, the module should be de-energized and depressurized.

A. Close the air inlet and outlet ball valves located behind the module electrical enclosure swing panel.

B. Turn off the module at the main control panel. Press the module key until the desired module is displayed and press the On/Off key. Confirm the module is now in stand-by status.

C. Turn off the disconnect switch at the module to be serviced. Turn off the disconnect at the external power supply to the module.

D. Remove the rear panel of the module. Depressurize the module by turning the three-way valve located on the drain line of moisture separator ¼ turn.

5.2 PROCEDURE FOR RESTART

NOTE: The module should be energized 1 hour for every 3 hours it has been de-energized to allow the compressor crankcase to warm. The module disconnect switch must be on..

A. Turn back the three way valve located on the drain line moisture separator 1/4 turn.

B. Turn on the disconnect at the external power supply to the module.

C. Energize system by turning on module disconnect switch and also for air cooled models condenser disconnect switch.

D. Turn on the module at the main control panel. Press the Module key until the desired module is displayed. Confirm the Module is in standby status.

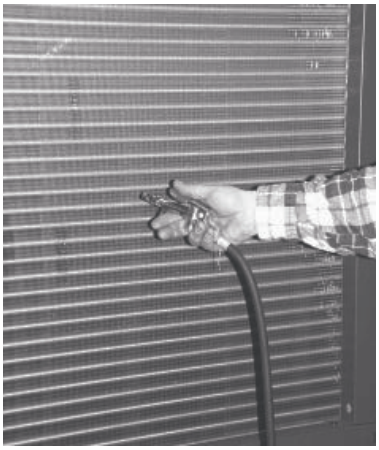
E. Start Module by pressing the On/Off Key. Manual fixed should display for Module.

F. Slowly pressurize the unit air side by opening the air inlet ball valves.

G. After 15 minutes or when the display reads Manual PID, slowly open the module air outlet ball valves.

5.3 MONTHLY

A. Air-Cooled- Clean refrigerant condenser. Blow the fins of the condenser clean with compressed air, if necessary, remove heavier soiling with a suitable cleansing agent.



B. Water Cooled – Clean the water strainers monthly, or more frequently if required. Shut down the module to be serviced per section 5.1. Remove the master module side panel at the main water inlet and outlet and shut off the inlet and outlet water valves for the module to be serviced. The hoses will be labeled to indicate which module they supply. See the table in section 1.4 for hose identification. Slowly loosen the fitting in the Y-strainer to relieve the water pressure. Remove the fitting and strainer. Clean the strainer and reinstall. Open the water valves, turn the drain line valve back to its original position, apply power to the module, and restart. After 15 minutes, open the ball valves located behind the swing panel.

C. Check the condensate drains' operation. Remove the rear panels and confirm a green light is illuminated on the top of the drain housing. Press the push to test button to verify the drain is discharging properly.

5.4 ANNUAL MAINTENANCE

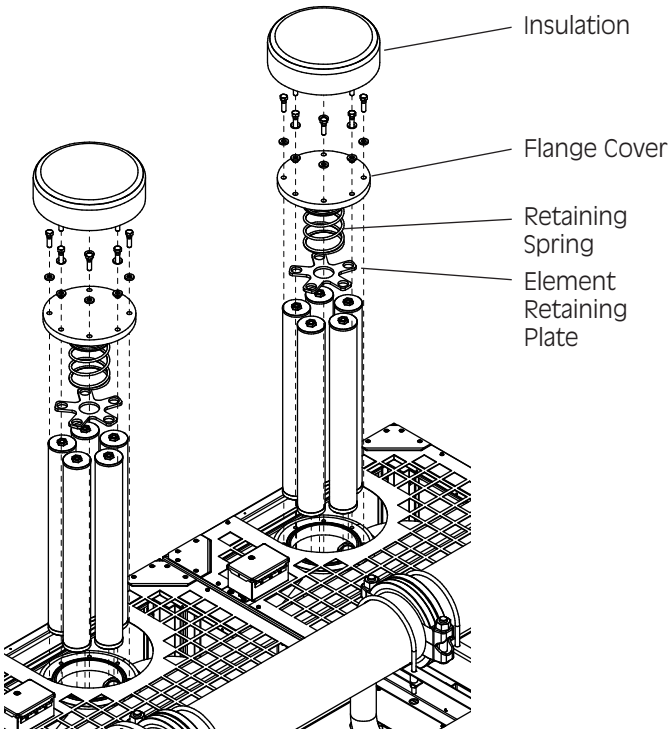
A. Maintenance/Cleaning of the condensate drain.

1. To facilitate service, maintenance kits are available.

B. Replacement of the filter elements in the separator vessel. All the necessary replacement parts are provided in the maintenance kit. Refer to the Parts List section of the manual.

NOTE: Replace the elements annually or when the pressure drop across the dryer is excessive.

1. Shut down the module to be serviced per section 5.1.
2. Remove the insulation from the top of the vessel.
3. Loosen the bolts in the top blind flange of the vessel. Loosen slowly to confirm the system is no longer under pressure.
4. Remove bolts, blind flange, retaining spring and element retaining plate.
5. Remove each element by pulling upwards. Moving the element side-to-side while pulling up may be required.



6. For each new element, lubricate the o-ring located at the inside, open end of the element with the lubricant provided in the kit.
7. Install each new element by pushing it down over the post located at the bottom of the vessel.
8. Replace the o-ring in the top flange of the vessel.
9. Reinstall the element retaining plate, retaining spring, flange and insulation.
10. Turn the drain line valve back to its original position, apply power to the module, and restart. After 15 minutes, open the ball valves located behind the swing panel.

6.0 TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
A) Water downstream of dryer	1. Residual free moisture remaining in downstream pipelines. 2. Air bypass system is open. 3. Inlet and Outlet connections are reversed. 4. Air lines downstream of dryer are exposed to temperatures below the dew point. 5. Excessive free moisture (bulk liquid) at dryer inlet. 6. Condensate not being drained. 7. A module is off but the inlet outlet valves are still open. 8. A module is off on an alarm. 9. Dryer overloaded resulting in elevated dew point. 10. A module is low on refrigerant.	1. Purge system with dry air. 2. Check valve positions. 3. Check for correct connection. 4. Insulate or heat trace air lines exposed to low ambients or dry air to lower dew point. 5. Install separator ahead of dryer. 6. See C) (DRAIN ALARM) below. 7. Close the inlet and outlet valves. 8. See D) below. 9. See C) below. 10. Check the system for refrigerant leaks and add refrigerant if necessary.
B) High pressure drop across dryer	1. Excessive air flow. 2. Freezing of moisture in a module evaporator because of refrigeration system fault. 3. Filter elements loaded with solid particulates.	1. Check flow rate. 2. See D) below. 3. Replace the filter elements.
C) Warning faults - Yellow Light On		
DRAIN # X	1. Drain line restricted or frozen. 2. Drain mechanism faulty.	1. Open the drain line. 2. Check the drain by pressing the “Test” button on the drain of the module. If faulty, isolate the drain and rebuild or replace.
CRANKCASE HEATER SENSOR FAILURE	1. Faulty Crankcase band heater. 2. Loose wiring in heater circuit. 3. Faulty compressor contactor. 4. Faulty N.O. auxiliary contact on compressor contactor.	1. Replace the heater. 2. Check the circuit for loose or broken wires. 3. Check wiring and operation of contactor and replace if necessary. 4. Check wiring and operation of auxiliary contact and replace if necessary.
SERVICE DRYER MODULE	1. Service interval specified has elapsed.	1. Perform scheduled service and reset the service interval.
HIGH SEPARATOR TEMPERATURE	1. Separator temperature sensor not making contact with the separator piping. 2. Module overload condition. 3. Module low on refrigerant charge.	1. Re-attach the sensor and insulate well. 2. Check the flow rate and inlet air temperature. 3. Check the system for refrigerant leaks and add refrigerant if necessary.
HIGH REFRIGERANT PRESSURE WARNING	Water-Cooled Units 1. Cooling water - temperature too high, differential pressure too low, clogged strainer 2. Faulty water regulating valves. 3. Module overload condition. Air-Cooled Units 1. Ambient temperature too high, clogged condenser fins, obstructed flow across condenser. 2. Faulty fan motor or fan control transducer. 3. Module overload condition.	1. Check cooling water temperature and pressure, clean strainer. 2. Replace regulating valve. 3. Check the flow rate and inlet air temperature. 1. Check air temperature 6” in front of condenser; Clean condenser and check for free air flow. 2. Check fan and transducer operation. 3. Check the flow rate and inlet air temperature.
SEPARATOR TEMP SENSOR FAILURE	1. Loose wiring in sensor circuit. 2. Faulty RTD sensor.	1. Check the circuit for loose or broken wires. 2. Replace the sensor.
INLET AIR TEMP SENSOR FAILURE (optional)	1. Loose wiring in sensor circuit. 2. Faulty RTD sensor.	1. Check the circuit for loose or broken wires. 2. Replace the sensor.

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
C) Warning faults - Yellow Light On (continued)		
COOLING WATER TEMP SENSOR FAILURE (optional)	1. Check the circuit for loose or broken wires. 2. Replace the sensor.	1. Check the circuit for loose or broken wires. 2. Replace the sensor.
OUTLET PRESSURE SENSOR FAILURE (optional)	1. Loose wiring in current loop circuit. 2. Faulty transducer. 3. Faulty analog circuit board. 4. Faulty DC power supply.	1. Check the circuit for loose or broken wires. 2. Replace the transducer. 3. Replace the circuit board. 4. Replace the power supply.
COOLING WATER PRESSURE SENSOR FAILURE (optional)	1. Loose wiring in current loop circuit. 2. Faulty transducer. 3. Faulty analog circuit board. 4. Faulty DC power supply.	1. Check the circuit for loose or broken wires. 2. Replace the transducer. 3. Replace the circuit board. 4. Replace the power supply.
INLET AIR HIGH TEMPERATURE (optional)	1. Inlet air temperature is exceeding alarm limit.	1. Reduce the inlet air temperature or increase the alarm set point.
COOLING WATER HIGH TEMPERATURE (optional)	1. Inlet water temperature is exceeding alarm limit.	1. Reduce the inlet water temperature or increase the alarm set point.
OUTLET AIR LOW PRESSURE (optional)	1. Supply pressure to the dryer is low. 2. High pressure drop across the dryer.	1. Increase the supply pressure or decrease the alarm set point. 2. See B) above.
COOLING WATER LOW PRESSURE (optional)	1. Supply water pressure to the dryer is low.	1. Increase the supply pressure or decrease the alarm set point.
AMBIENT AIR SENSOR FAILURE (optional)	1. Loose wiring in sensor circuit. 2. Faulty sensor.	1. Check the circuit for loose or broken wires. 2. Replace the sensor.
AMBIENT AIR HIGH TEMPERATURE (optional)	1. Ambient air temperature is exceeding alarm limit.	1. Reduce the ambient air temperature or increase the alarm set point.
D) Alarm faults - Red Light On		
HIGH DISCHARGE TEMPERATURE	1. Module overload condition. 2. Module is low on refrigerant. 3. High refrigerant pressure.	1. Check the flow rate and inlet air temperature. 2. Check the system for refrigerant leaks and add refrigerant if necessary. 3. See C) above.
LOW REFRIGERANT PRESSURE ALARM	1. Extreme change in operating condition. 2. Module is low on refrigerant. 3. A refrigeration valve is closed.	1. Clear alarm and restart module(s). 2. Check the system for refrigeration leaks and add refrigerant if necessary. 3. Check and open refrigerant high side valves.
HIGH REFRIGERANT PRESSURE ALARM (NOTE: If a high refrigerant pressure alarm occurs, the pressure switch must be manually reset.)	Water-Cooled Units 1. Cooling water - temperature too high, differential pressure too low, clogged strainer. 2. Faulty water regulating valve. 3. Module overload condition. 4. A refrigeration valve is closed. Air-Cooled Units 1. Ambient temperature too high, clogged condenser fins, obstructed flow across condenser. 2. Faulty fan motor or fan control transducer. 3. Module overload condition. 4. A refrigeration valve is closed.	1. Check cooling water temperature and pressure, clean strainer. 2. Replace regulating valve. 3. Check the flow rate and inlet air temperature. 4. Check and open refrigerant valves. 1. Check air temperature 6” in front of condenser; Clean condenser and check for free air flow. 2. Check fan and transducer operation. 3. Check the flow rate and inlet air temperature. 4. Check and open refrigerant valves.

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
D) Alarm faults - Red Light On (continued)		
SUCTION HIGH SUPERHEAT	1. Module overload condition. 2. Module is low on refrigerant. 3. Faulty thermal expansion valve(s).	1. Check the flow rate and inlet air temperature. 2. Check the system for refrigerant leaks and add refrigerant if necessary. 3. Adjust or replace valve(s).
MOTOR STARTER OVERLOAD TRIP	1. Motor starter not set correctly. 2. Module overload condition. 3. Electrical short circuit. 4. Faulty refrigeration compressor.	1. Confirm the setting from the electrical drawing and reset. 2. Check the flow rate and inlet air temperature. 3. Inspect electrical wiring. 4. Check the resistance of the compressor windings and replace the compressor if necessary.
COMPRESSION ALARM	1. Module power supply leads are reversed. 2. Loose wiring in compressor coil circuit. 3. Faulty compressor coil. 4. Faulty unloading valve. 5. Faulty compressor.	1. Reverse any two of the three power leads at the entry junction box. 2. Check the circuit for loose or broken wires. 3. Replace coil. 4. Replace unloading valve. 5. Replace compressor.
DISCHARGE TEMP SENSOR FAILURE	1. Loose wiring in sensor circuit. 2. Faulty RTD sensor.	1. Check the circuit for loose or broken wires. 2. Replace the sensor.
SUCTION TEMP SENSOR FAILURE	1. Loose wiring in sensor circuit. 2. Faulty RTD sensor.	1. Check the circuit for loose or broken wires. 2. Replace the sensor.
SUCTION PRESSURE SENSOR FAILURE	1. Loose wiring in current loop circuit. 2. Faulty transducer. 3. Faulty module control circuit board.	1. Check the circuit for loose or broken wires. 2. Replace the transducer. 3. Replace the circuit board.
DISCHARGE PRESSURE SENSOR FAILURE	1. Loose wiring in current loop circuit. 2. Faulty transducer. 3. Faulty module control circuit board.	1. Check the circuit for loose or broken wires. 2. Replace the transducer. 3. Replace the circuit board.

7.0 REFERENCE

SIZING

Determining dryer capacity at actual operating conditions.

To determine the maximum inlet flow capacity of a dryer at various operating conditions, multiply the rated capacity from Table 1 by the multipliers shown in Table 2 and Table 3 (if air cooled).

Example: What is the rated flow capacity in scfm for a model 7500 water-cooled unit operating at 60 Hz. with the compressed air at 125 psig and 90°F inlet temperature?

Answer: 7500 x 1.31 = 9825 scfm.

TABLE 1

Rated air flow capacity in scfm:
60 Hz at 100°F inlet temperature and 100 psig inlet pressure.
50 Hz at 95°F inlet temperature and 101.5 psig inlet pressure.

Water Cooled Models		3750	5000	6250	7500	8750	10000	11250	12500
Rated capacity (scfm)	60 Hz	3750	5000	6250	7500	8750	10000	11250	12500
	50 Hz	3484	4646	5807	6969	8130	9292	10453	11615

Air Cooled Models		3150	4200	5250	6300	7350	8400	9450	10500
Rated capacity (scfm)	60 Hz	3150	4200	5250	6300	7350	8400	9450	10500
	50 Hz	2927	3903	4878	5854	6829	7805	8781	9757

TABLE 2

Air capacity correction factors (Multipliers)

INLET COMPRESSED AIR CONDITIONS							
INLET		INLET TEMPERATURES					
PRESSURES		80°F	90°F	100°F	110°F	120°F	130°F
psig	barg	27°C	32°C	38°C	43°C	49°C	54°C
30	2.1	1.24	0.92	0.71	0.56	0.44	0.35
50	3.5	1.40	1.07	0.83	0.66	0.54	0.44
80	5.6	1.55	1.19	0.95	0.77	0.63	0.52
100	6.9	1.61	1.25	1.00	0.82	0.68	0.56
125	8.6	1.67	1.31	1.05	0.86	0.72	0.61
150	10.3	1.71	1.34	1.08	0.90	0.75	0.64
175	12.1	1.75	1.37	1.11	0.92	0.78	0.66
200	13.8	1.77	1.39	1.14	0.95	0.80	0.68

TABLE 3

Air-Cooled Models – Ambient correction factors (Multipliers)

COOLING MEDIUM*		
AMBIENT TEMPERATURE		MULTIPLIER
°F	°C	
80	27	1.12
90	32	1.06
100	38	1.00
110	43	0.94

ENGINEERING DATA TABLES

Sheet 1 of 2

Water Cooled Models

Model		3750	5000	6250	7500	8750	10000	11250	12500
Operating Data									
Rated Air Flow at 100°F & 100 psig Inlet (scfm)	60 Hz	3750	5000	6250	7500	8750	10000	11250	12500
Rated Air Flow at 95°F & 101.5 psig Inlet (scfm)	50 Hz	3484	4646	5807	6969	8130	9292	10453	11615
Minimum / Maximum Inlet Compressed Air Pressure		30 / 232 psig (2.1 / 16.0 barg)							
Minimum / Maximum Inlet Compressed Air Temperature		40° / 130°F (4° / 54°C)							
Minimum / Maximum Ambient Temperature		40° / 130°F (4° / 54°C)							
Outlet Air Temperature (nominal at rated conditions)		85°F (29°C)							
Refrigeration System Data									
Compressor Type		Hermetic, Digital Scroll							
Refrigeration Compressor Horsepower per module (number of modules) - hp	1250 scfm	(1) - 6	—	(1) - 6	—	(1) - 6	—	(1) - 6	—
	2500 scfm	(1) - 10	(2) - 10	(2) - 10	(3) - 10	(3) - 10	(4) - 10	(4) - 10	(5) - 10
	Total Hp.	16	20	26	30	36	40	46	50
Total Refrigeration Capacity @ Rated Flow (KBTU/hr)	60 Hz	187	238	306	357	425	476	544	595
	50 Hz	156	198	255	297	354	396	453	496
Refrigerant Type		R-404A							
Refrigerant Charge		1250 scfm module – 17 lbs. (7.7 kg.) / 2500 scfm module – 31 lbs. (14.1 kg.)							
Suction Pressure Setting (nominal operating range)		75 - 80 psig (5.2 - 5.5 barg)							
Compressor Pressure Switch Setting (cut out / cut in)	High	320 / 250 psig (22.1 / 17.2 barg)							
	Low	62 / 72 psig (4.3 / 5.0 barg)							
Water-Cooled Condensers									
Water Regulating Valve Setting		255 psig (17.6 barg)							
Minimum Water Pressure Differential		40 psig (2.8 barg)							
Cooling Water Flow with 85°F (gpm)	60 Hz	19	26	32	39	45	52	58	65
	50 Hz	18	24	30	36	42	48	54	60

Air Cooled Models

Model		3150	4200	5250	6300	7350	8400	9450	10500
Operating Data									
Rated Air Flow at 100°F & 100 psig Inlet (scfm)	60 Hz	3150	4200	5250	6300	7350	8400	9450	10500
Rated Air Flow at 95°F & 101.5 psig Inlet (scfm)	50 Hz	2927	3903	4878	5854	6829	7805	8781	9757
Minimum / Maximum Inlet Compressed Air Pressure		30 / 232 psig (2.1 / 16.0 barg)							
Minimum / Maximum Inlet Compressed Air Temperature		40° / 130°F (4° / 54°C)							
Minimum / Maximum Ambient Temperature		40° / 110°F (4° / 43°C)							
Outlet Air Temperature (nominal at rated conditions)		85°F (29°C)							
Refrigeration System Data									
Compressor Type		Hermetic, Digital Scroll							
Refrigeration Compressor Horsepower per module (number of modules) - hp	1050 scfm	(1) - 6	—	(1) - 6	—	(1) - 6	—	(1) - 6	—
	2100 scfm	(1) - 10	(2) - 10	(2) - 10	(3) - 10	(3) - 10	(4) - 10	(4) - 10	(5) - 10
	Total Hp.	16	20	26	30	36	40	46	50
Total Refrigeration Capacity @ Rated Flow (KBTU/hr)	60 Hz	162	206	265	310	368	413	472	516
	50 Hz	140	172	226	258	311	344	397	430
Refrigerant Type		R-404A							
Refrigerant Charge		1050 scfm module – 17 lbs. (7.7 kg.) / 2100 scfm module – 31 lbs. (14.1 kg.)							
Suction Pressure Setting (nominal operating range)		75 - 80 psig (5.2 - 5.5 barg)							
Compressor Pressure Switch Setting (cut out / cut in)	High	450 / 350 psig (31.0 / 24.1 barg)							
	Low	62 / 72 psig (4.3 / 5.0 barg)							
Air-Cooled Condensers									
Air Flow Across Condenser (cfm)	50/60 Hz	10,500							
Variable Speed Fans Control Pressure		232 psig (16.0 barg)							

ENGINEERING DATA TABLES

Model	Water Cooled		Air Cooled	
	1250 scfm (6 Hp.)	2500 scfm (10 Hp.)	1050 scfm (6 Hp.)	2100 scfm (10 Hp.)
Electrical Data				
Nominal Voltage	**230/3/60 ***		**230/3/60 ***	
Voltage Range	207 - 253		207 - 253	
Input Power @ Rated Flow (kW)	5.89	9.88	8.85	14.10
Minimum Circuit Ampacity	25	45	31	52
Maximum Overcurrent Protector (amps)	40	80	50	80
Compressor Rated Load Amps	9.9	17.9	9.9	17.9
Compressor Locked Rotor Amps	75	125	75	125
Compressor Winding Resistance (ohms)	2.27	1.24	2.27	1.24
Nominal Voltage	**460/3/60**		**460/3/60**	
Voltage Range	414 - 506		414 - 506	
Input Power @ Rated Flow (kW)	5.89	9.88	8.85	14.10
Minimum Circuit Ampacity	12	22	16	26
Maximum Overcurrent Protector (amps)	20	40	25	40
Compressor Rated Load Amps	9.9	17.9	9.9	17.9
Compressor Locked Rotor Amps	75	125	75	125
Compressor Winding Resistance (ohms)	2.27	1.24	2.27	1.24
Nominal Voltage	**575/3/60 ***		**575/3/60 ***	
Voltage Range	518 - 633		518 - 633	
Input Power @ Rated Flow (kW)	5.89	9.88	8.85	14.10
Minimum Circuit Ampacity	10	18	13	21
Maximum Overcurrent Protector (amps)	15	30	20	30
Compressor Rated Load Amps	9.9	17.9	9.9	17.9
Compressor Locked Rotor Amps	75	125	75	125
Compressor Winding Resistance (ohms)	2.27	1.24	2.27	1.24
Nominal Voltage	**380-420/3/50**		**380-420/3/50**	
Voltage Range	342 - 462		342 - 462	
Input Power @ Rated Flow (kW)	4.59	7.90	6.90	11.28
Minimum Circuit Ampacity	15	27	19	31
Maximum Overcurrent Protector (amps)	25	45	30	50
Compressor Rated Load Amps	9.9	17.9	9.9	17.9
Compressor Locked Rotor Amps	67-74	110-118	67-74	110-118
Compressor Winding Resistance (ohms)	2.27	1.24	2.27	1.24

* 230/3/60 and 575/3/60 units use equipment transformers on incoming power. The compressor voltage is 460/3/60.

NOTE: A dryer consists of multiple modules that require independent power supply and circuit protection. Refer to the module nameplate for the module size.

DRYER SET POINT TABLE

Sheet 1 of 2

Dryer Module DIP Switch Settings

Module	SW1	SW2	SW3	SW4
Module #1	Off	Off	Off	Off
Module #2	On	Off	Off	Off
Module #3	Off	On	Off	Off
Module #4	On	On	Off	Off
Module #5	Off	Off	On	Off

Dryer Module Jumper Settings

Jumper	Description	On	Off
0	Auto-start	Enabled	Disabled
1	Alarm Override	Enabled	Disabled
2	Auto-restart	Enabled	Disabled
3	Module Type	Air cooled	Water cooled
4	Reserved	N/A	N/A
5	Reserved	N/A	N/A

Master Controller Set Points

Description	Units	Lower	Upper	Increment	Default
Modbus Address	Integer	1	247	1	1
Service Interval	Hours	1000	8000	250	4000
Energy Cost	Decimal	0.00	0.99	0.01	0.13
High Cooling Water Temperature	Celsius	4.0°C (39.2°F)	49.0°C (120.2°F)	1.0°C (1.8°F)	29.0°C (84.2°F)
High Inlet Air Temperature	Celsius	4.0°C (39.2°F)	54.0°C (129.2°F)	1.0°C (1.8°F)	38.0°C (100.4°F)
Low Cooling Water Pressure	PSIG	15.0	150.0	1.0	60.0
Low Outlet Air Pressure	PSIG	30.0	232.0	1.0	100.0
High Ambient Temperature	Celsius	25.0°C (77.0°F)	45.0°C (113.0°F)	1.0°C (1.8°F)	40.0°C (104.0°F)

Audible Alarm Selection Table

Selection	Description
Disabled (Default)	Audible alarm is disabled
Enabled	Audible alarm is enabled

Module #1 Type Selection Table

Selection	Description
None	No module installed
6 HP	1250 SCFM Module w/ 6 HP Compressor
10 HP (Default)	2500 SCFM Module w/ 10 HP Compressor

Module #2 Type Selection Table

Selection	Description
None (Default)	No module installed
6 HP	1250 SCFM Module w/ 6 HP Compressor
10 HP	2500 SCFM Module w/ 10 HP Compressor

DRYER SET POINT TABLE

Sheet 2 of 2

Module #3 Type Selection Table

Selection	Description
None (Default)	No module installed
6 HP	1250 SCFM Module w/ 6 HP Compressor
10 HP	2500 SCFM Module w/ 10 HP Compressor

Module #4 Type Selection Table

Selection	Description
None (Default)	No module installed
6 HP	1250 SCFM Module w/ 6 HP Compressor
10 HP	2500 SCFM Module w/ 10 HP Compressor

Module #5 Type Selection Table

Selection	Description
None (Default)	No module installed
6 HP	1250 SCFM Module w/ 6 HP Compressor
10 HP	2500 SCFM Module w/ 10 HP Compressor

Condenser Type Selection Table

Selection	Description
Water Cooled (Default)	Dryer has water cooled condensers
Air Cooled	Dryer has air cooled condensers

Module Alarm Set Points

Description	Units	Lower	Upper	Increment	Default
High Discharge Temperature	Celsius	—	—	—	120.0°C (248.0°F)
High Separator Temperature	Celsius	—	—	—	15.0°C (59.0°F)
High Super Heat Temperature	Celsius	—	—	—	-10.0°C (14.0°F)
High Discharge Pressure [Water Cooled]	PSIG	—	—	—	290.00
High Discharge Pressure [Air Cooled]	PSIG	—	—	—	375.00
Low Suction Pressure	PSIG	—	—	—	62.00
High Separator Temperature Delay	Minutes	—	—	—	15
Low Suction Pressure Delay	Minutes	—	—	—	1
High Super Heat Delay	Minutes	—	—	—	5
High Separator Temperature Load	Percent	—	—	—	25
Compression Alarm Delay	Seconds	—	—	—	10
Compression Alarm ΔP	PSIG	—	—	—	5.00
Minimum RTD Temperature	Celsius	—	—	—	-45.0°C (-49.0°F)
Maximum RTD Temperature	Celsius	—	—	—	150.0°C (302.0°F)

Module Control Set Points

Description	Units	Lower	Upper	Increment	Default
Fixed load	Percent	0	100	1	30
Set Value	PSIG	0	327.68	0.01	77.00

DRYER ALARM TABLE

Sheet 1 of 2

Module Alarm Conditions

Alarm Text	Alarm Trigger	States	Exit Condition	Alarm Action
DRAIN #1	Drain alarm #1 switch open AND 10 minute alarm delay	ALL	Alarm condition cleared	Warning LED
DRAIN #2	Drain alarm #2 switch open AND 10 minute alarm delay	ALL	Alarm condition cleared	Warning LED
DRAIN #3	Drain alarm #3 switch open AND 10 minute alarm delay	ALL	Alarm condition cleared	Warning LED
CRANKCASE HEATER	Crank case heater current not detected AND 2 second alarm delay	Compressor off	Alarm condition cleared	Warning LED
SUCTION PRESSURE SENSOR FAILURE	Suction pressure sensor < 3.5 mA	ALL	Alarm condition cleared	Alarm LED Shut-off compressor
DISCHARGE PRESSURE SENSOR FAILURE	Discharge pressure sensor < 3.5 mA	ALL	Alarm condition cleared	Alarm LED Shut-off compressor
DISCHARGE TEMP SENSOR FAILURE	-50°F > Discharge temperature > 300°F	ALL	Alarm condition cleared	Alarm LED Shut-off compressor
SEPARATOR TEMP SENSOR FAILURE	-50°F > Separator temperature > 300°F	ALL	Alarm condition cleared	Warning LED
SUCTION TEMP SENSOR FAILURE	-50°F > Suction temperature > 300°F	ALL	Alarm condition cleared	Alarm LED Shut-off compressor
SERVICE DRYER MODULE	Service Timer > Service Interval	ALL	Service timer reset	Warning LED
HIGH DISCHARGE TEMPERATURE	Discharge temperature > 250ºF	ALL	Alarm condition cleared	Alarm LED Shut-off compressor
SUCTION HIGH SUPERHEAT	Suction temperature > Saturation temperature + 15°F AND 5 minute alarm delay	PID Control	Alarm condition cleared	Alarm LED Shut-off compressor
LOW REFRIGERANT PRESSURE ALARM	PV < 62 psig	Compressor on	PV > 72 PSIG AND Alarm condition cleared	Alarm LED Shut-off compressor
HIGH REFRIGERANT PRESSURE ALARM	High pressure switch open AND 2 second alarm delay	ALL	Alarm condition cleared	Alarm LED Shut-off compressor
MOTOR STARTER OVERLOAD TRIP	Motor starter switch open	Compressor on	Alarm condition cleared	Alarm LED Shut-off compressor
HIGH SEPARATOR TEMPERATURE	Separator temperature > 55°F AND Dryer load > 25%	Compressor on > 15 minutes	Alarm condition cleared	Warning LED
HIGH REFRIGERANT PRESSURE WARNING	Discharge pressure > High discharge pressure set point	Compressor on	Alarm condition cleared	Warning LED
COMPRESSION ALARM	[pDischargeLoaded – pDischargeUnloaded] < 5 PSIG	Compressor on > 10 seconds	Alarm condition cleared	Alarm LED Shut-off compressor

DRYER ALARM TABLE

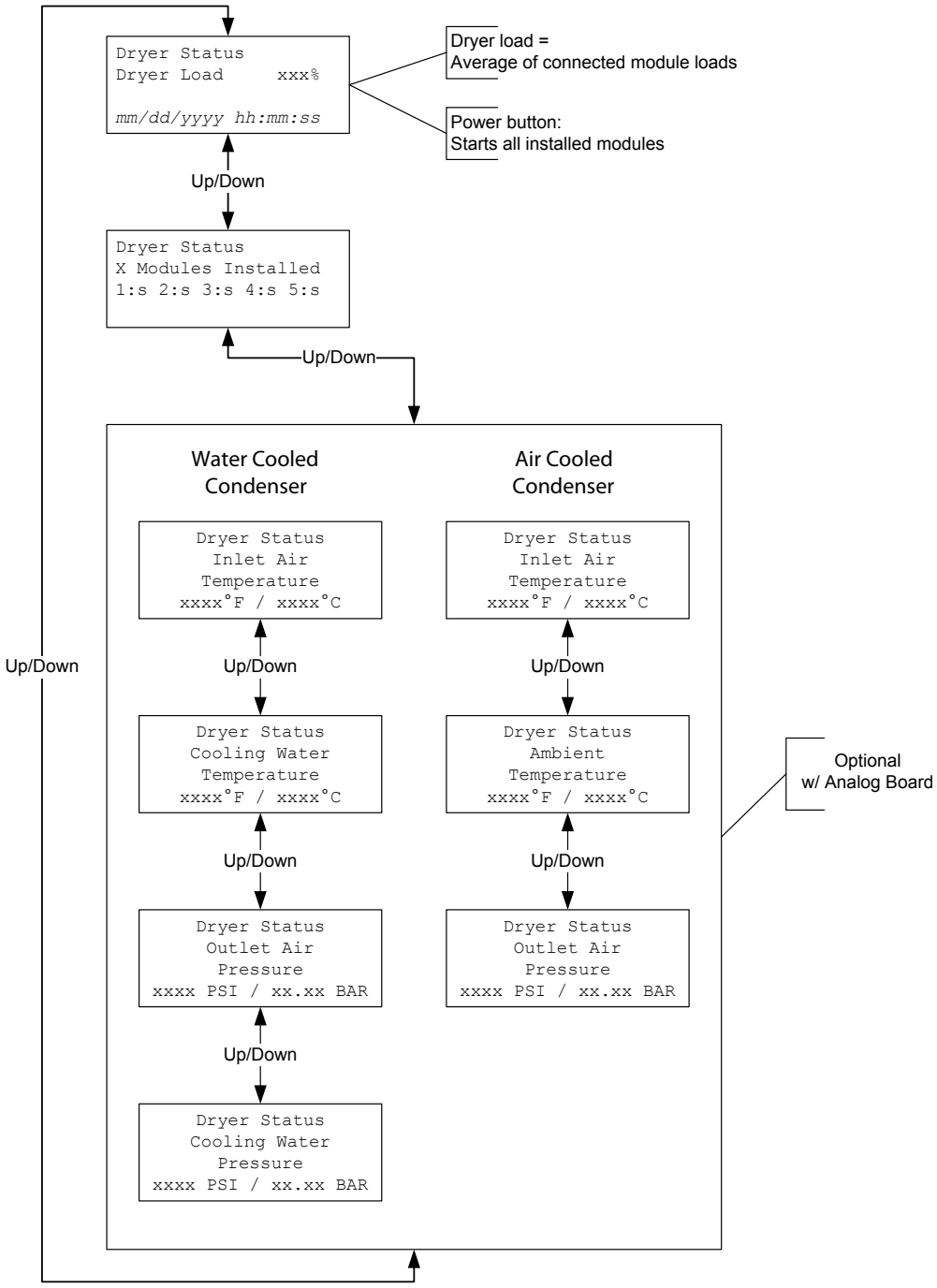
Sheet 2 of 2

Dryer Alarm Conditions

Alarm Text	Alarm Trigger	States	Exit Condition	Alarm Action
INLET AIR TEMP SENSOR FAILURE	-50°F > Inlet Air Temperature > 300°F AND analog board installed	ALL	Alarm condition cleared	Warning LED
COOLING WATER TEMP SENSOR FAILURE	-50°F > Water Temperature > 300°F AND analog board installed AND water cooled	ALL	Alarm condition cleared	Warning LED
OUTLET PRESSURE SENSOR FAILURE	Outlet Pressure Sensor < 3.5 mA AND analog board installed	ALL	Alarm condition cleared	Warning LED
INLET AIR HIGH TEMPERATURE	Inlet Air Temperature > High Inlet Air Temperature Set Point AND analog board installed	ALL	Alarm condition cleared	Warning LED
COOLING WATER HIGH TEMPERATURE	Cooling Water Temperature > High Cooling Water Temperature Set Point AND analog board installed AND water cooled	ALL	Alarm condition cleared	Warning LED
COOLING WATER LOW PRESSURE	Cooling Water Pressure < Low Cooling Water Pressure Set Point AND analog board installed AND water cooled	ALL	Alarm condition cleared	Warning LED
OUTLET AIR LOW PRESSURE	Outlet Air Pressure < Low Outlet Air Pressure Set Point AND analog board installed	ALL	Alarm condition cleared	Warning LED
COOLING WATER PRESS SENSOR FAILURE	Cooling Water Pressure Sensor < 3.5 mA AND analog board installed AND water cooled	ALL	Alarm condition cleared	Warning LED
AMBIENT AIR SENSOR FAILURE	-50°F > Ambient Air Temperature > 300°F AND analog board installed AND air cooled	ALL	Alarm condition cleared	Warning LED
AMBIENT AIR HIGH TEMPERATURE	Ambient Air Temperature > High Ambient Air Temperature Set Point AND analog board installed AND air cooled	ALL	Alarm condition cleared	Warning LED

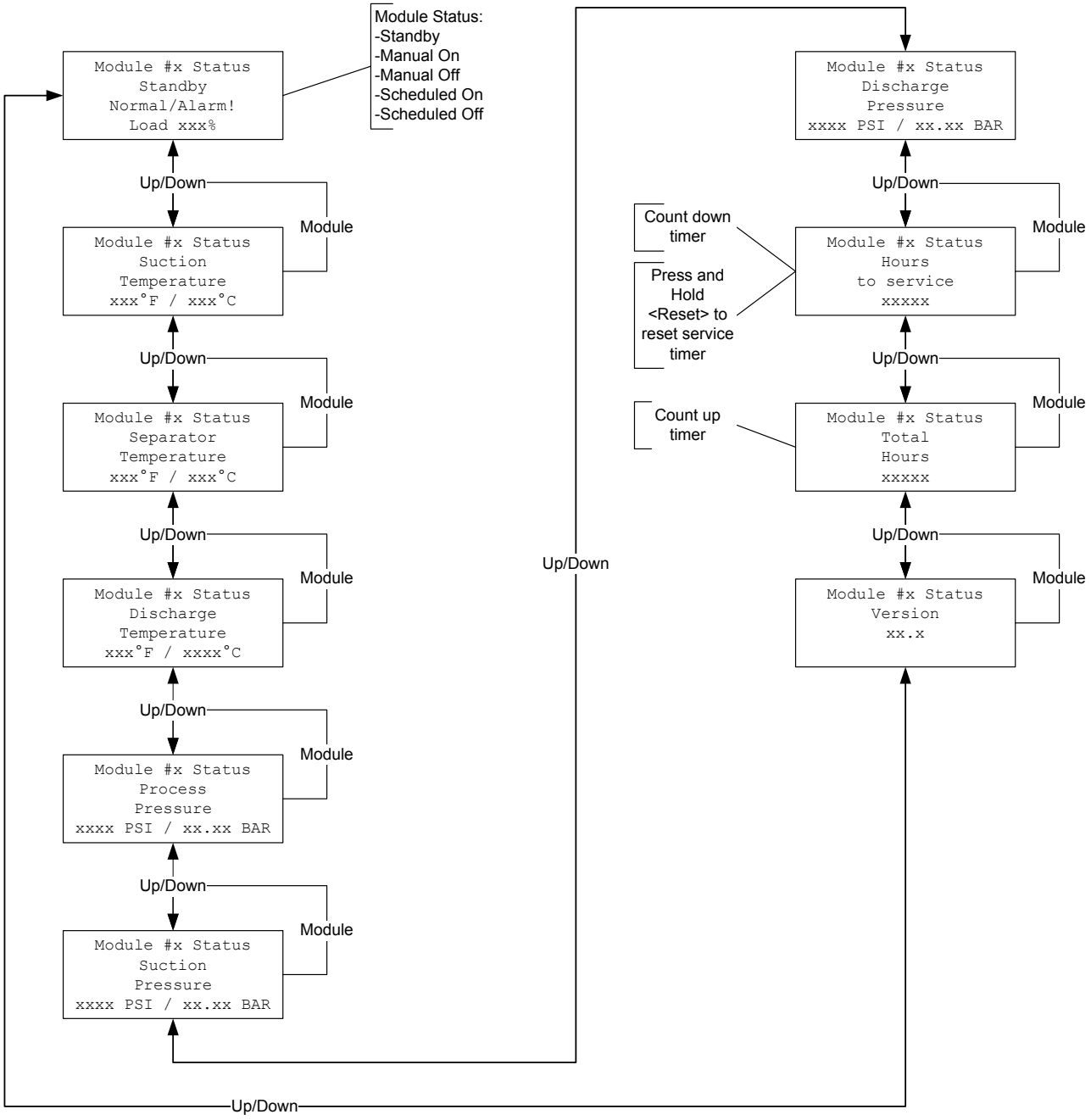
CONTROLLER SCREEN SHOTS

Dryer Status Screens



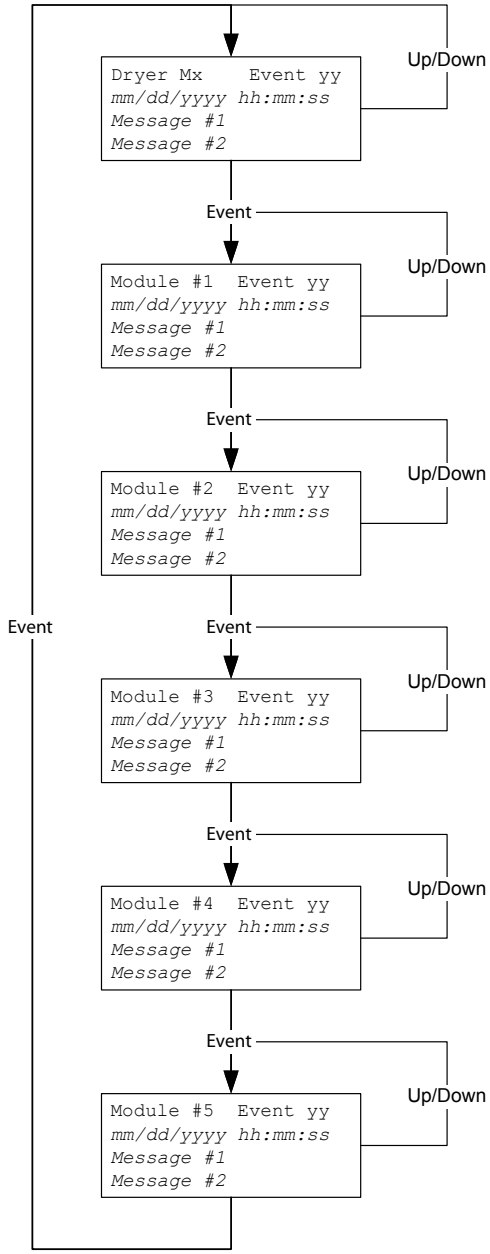
CONTROLLER SCREEN SHOTS

Module Status Screens



CONTROLLER SCREEN SHOTS

Alarm History Screens

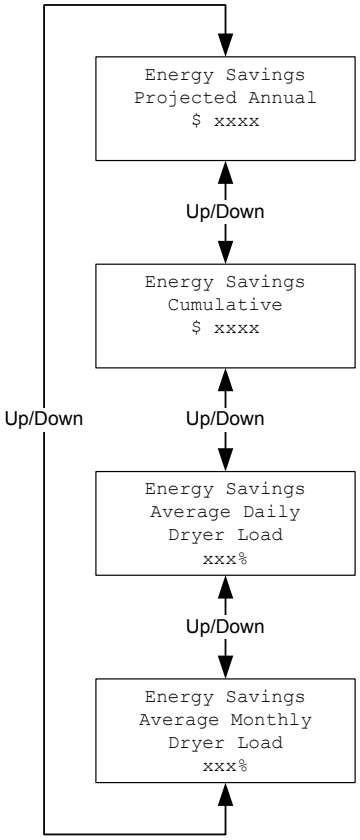


NOTE: Message text starts with 'I' if alarm is active.

NOTE: Press and hold <Reset> to reset alarm history.

CONTROLLER SCREEN SHOTS

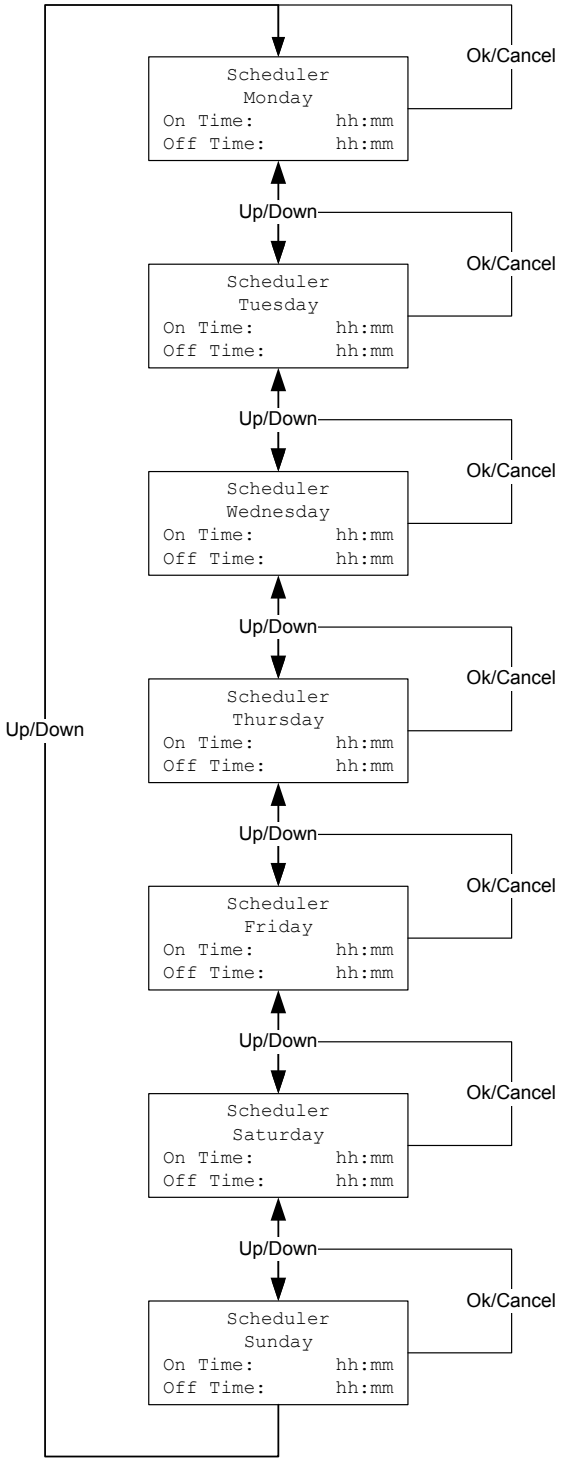
Energy Savings Screens



NOTE: Press and hold <Reset> to reset energy savings.

CONTROLLER SCREEN SHOTS

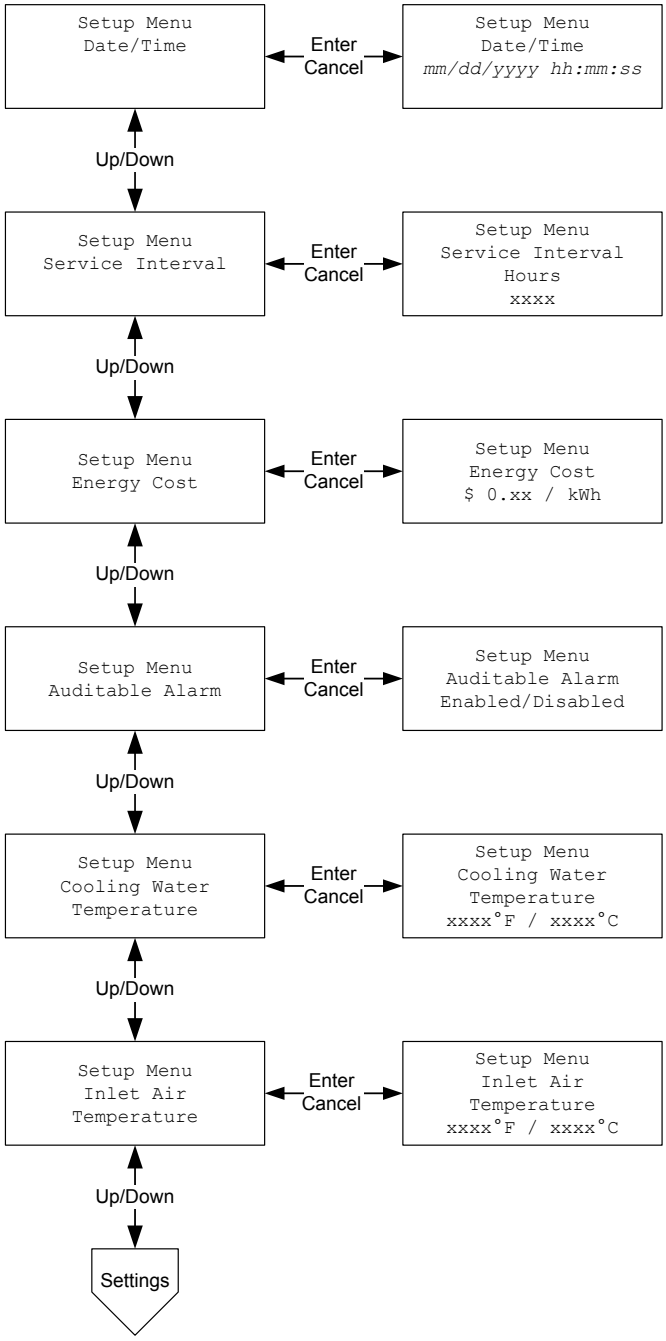
Dryer Scheduler Screens



CONTROLLER SCREEN SHOTS

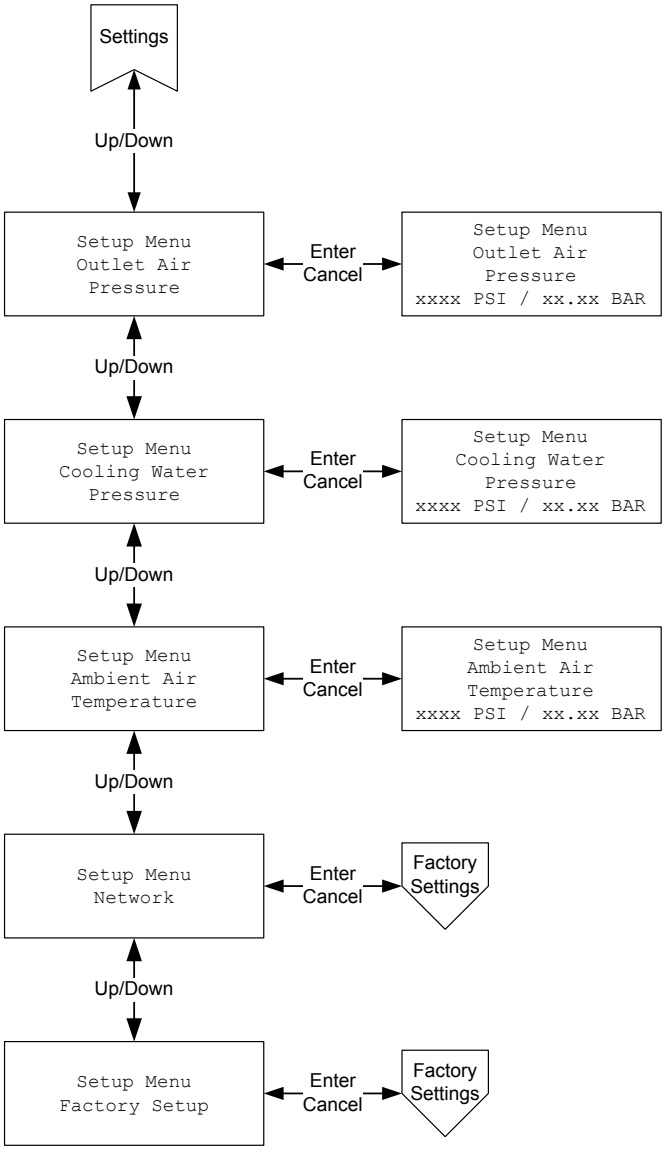
Dryer Setting Screens

Sheet 1 of 2



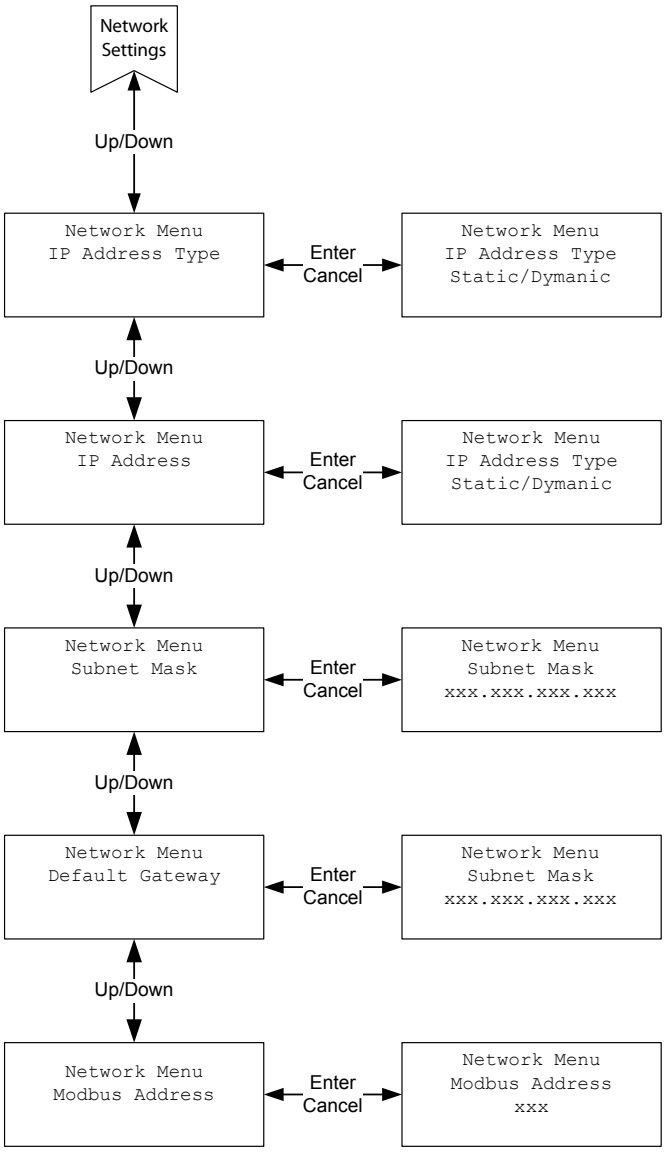
CONTROLLER SCREEN SHOTS

Dryer Setting Screens
Sheet 2 of 2



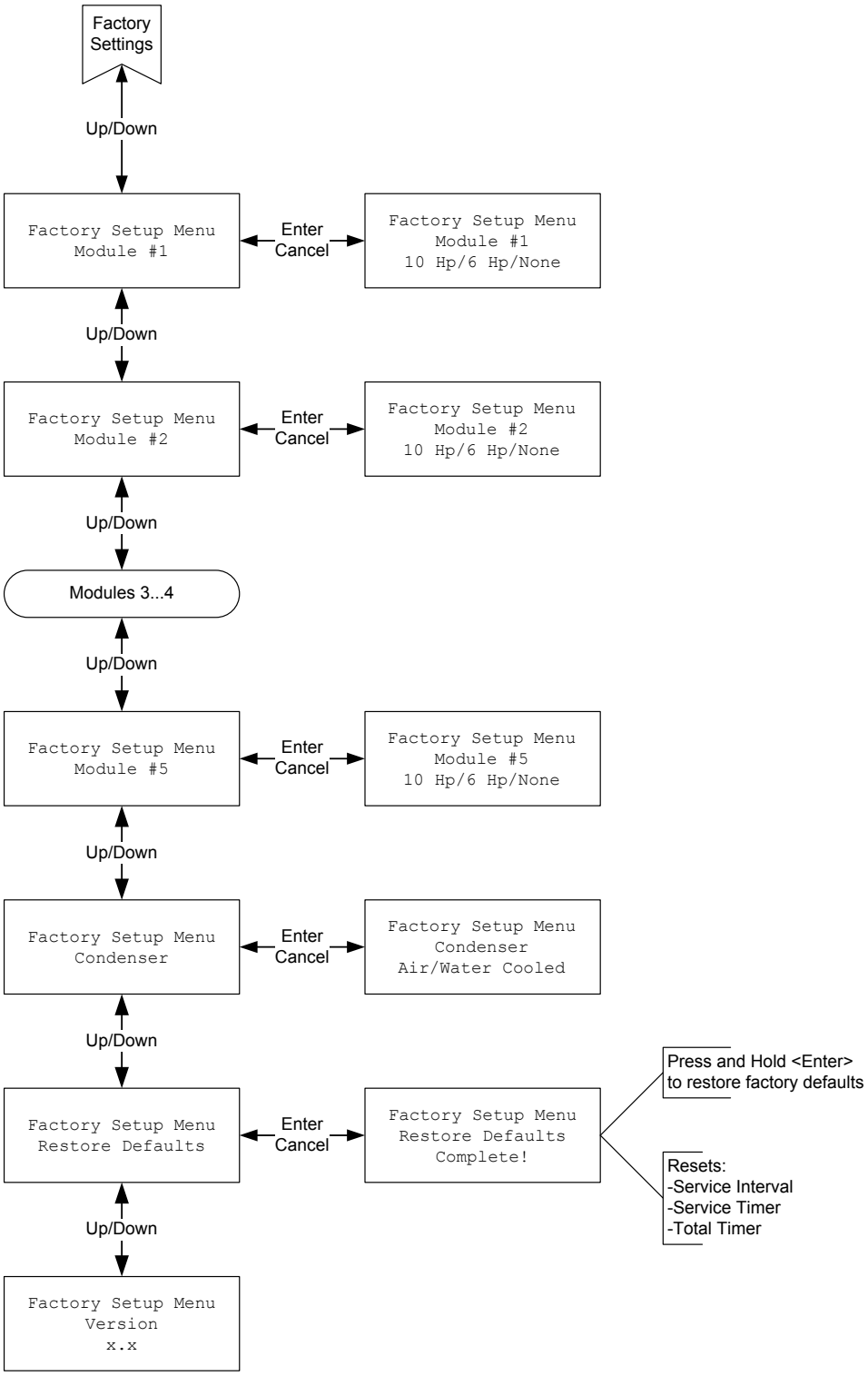
CONTROLLER SCREEN SHOTS

Network Setting Screens



CONTROLLER SCREEN SHOTS

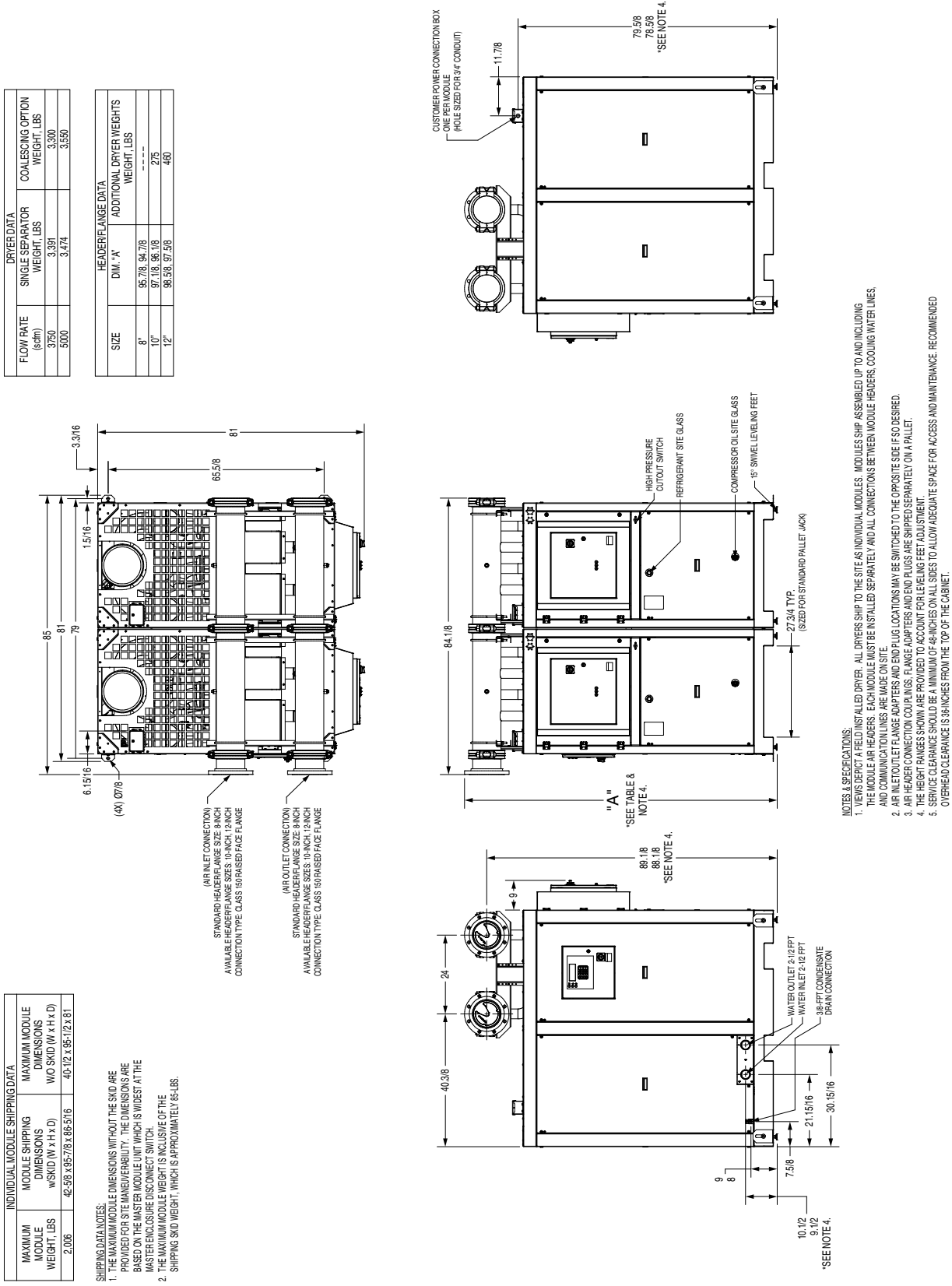
Factory Setting Screens



8.0 DRAWINGS: WATER-COOLED UNITS

General Arrangement

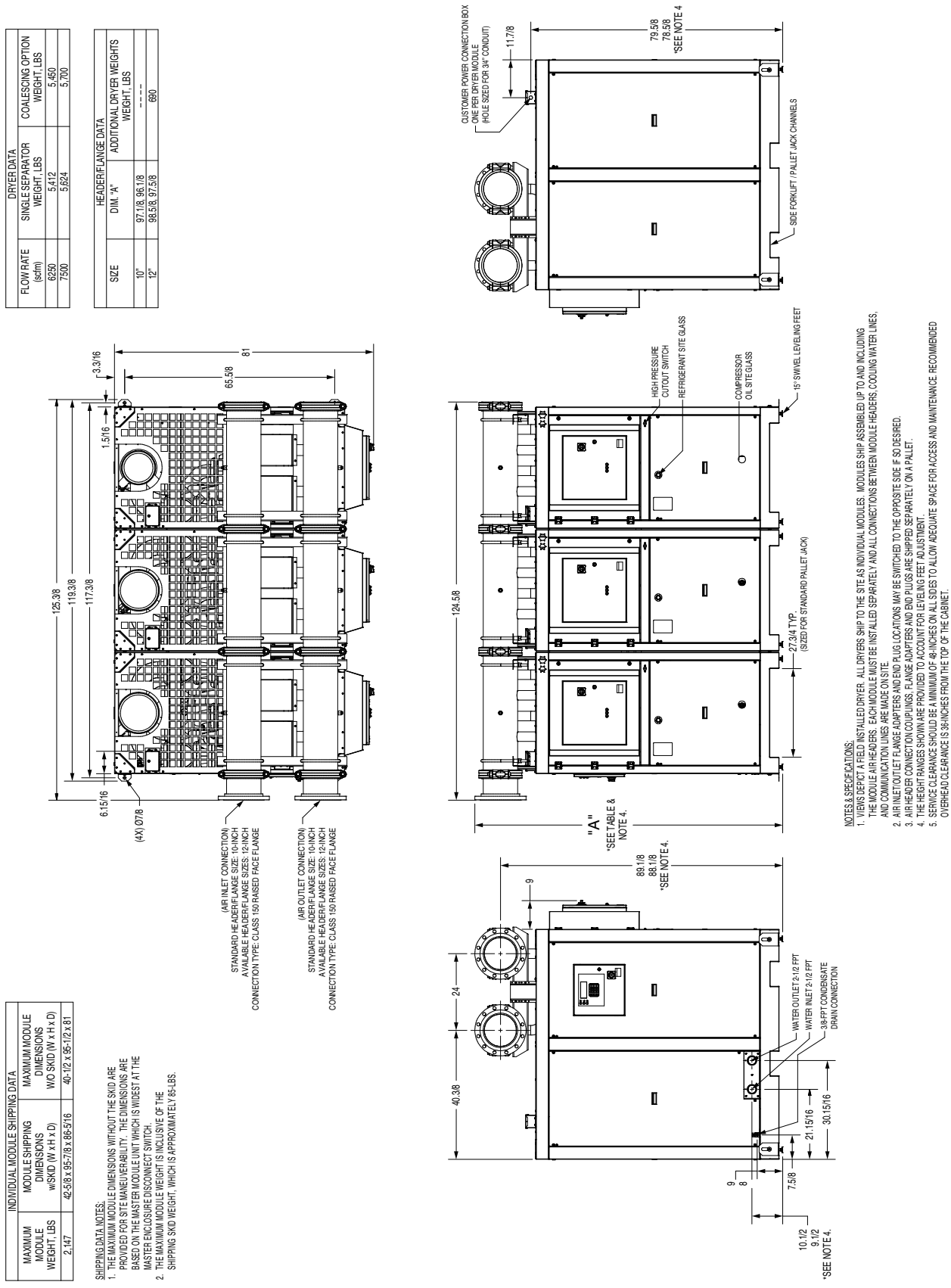
Models 3750 and 5000



DRAWINGS: WATER-COOLED UNITS

General Arrangement

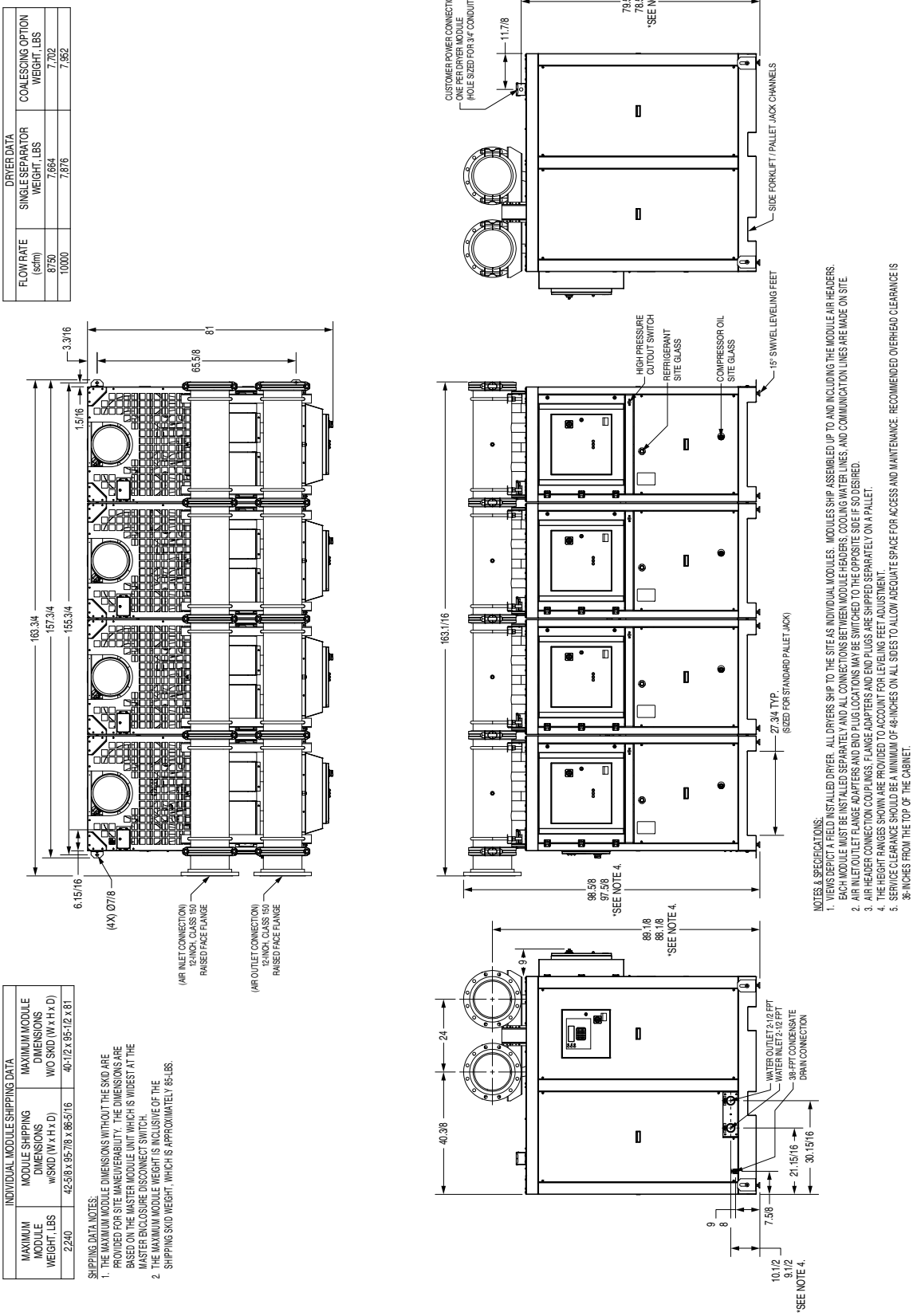
Models 6250 and 7500



DRAWINGS: WATER-COOLED UNITS

General Arrangement

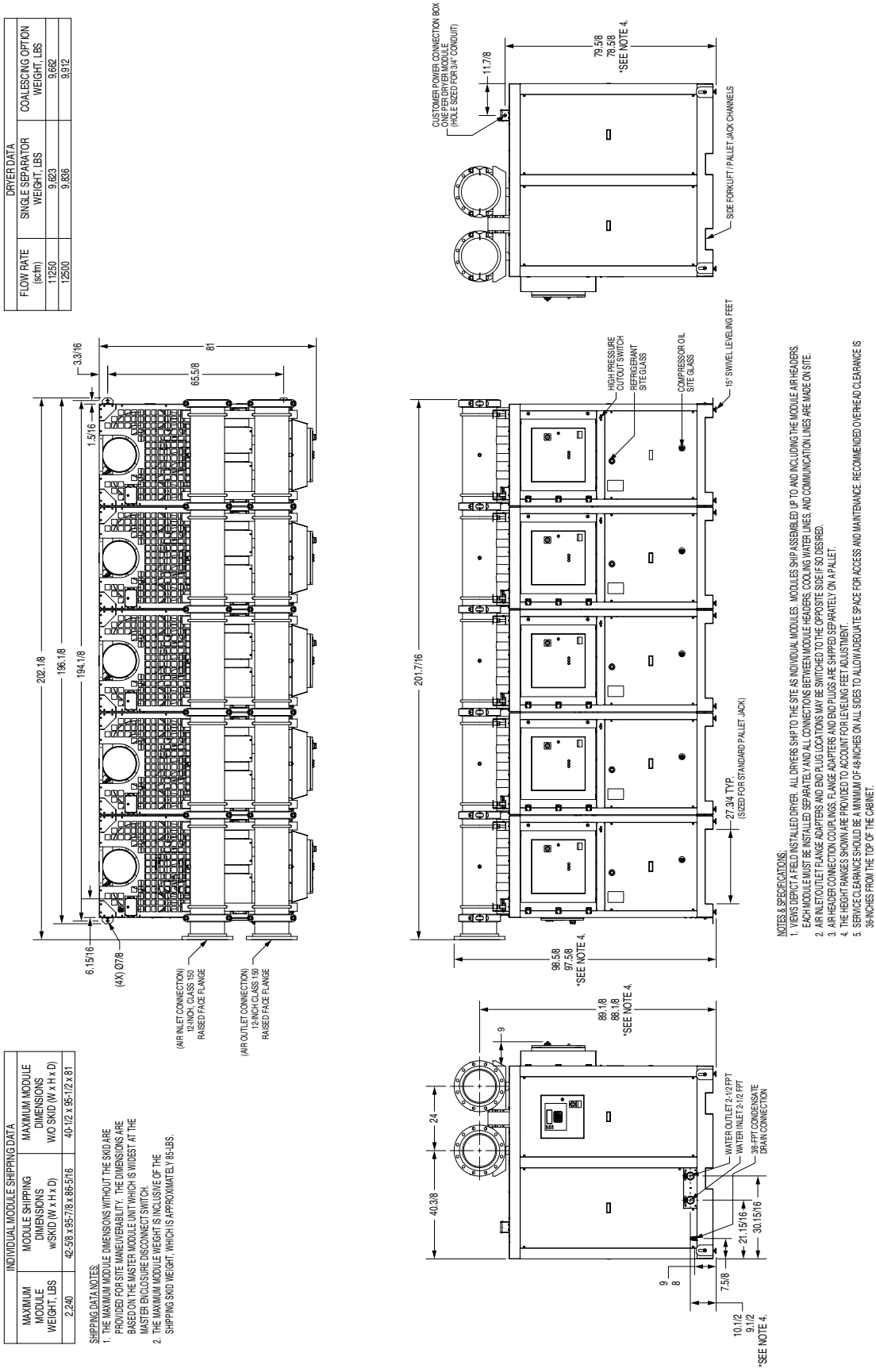
Models 8750 and 10000



DRAWINGS: WATER-COOLED UNITS

General Arrangement

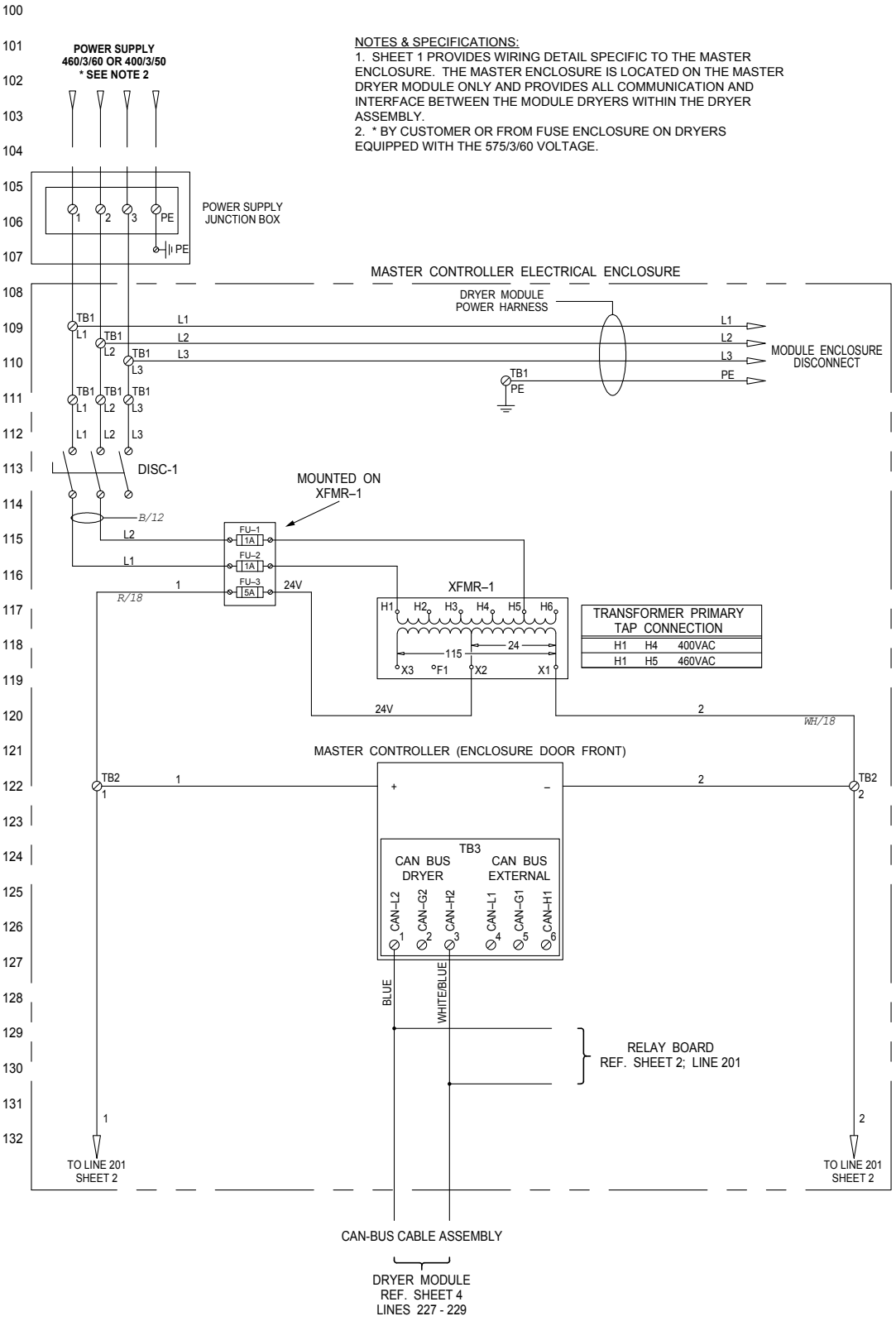
Models 11250 and 12500



DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

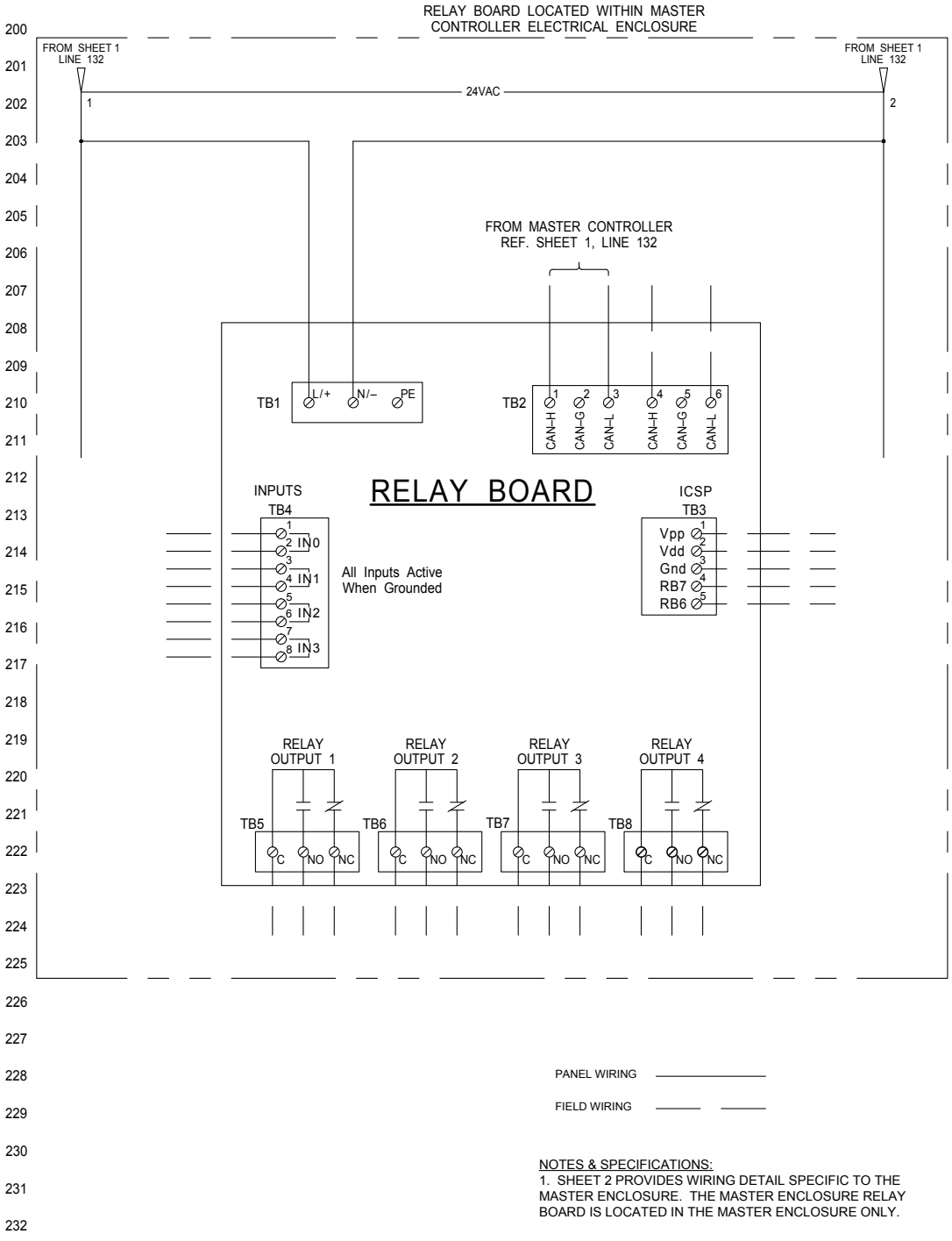
Refrigeration Dryer
Sheet 1 of 4



DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

Refrigeration Dryer
Sheet 2 of 4

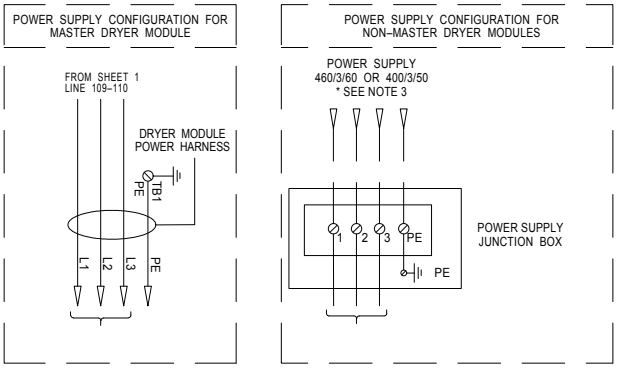


NOTES & SPECIFICATIONS:
1. SHEET 2 PROVIDES WIRING DETAIL SPECIFIC TO THE MASTER ENCLOSURE. THE MASTER ENCLOSURE RELAY BOARD IS LOCATED IN THE MASTER ENCLOSURE ONLY.

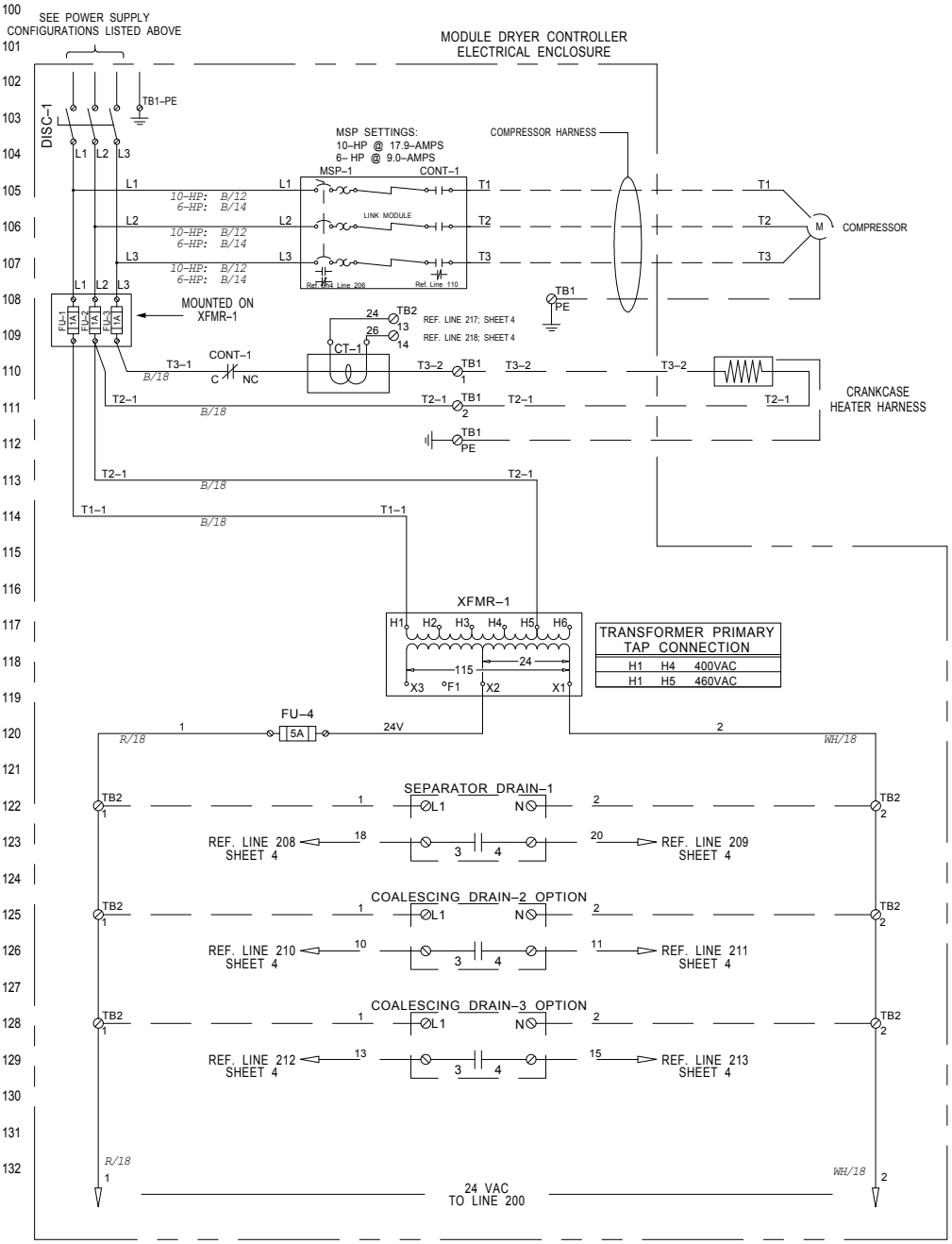
DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

Refrigeration Dryer
Sheet 3 of 4



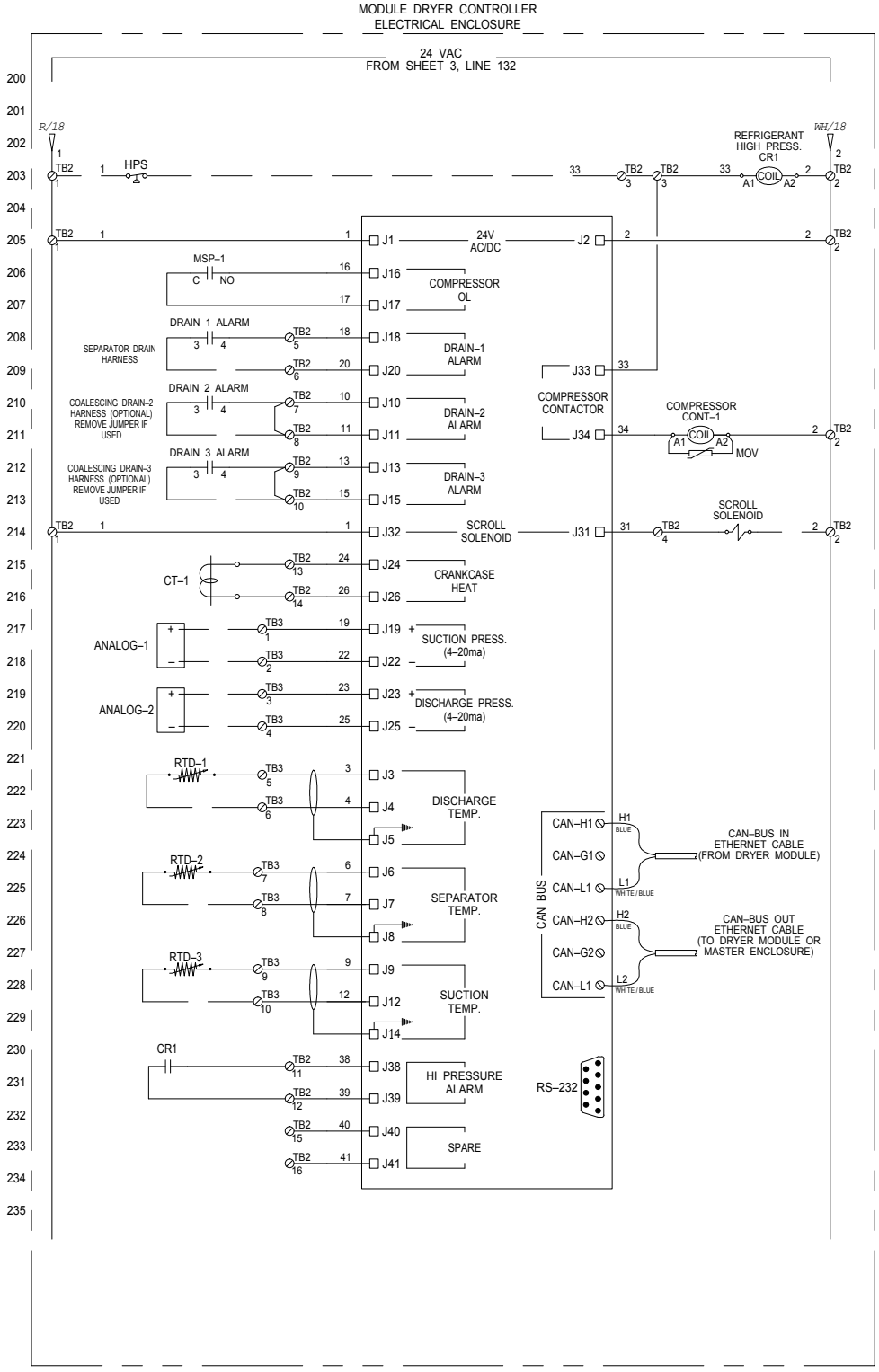
NOTES & SPECIFICATIONS:
1. SHEET 3 PROVIDES WIRING DETAIL SPECIFIC TO THE DRYER MODULE ENCLOSURE.
2. THE DRYER MODULE ENCLOSURE RECEIVES POWER EITHER FROM THE MASTER ENCLOSURE(MASTER DRYER MODULES ONLY) OR FROM THE CUSTOMER JUNCTION BOX ON DRYER MODULES. SEE CONFIGURATION DETAILS ABOUT POWER SOURCE.
3. * BY CUSTOMER OR FROM FUSE ENCLOSURE ON DRYERS EQUIPPED WITH THE 575/3/60 VOLTAGE.



DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

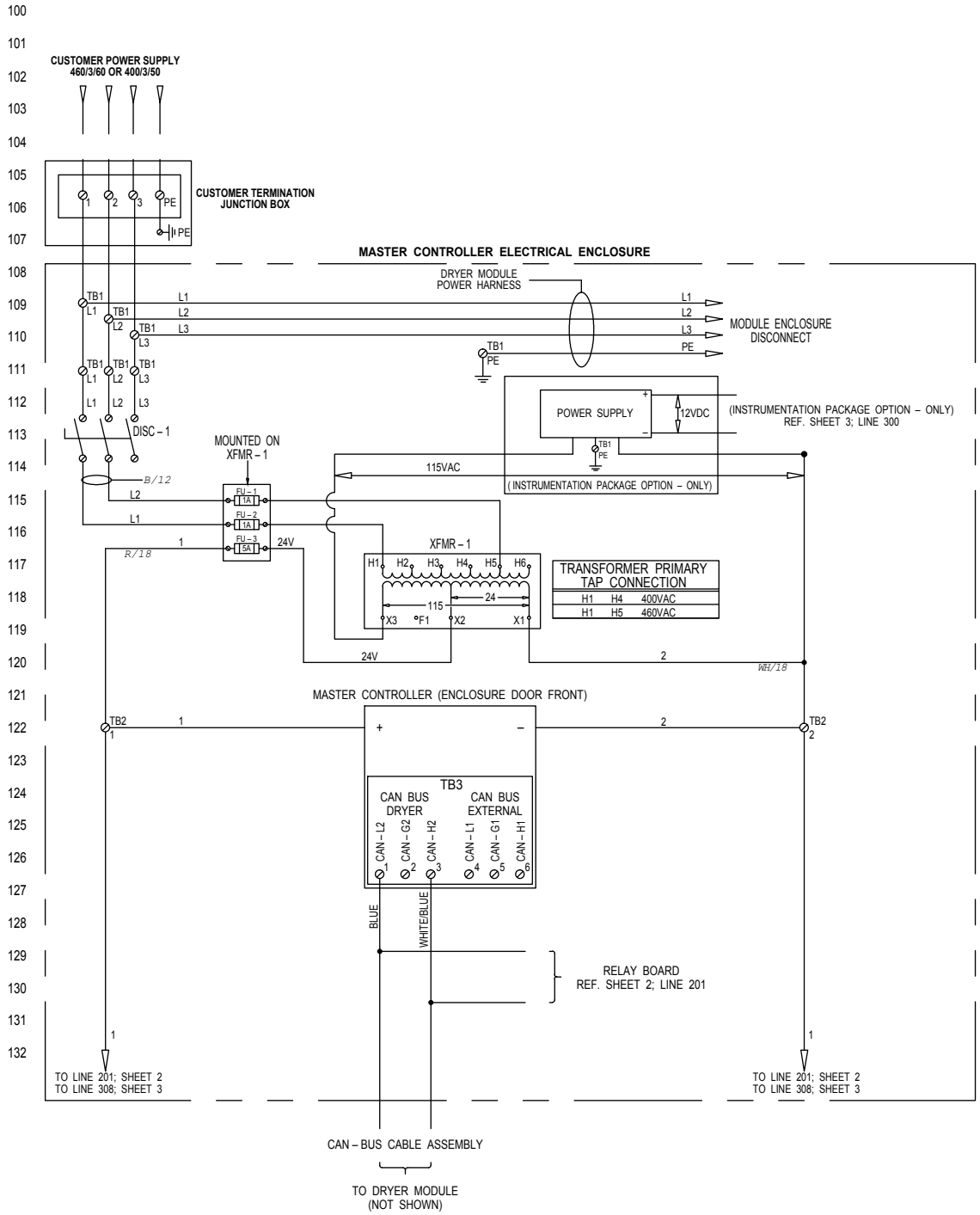
Refrigeration Dryer
Sheet 4 of 4



NOTES & SPECIFICATIONS:
1. SHEET 4 PROVIDES ADDITIONAL WIRING DETAIL SPECIFIC TO THE MODULE DRYER ENCLOSURES.

Electrical Schematic

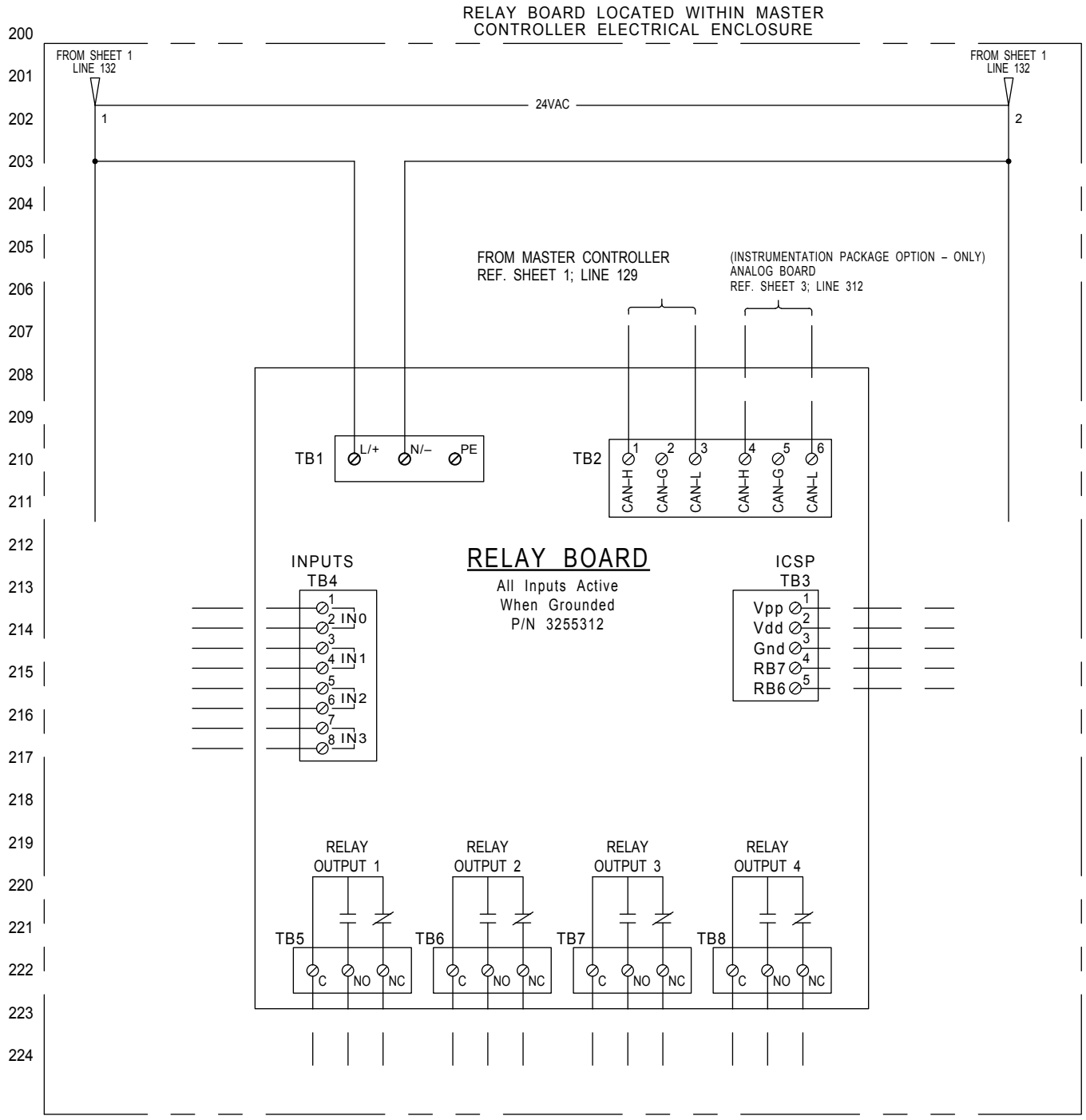
Instrumentation Option
Sheet 1 of 3



DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

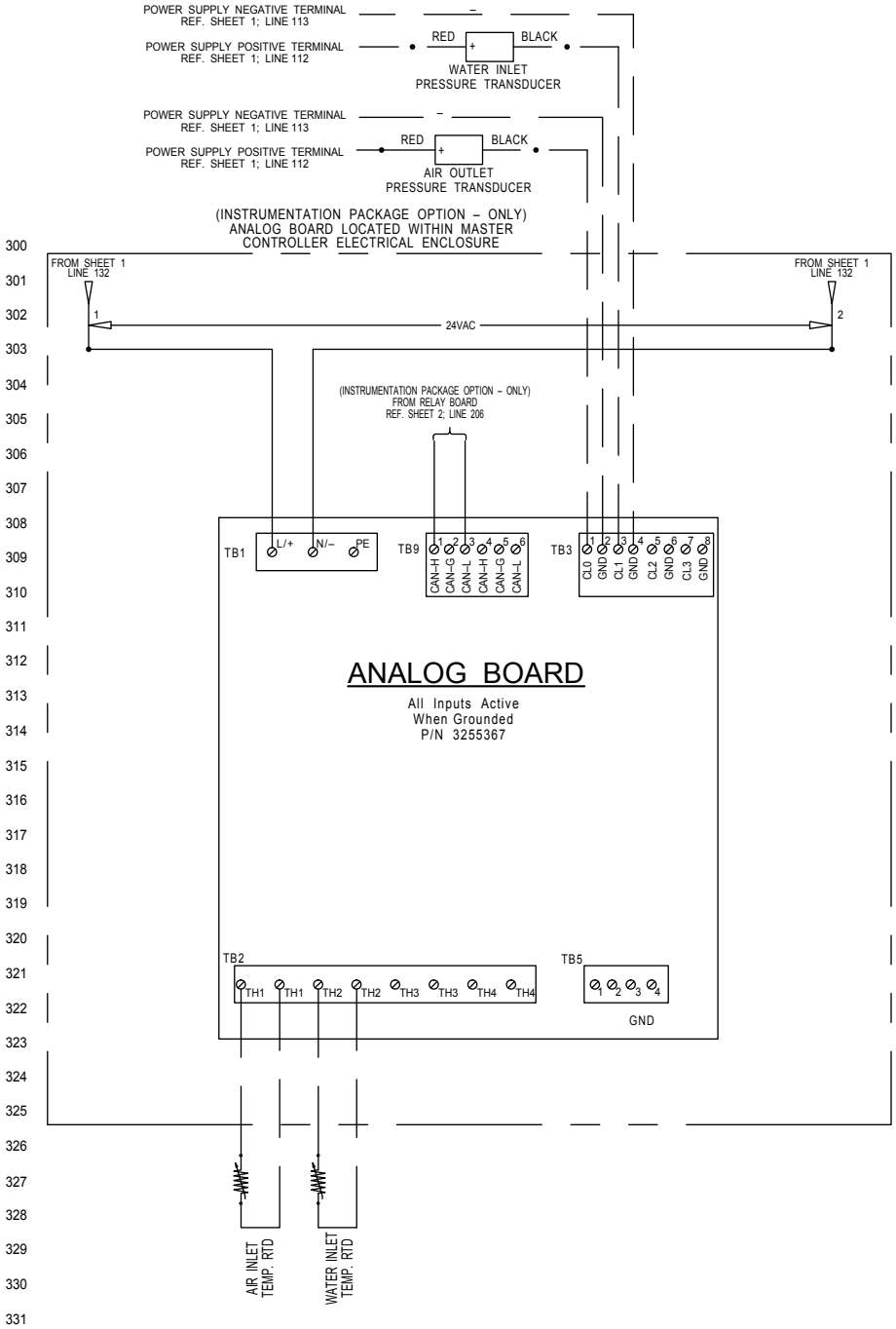
Instrumentation Option
Sheet 2 of 3



DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

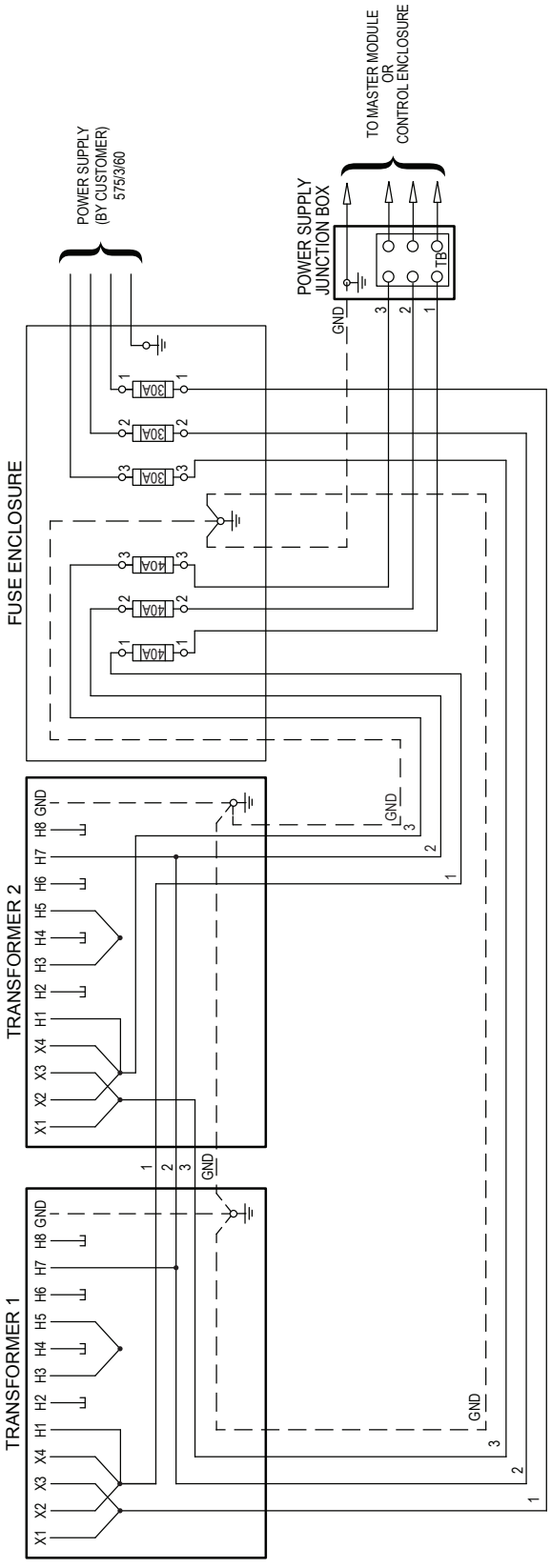
Instrumentation Option
Sheet 3 of 3



DRAWINGS: WATER-COOLED UNITS

Electrical Schematic

575V option



9.0 DRAWINGS: AIR-COOLED UNITS

General Arrangement

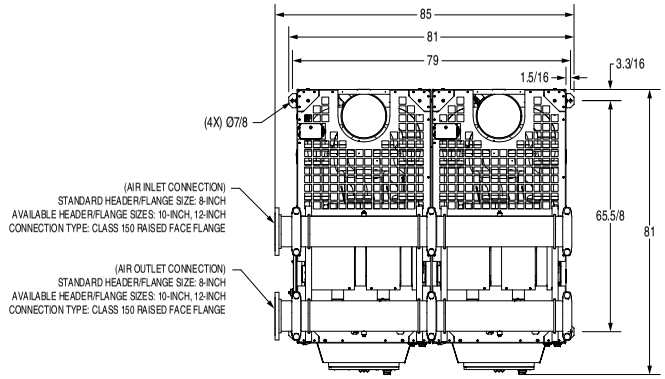
Models 3150 and 4200

INDIVIDUAL MODULE SHIPPING DATA		
MAXIMUM MODULE WEIGHT, LBS	MODULE SHIPPING DIMENSIONS w/SKID (W x H x D)	MAXIMUM MODULE DIMENSIONS W/O SKID (W x H x D)
2,006	42-5/8 x 95-7/8 x 86-5/16	40-1/2 x 95-1/2 x 81

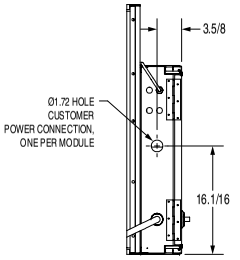
INDIVIDUAL AIR COOLED CONDENSER SHIPPING DATA		
MAXIMUM A/C CONDENSER WEIGHT, LBS	A/C CONDENSER SHIPPING DIMENSIONS w/SKID (W x H x D)	A/C CONDENSER MAXIMUM DIMENSIONS W/O SKID (W x H x D)
733	48 x 49-1/2 x 99	37-15/16 x 41-7/8 x 93-3/8

DRYER DATA		
FLOW RATE (scfm)	SINGLE SEPARATOR WEIGHT, LBS	COALESCING OPTION WEIGHT, LBS
3150	3,720	3,811
4200	3,894	3,970

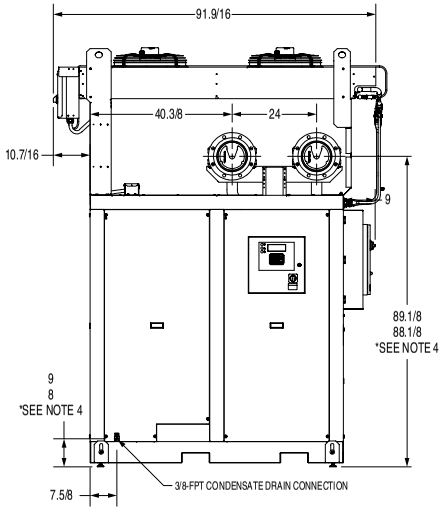
SHIPPING DATA NOTES:
1. THE MAXIMUM MODULE DIMENSIONS WITHOUT THE SKID ARE PROVIDED FOR SITE MANEUVERABILITY. THE DIMENSIONS ARE BASED ON THE MASTER MODULE UNIT WHICH IS WIDEST AT THE MASTER ENCLOSURE DISCONNECT SWITCH.
2. THE MAXIMUM MODULE WEIGHT IS INCLUSIVE OF THE SHIPPING SKID WEIGHT, WHICH IS APPROXIMATELY 85-LBS.
3. THE MAXIMUM AIR COOLED CONDENSER DIMENSIONS WITHOUT THE SKID ARE PROVIDED FOR SITE MANEUVERABILITY.
4. THE MAXIMUM AIR COOLED CONDENSER WEIGHT IS INCLUSIVE OF THE SHIPPING SKID WEIGHT, WHICH IS APPROXIMATELY 313-LBS.



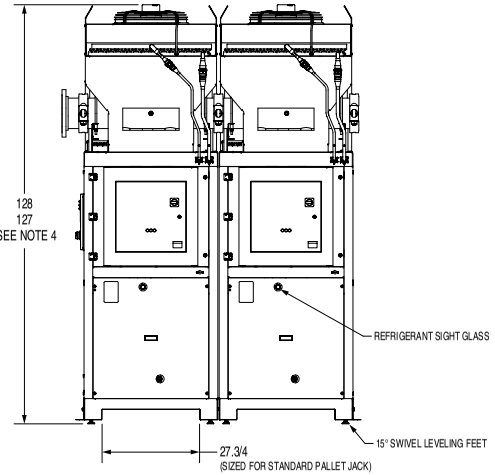
TOP VIEW
(A/C CONDENSERS REMOVED FOR CLARITY)



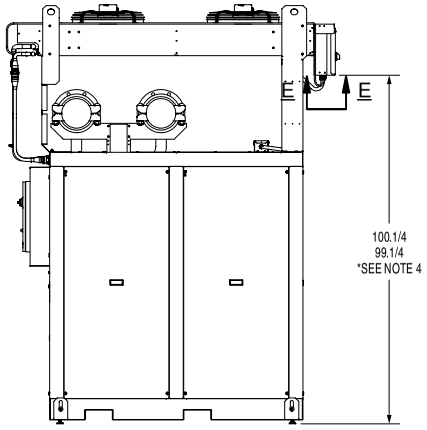
SECTION E-E



LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW

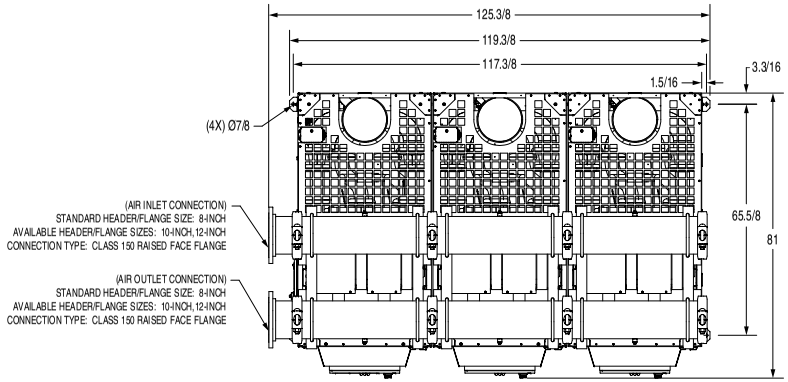
NOTES & SPECIFICATIONS:
1. VIEWS DEPICT A FIELD INSTALLED DRYER. ALL DRYERS SHIP TO THE SITE AS INDIVIDUAL MODULES. MODULES SHIP ASSEMBLED UP TO AND INCLUDING THE MODULE AIR HEADERS. EACH MODULE MUST BE INSTALLED SEPARATELY AND ALL CONNECTIONS BETWEEN MODULE HEADERS, CONDENSATE LINES, AND COMMUNICATION LINES ARE MADE ON SITE. AIR COOLED CONDENSERS WILL SHIP SEPARATELY AND REQUIRE FIELD INSTALLATION.
2. AIR INLET/OUTLET FLANGE ADAPTERS AND END PLUG LOCATIONS MAY BE SWITCHED TO THE OPPOSITE SIDE IF SO DESIRED.
3. AIR HEADER CONNECTION COUPLINGS, FLANGE ADAPTERS AND END PLUGS ARE SHIPPED SEPARATELY ON A PALLET.
4. THE HEIGHT RANGES SHOWN ARE PROVIDED TO ACCOUNT FOR LEVELING FEET ADJUSTMENT.
5. SERVICE CLEARANCE SHOULD BE A MINIMUM OF 48-INCHES ON ALL SIDES TO ALLOW ADEQUATE SPACE FOR ACCESS AND MAINTENANCE. RECOMMENDED OVERHEAD CLEARANCE IS 36-INCHES FROM THE TOP OF THE AIR-COOLED CONDENSER'S FANS.

INDIVIDUAL MODULE SHIPPING DATA		
MAXIMUM MODULE WEIGHT, LBS	MODULE SHIPPING DIMENSIONS w/SKID (W x H x D)	MAXIMUM MODULE DIMENSIONS W/O SKID (W x H x D)
2,006	42-5/8 x 95-7/8 x 86-5/16	40-1/2 x 95-1/2 x 81

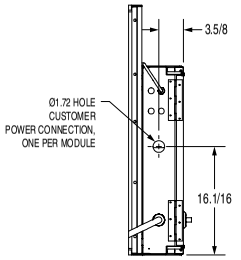
INDIVIDUAL AIR COOLED CONDENSER SHIPPING DATA		
MAXIMUM A/C CONDENSER WEIGHT, LBS	A/C CONDENSER SHIPPING DIMENSIONS w/SKID (W x H x D)	A/C CONDENSER MAXIMUM DIMENSIONS W/O SKID (W x H x D)
733	48 x 49-1/2 x 99	37-15/16 x 41-7/8 x 93-3/8

DRYER DATA		
FLOW RATE (scfm)	SINGLE SEPARATOR WEIGHT, LBS	COALESCING OPTION WEIGHT, LBS
5250	5,656	5,785
6300	5,830	5,944

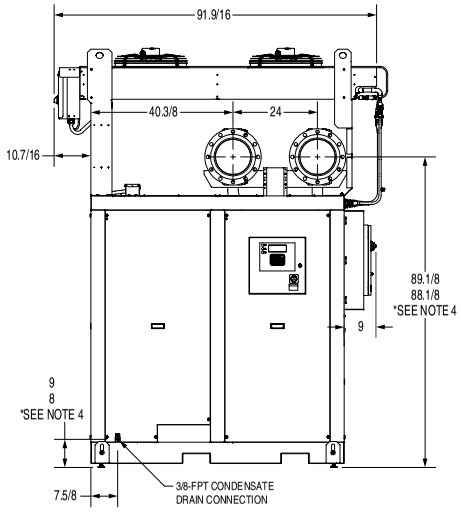
SHIPPING DATA NOTES:
1. THE MAXIMUM MODULE DIMENSIONS WITHOUT THE SKID ARE PROVIDED FOR SITE MANEUVERABILITY. THE DIMENSIONS ARE BASED ON THE MASTER MODULE UNIT WHICH IS WIDEST
1. AT THE MASTER ENCLOSURE DISCONNECT SWITCH.
2. THE MAXIMUM MODULE WEIGHT IS INCLUSIVE OF THE SHIPPING SKID WEIGHT, WHICH IS APPROXIMATELY 85-LBS.
3. THE MAXIMUM AIR COOLED CONDENSER DIMENSIONS WITHOUT THE SKID ARE PROVIDED FOR SITE MANEUVERABILITY.
4. THE MAXIMUM AIR COOLED CONDENSER WEIGHT IS INCLUSIVE OF THE SHIPPING SKID WEIGHT, WHICH IS APPROXIMATELY 313-LBS.



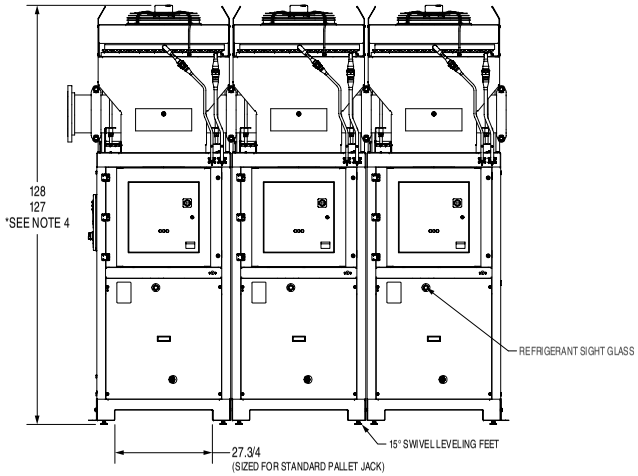
TOP VIEW
(A/C CONDENSERS REMOVED FOR CLARITY)



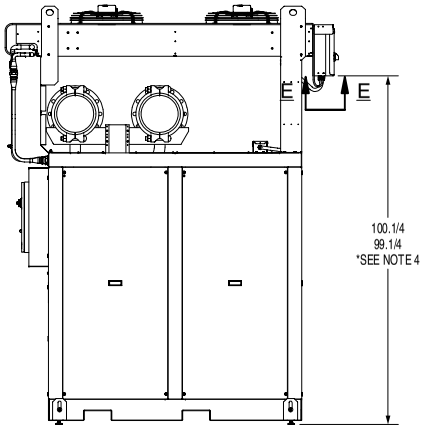
SECTION E-E



LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW

NOTES & SPECIFICATIONS:
1. VIEWS DEPICT A FIELD INSTALLED DRYER. ALL DRYERS SHIP TO THE SITE AS INDIVIDUAL MODULES. MODULES SHIP ASSEMBLED UP TO AND INCLUDING THE MODULE AIR HEADERS. EACH MODULE MUST BE INSTALLED SEPARATELY AND ALL CONNECTIONS BETWEEN MODULE HEADERS,CONDENSATE LINES, AND COMMUNICATION LINES ARE MADE ON SITE. AIR COOLED CONDENSERS WILL SHIP SEPARATELY AND REQUIRE FIELD INSTALLATION.
2. AIR INLET/OUTLET FLANGE ADAPTERS AND END PLUG LOCATIONS MAY BE SWITCHED TO THE OPPOSITE SIDE IF SO DESIRED.
3. AIR HEADER CONNECTION COUPLINGS, FLANGE ADAPTERS AND END PLUGS ARE SHIPPED SEPARATELY ON A PALLET.
4. THE HEIGHT RANGES SHOWN ARE PROVIDED TO ACCOUNT FOR LEVELING FEET ADJUSTMENT.
5. SERVICE CLEARANCE SHOULD BE A MINIMUM OF 48-INCHES ON ALL SIDES TO ALLOW ADEQUATE SPACE FOR ACCESS AND MAINTENANCE. RECOMMENDED OVERHEAD CLEARANCE IS 36-INCHES FROM THE TOP OF THE AIR-COOLED CONDENSER'S FANS.

DRAWINGS: AIR-COOLED UNITS

General Arrangement

Models 7350 and 8400

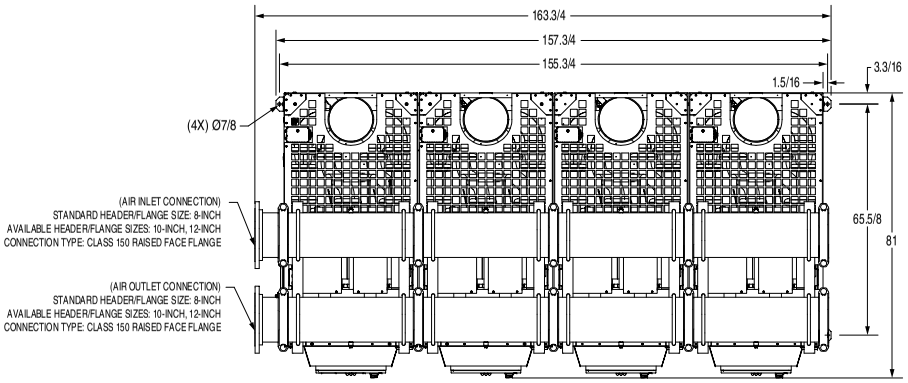
INDIVIDUAL MODULE SHIPPING DATA		
MAXIMUM MODULE WEIGHT, LBS	MODULE SHIPPING DIMENSIONS w/SKID (W x H x D)	MAXIMUM MODULE DIMENSIONS W/O SKID (W x H x D)
2,006	42-5/8 x 95-7/8 x 86-5/16	40-1/2 x 95-1/2 x 81

INDIVIDUAL AIR COOLED CONDENSER SHIPPING DATA		
MAXIMUM A/C CONDENSER WEIGHT, LBS	A/C CONDENSER SHIPPING DIMENSIONS w/SKID (W x H x D)	A/C CONDENSER MAXIMUM DIMENSIONS W/O SKID (W x H x D)
733	48 x 49-1/2 x 99	37-15/16 x 41-7/8 x 93-3/8

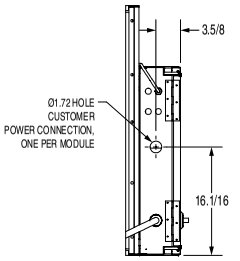
DRYER DATA		
FLOW RATE (scfm)	SINGLE SEPARATOR WEIGHT, LBS	COALESCING OPTION WEIGHT, LBS
7350	7,592	7,759
8400	7,766	7,918

SHIPPING DATA NOTES:

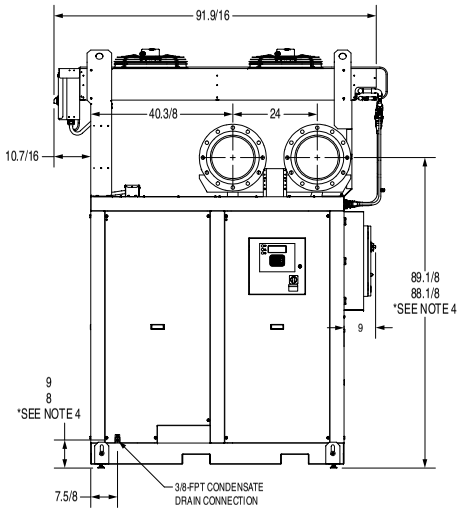
1. THE MAXIMUM MODULE DIMENSIONS WITHOUT THE SKID ARE PROVIDED FOR SITE MANEUVERABILITY. THE DIMENSIONS ARE BASED ON THE MASTER MODULE UNIT WHICH IS WIDEST AT THE MASTER ENCLOSURE DISCONNECT SWITCH.
2. THE MAXIMUM MODULE WEIGHT IS INCLUSIVE OF THE SHIPPING SKID WEIGHT, WHICH IS APPROXIMATELY 85-LBS.
3. THE MAXIMUM AIR COOLED CONDENSER DIMENSIONS WITHOUT THE SKID ARE PROVIDED FOR SITE MANEUVERABILITY.
4. THE MAXIMUM AIR COOLED CONDENSER WEIGHT IS INCLUSIVE OF THE SHIPPING SKID WEIGHT, WHICH IS APPROXIMATELY 313-LBS.



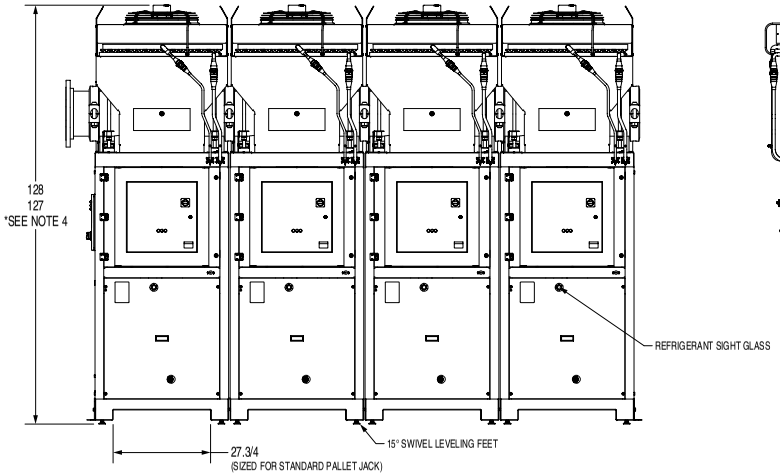
TOP VIEW
(A/C CONDENSERS REMOVED FOR CLARITY)



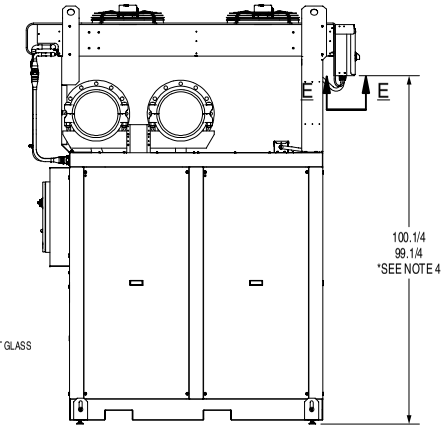
SECTION E-E



LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW

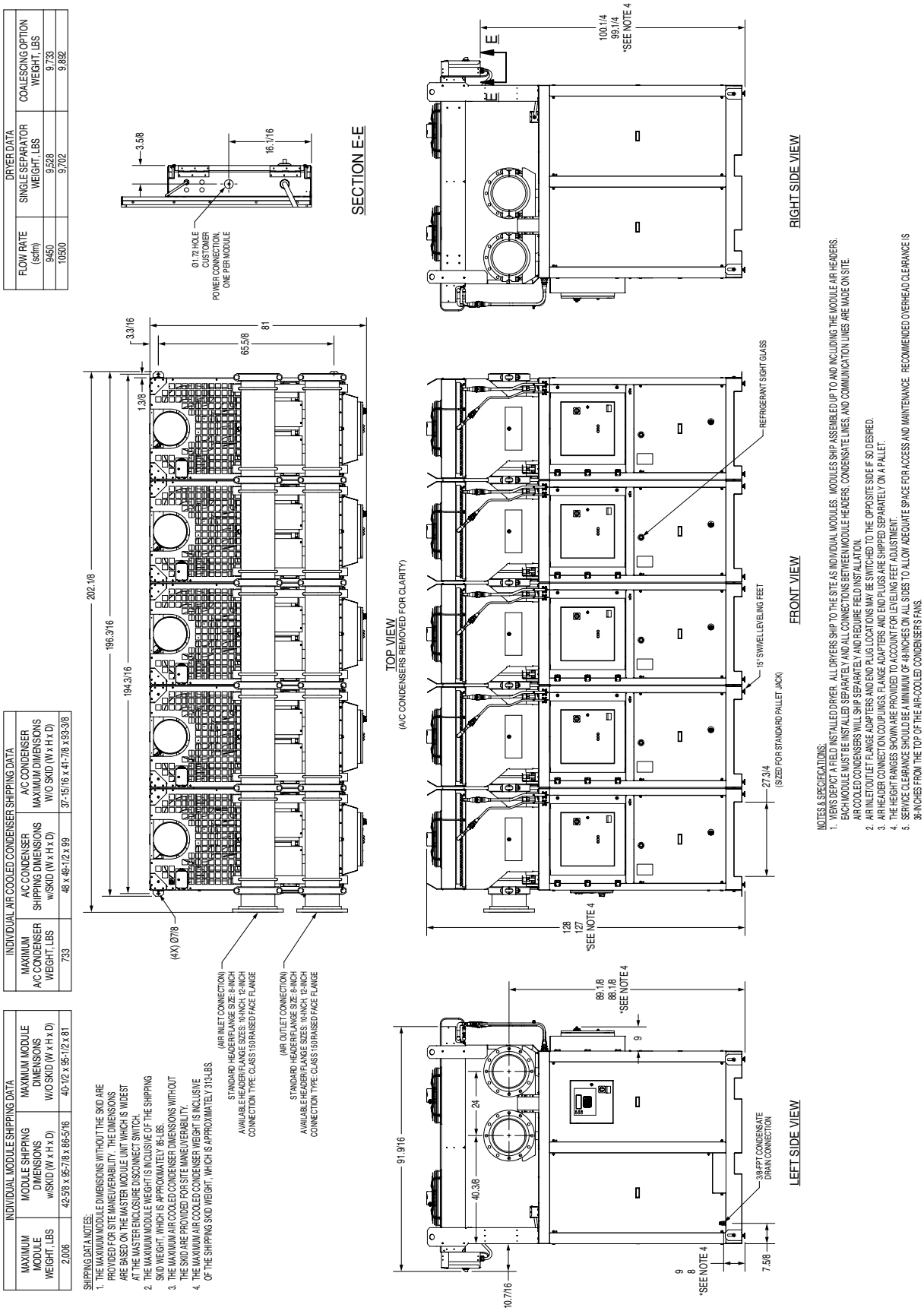
NOTES & SPECIFICATIONS:

1. VIEWS DEPICT A FIELD INSTALLED DRYER. ALL DRYERS SHIP TO THE SITE AS INDIVIDUAL MODULES. MODULES SHIP ASSEMBLED UP TO AND INCLUDING THE MODULE AIR HEADERS. EACH MODULE MUST BE INSTALLED SEPARATELY AND ALL CONNECTIONS BETWEEN MODULE HEADERS, CONDENSATE LINES, AND COMMUNICATION LINES ARE MADE ON SITE. AIR COOLED CONDENSERS WILL SHIP SEPARATELY AND REQUIRE FIELD INSTALLATION.
2. AIR INLET/OUTLET FLANGE ADAPTERS AND END PLUG LOCATIONS MAYBE SWITCHED TO THE OPPOSITE SIDE IF SO DESIRED.
3. AIR HEADER CONNECTION COUPLINGS, FLANGE ADAPTERS AND END PLUGS ARE SHIPPED SEPARATELY ON A PALLET.
4. THE HEIGHT RANGES SHOWN ARE PROVIDED TO ACCOUNT FOR LEVELING FEET ADJUSTMENT.
5. SERVICE CLEARANCE SHOULD BE A MINIMUM OF 48-INCHES ON ALL SIDES TO ALLOW ADEQUATE SPACE FOR ACCESS AND MAINTENANCE. RECOMMENDED OVERHEAD CLEARANCE IS 36-INCHES FROM THE TOP OF THE AIR-COOLED CONDENSER'S FANS.

DRAWINGS: AIR-COOLED UNITS

General Arrangement

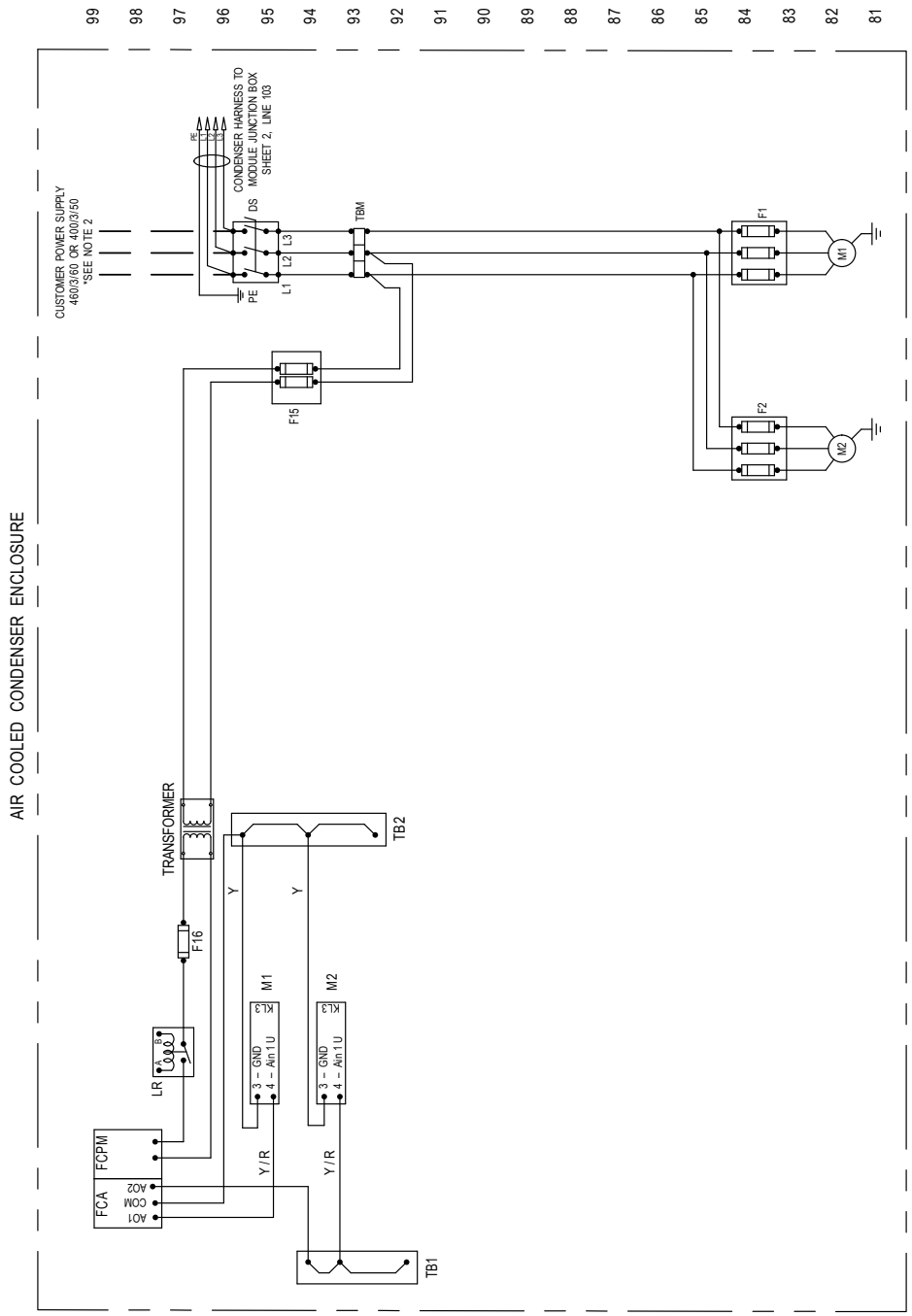
Models 9450 and 10500



DRAWINGS: AIR-COOLED UNITS

Electrical Schematic

Refrigeration Dryer
Sheet 1 of 5



M	FAN MOTOR
C	CONTACTOR
F	FUSE
TB	TERMINAL BLOCK
SS	SERVICE SWITCH
MP	MOTOR PROTECTOR
FCR	FAN CYCLE (RELAY)
FCA	FAN CYCLE (ANALOG)
FCPM	FAN CYCLE POWER MODULE
DS	DISCONNECT SWITCH
R	RELAY – NO 24 VAC
LR	LOCKOUT RELAY

FAN MOTOR IDENTIFICATION

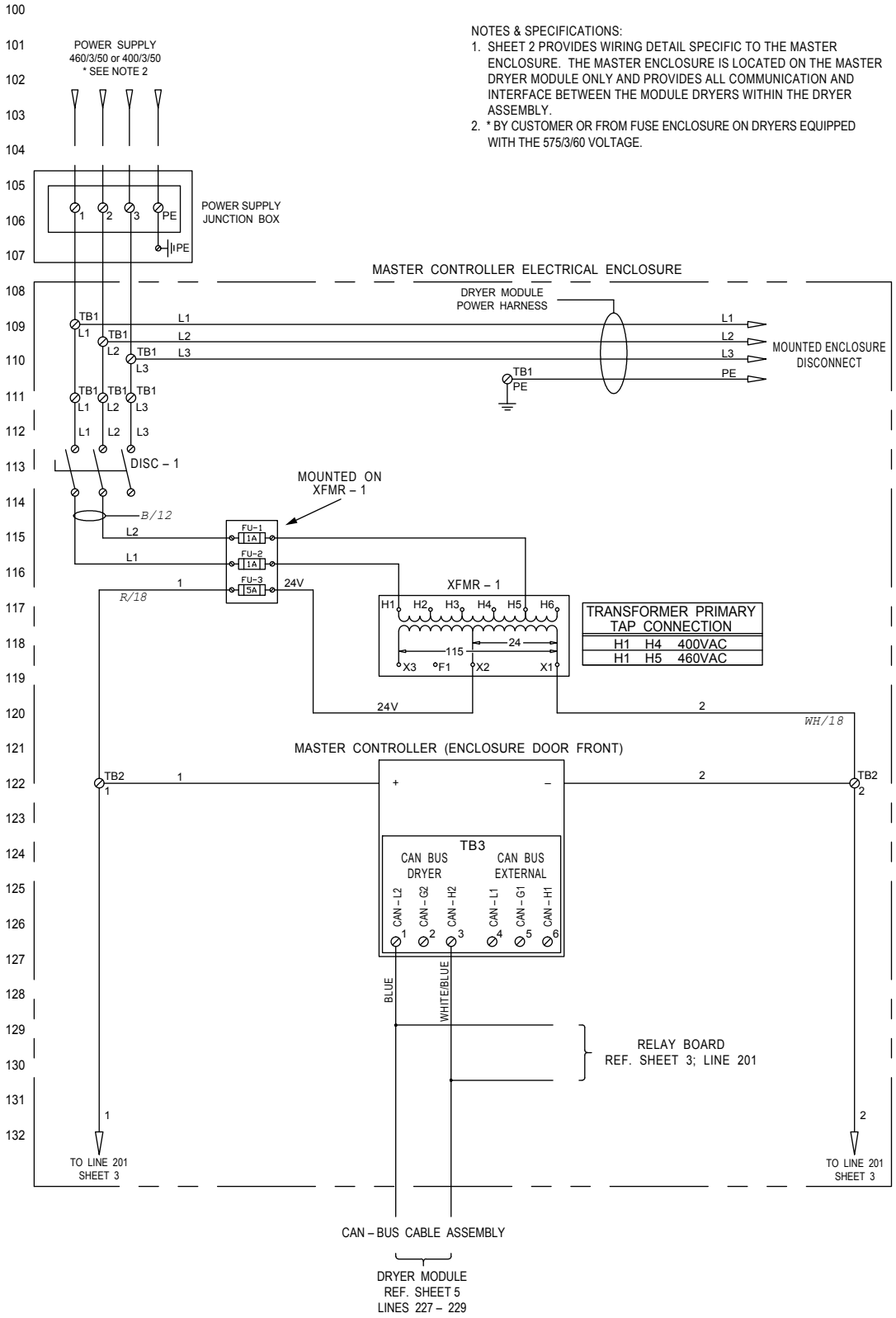
M2 | M1 HEADER END

NOTES & SPECIFICATIONS:
1. THIS SHEET PROVIDES WIRING DETAIL SPECIFIC TO THE AIR COOLED CONDENSER ENCLOSURE. THE ENCLOSURE IS INTEGRAL WITH THE CONDENSER.
2. * BY CUSTOMER OR FROM FUSE ENCLOSURE ON DRYERS EQUIPPED WITH THE 575/3/60 VOLTAGE.

DRAWINGS: AIR-COOLED UNITS

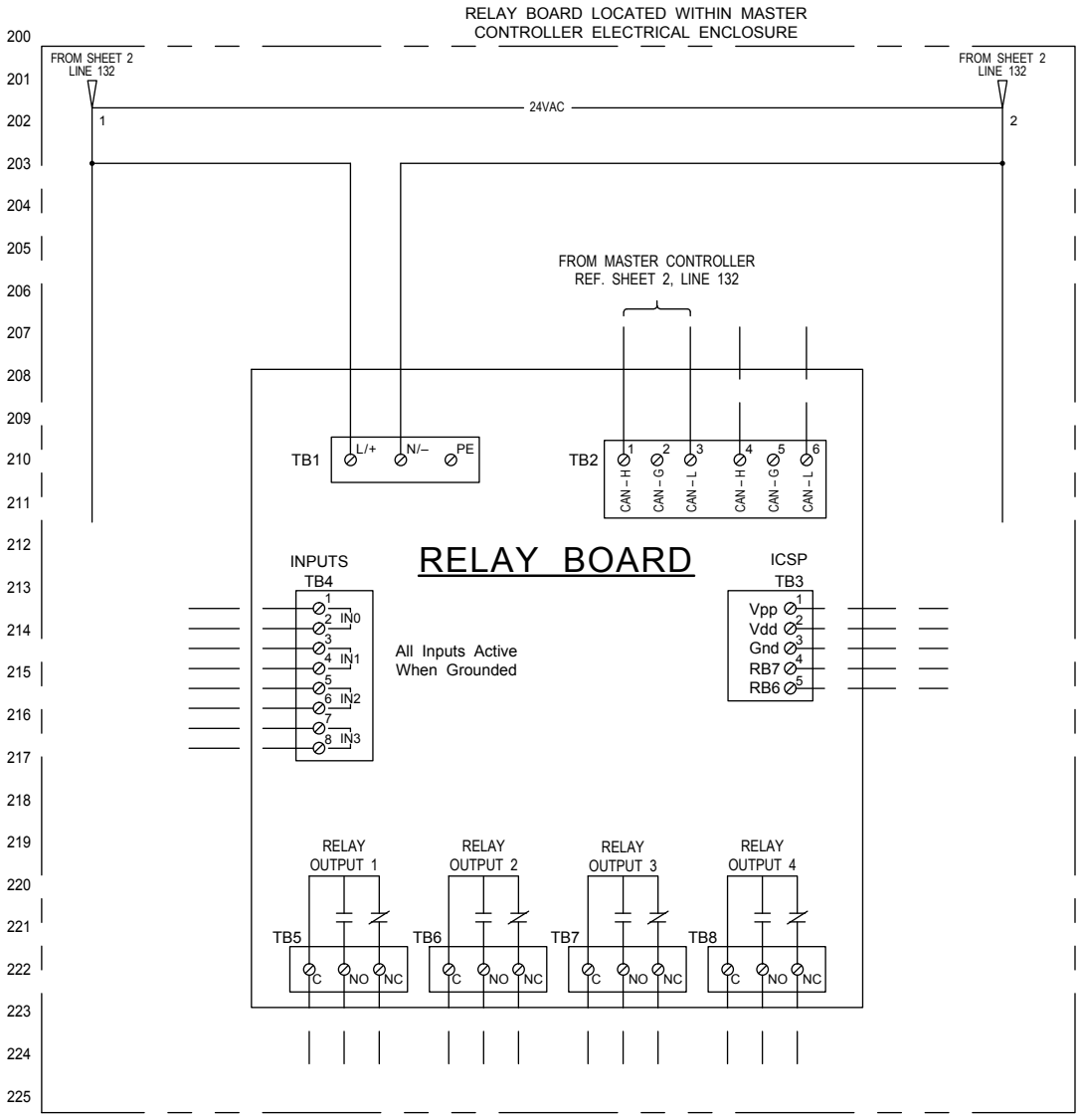
Electrical Schematic

Refrigeration Dryer
Sheet 2 of 5



Electrical Schematic

Refrigeration Dryer
Sheet 3 of 5



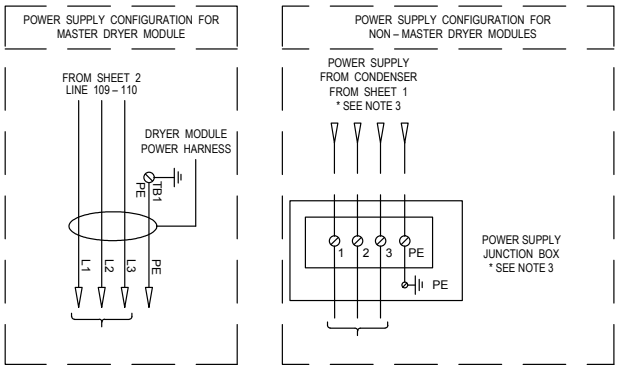
NOTES & SPECIFICATIONS:

1. SHEET 3 PROVIDES WIRING DETAIL SPECIFIC TO THE MASTER ENCLOSURE. THE MASTER ENCLOSURE RELAY BOARD IS LOCATED IN THE MASTER ENCLOSURE ONLY.

DRAWINGS: AIR-COOLED UNITS

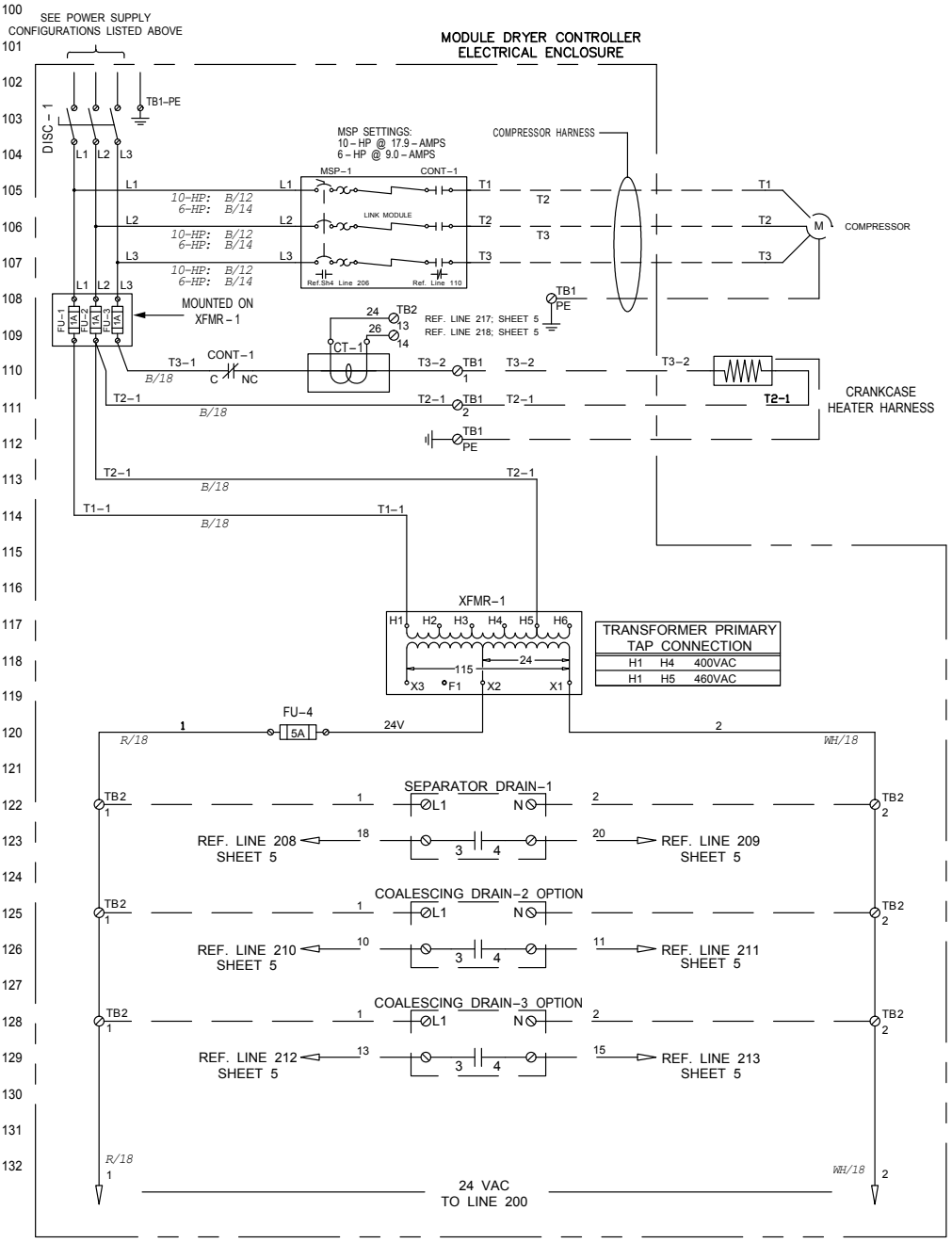
Electrical Schematic

Refrigeration Dryer
Sheet 4 of 5



NOTES & SPECIFICATIONS:

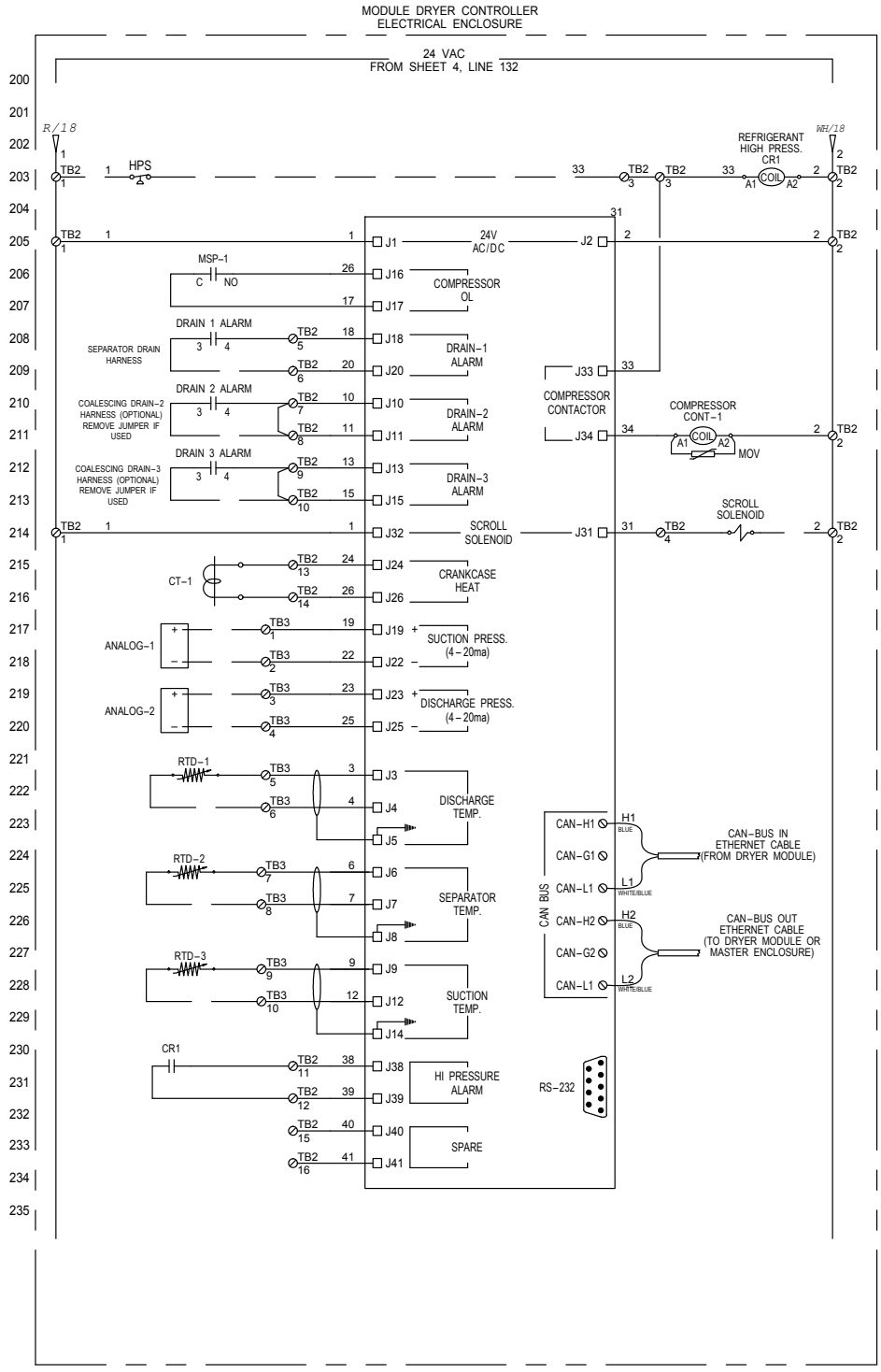
1. SHEET 4 PROVIDES WIRING DETAIL SPECIFIC TO THE DRYER MODULE ENCLOSURE.
2. THE DRYER MODULE ENCLOSURE RECEIVES POWER EITHER FROM THE MASTER ENCLOSURE (MASTER DRYER MODULES ONLY) OR FROM THE CUSTOMER JUNCTION BOX ON DRYER MODULES. SEE CONFIGURATION DETAILS ABOUT POWER SOURCE.
3. * BY CUSTOMER OR FROM FUSE ENCLOSURE ON DRYERS EQUIPPED WITH THE 575/3/60 VOLTAGE.



DRAWINGS: AIR-COOLED UNITS

Electrical Schematic

Refrigeration Dryer
Sheet 5 of 5



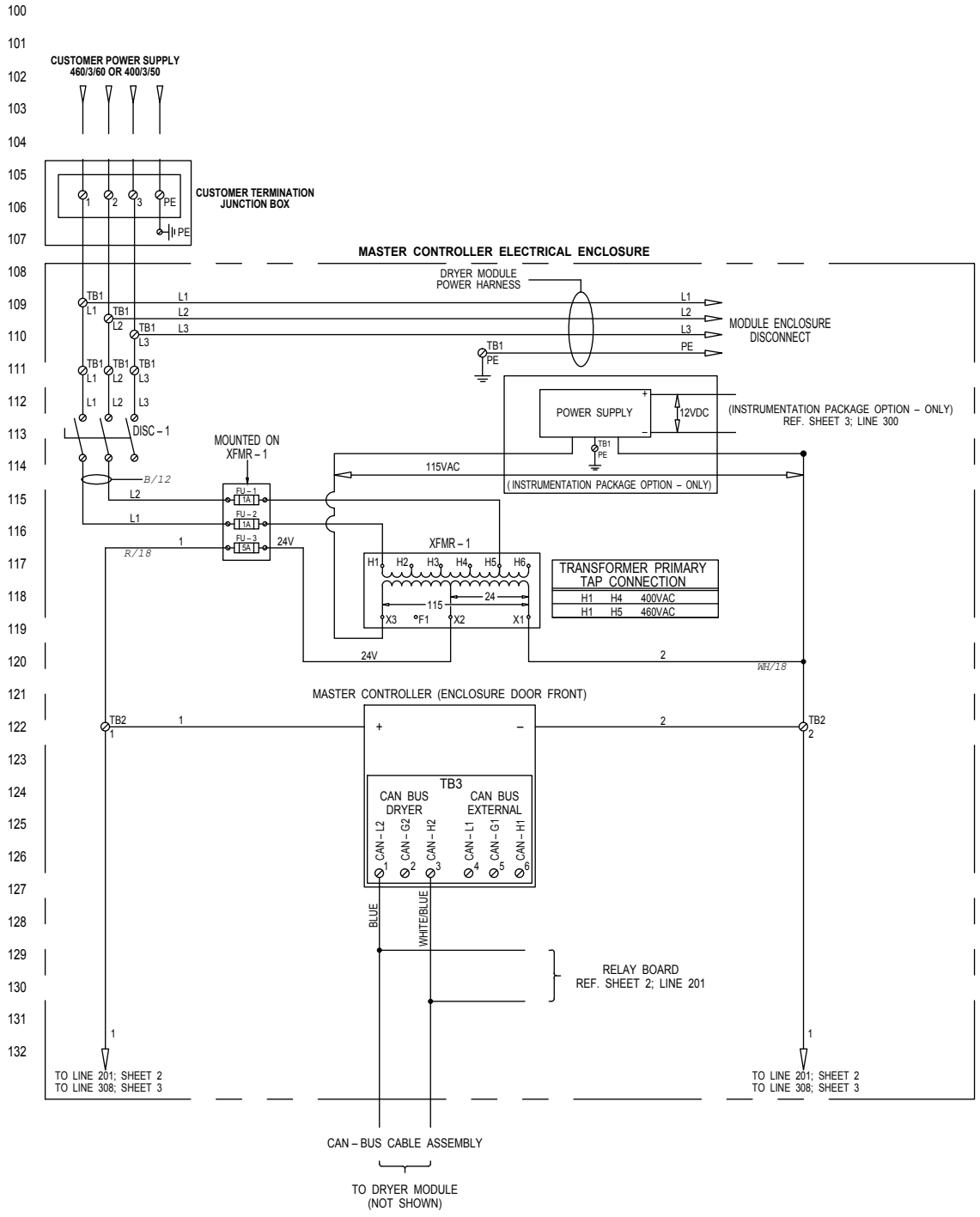
NOTES & SPECIFICATIONS:

1. SHEET 5 PROVIDES ADDITIONAL WIRING DETAIL SPECIFIC TO THE MODULE DRYER ENCLOSURES.

DRAWINGS: AIR-COOLED UNITS

Electrical Schematic

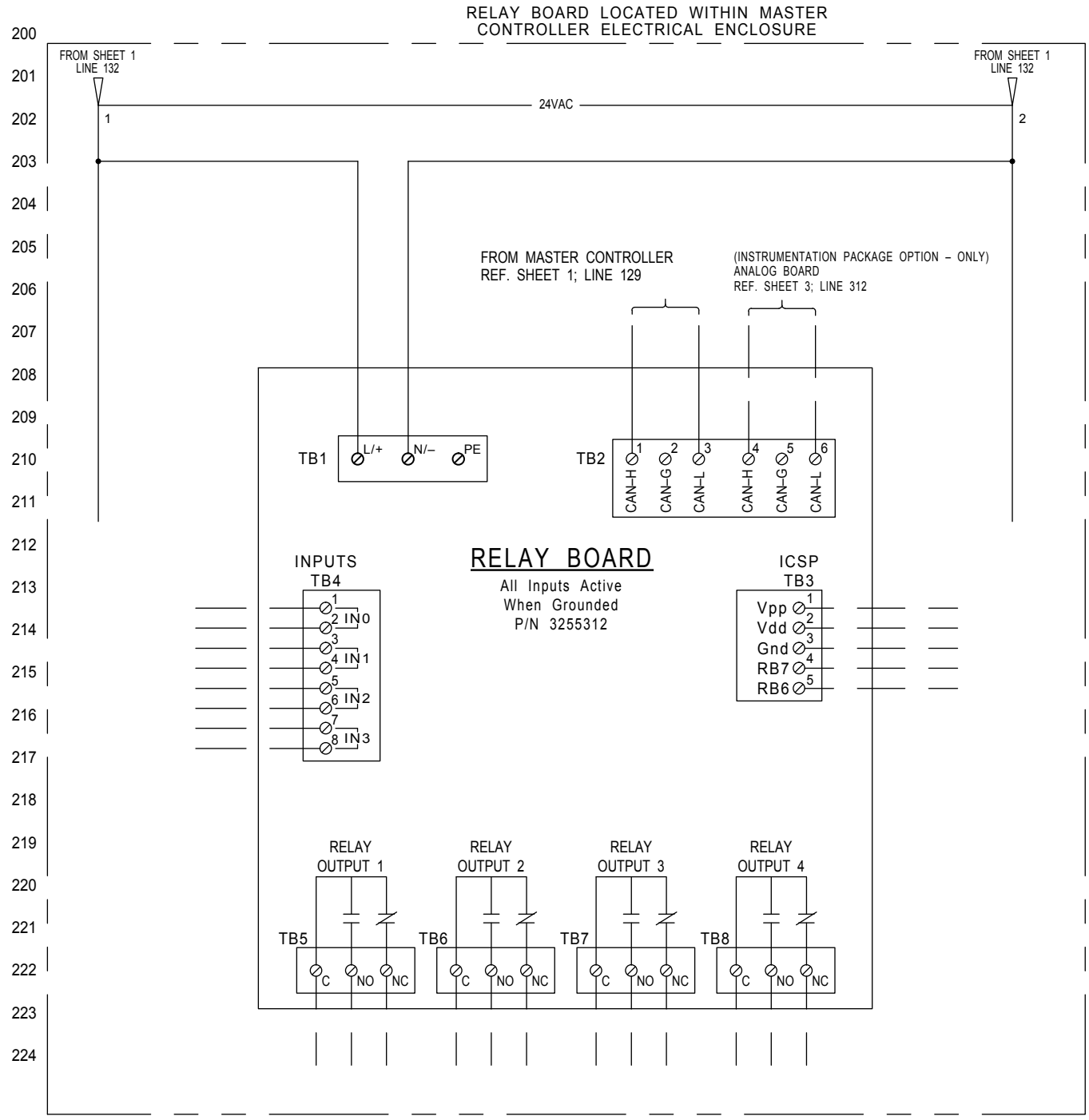
Instrumentation Option
Sheet 1 of 3



DRAWINGS: AIR-COOLED UNITS

Electrical Schematic

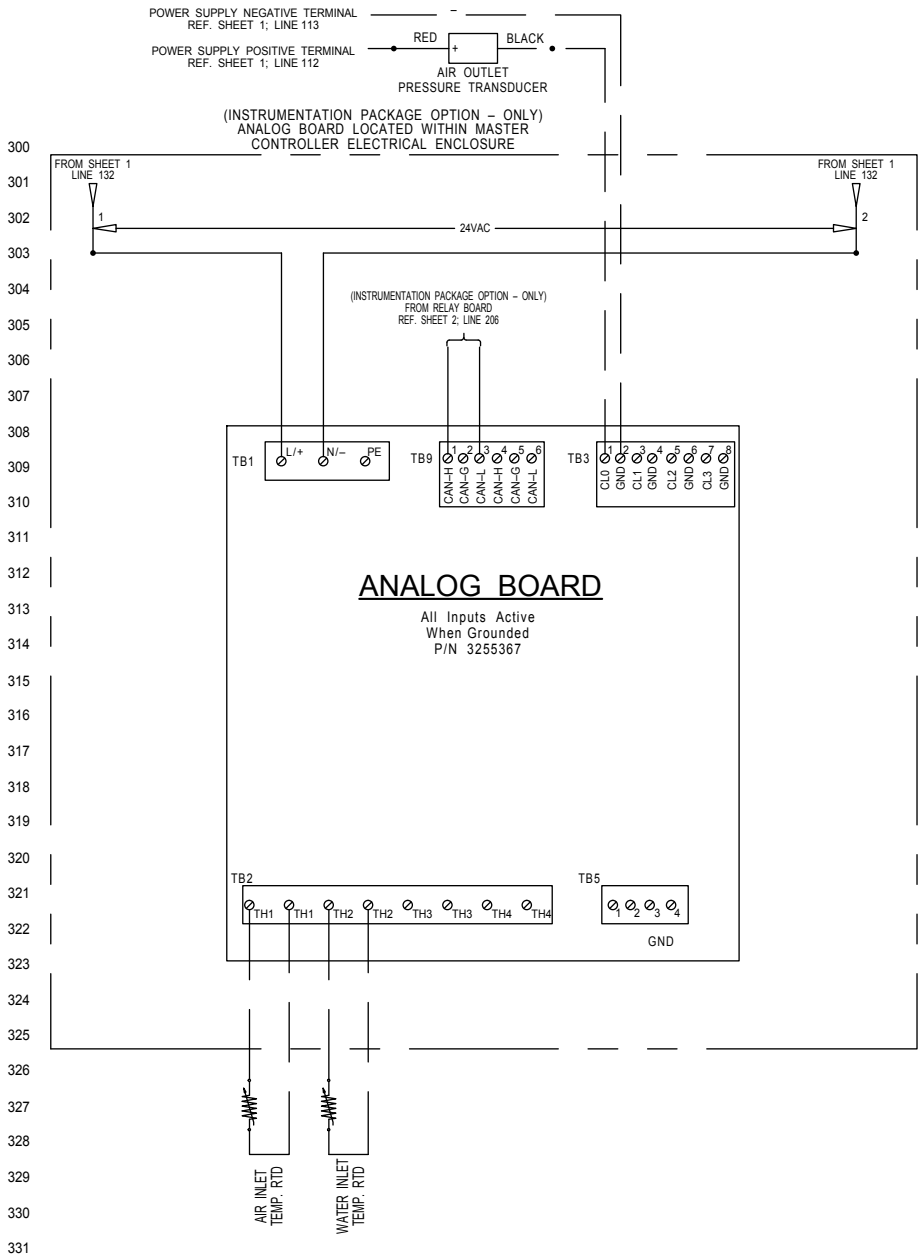
Instrumentation Option
Sheet 2 of 3



DRAWINGS: AIR-COOLED UNITS

Electrical Schematic

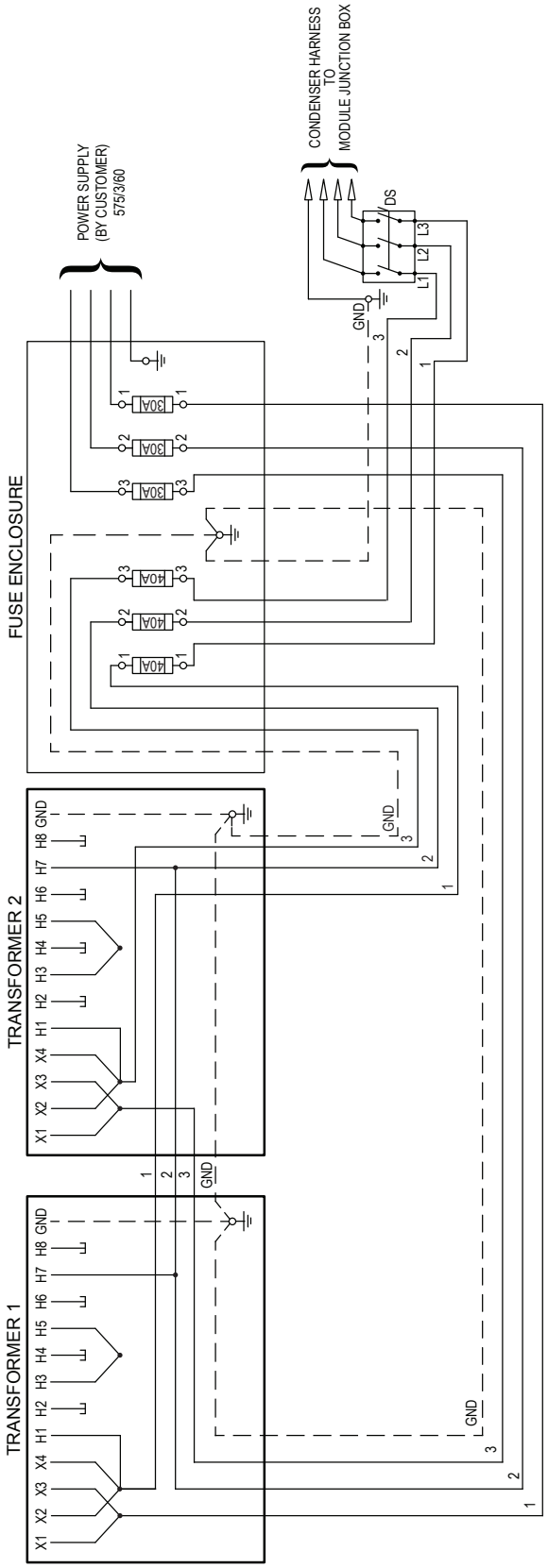
Instrumentation Option
Sheet 3 of 3



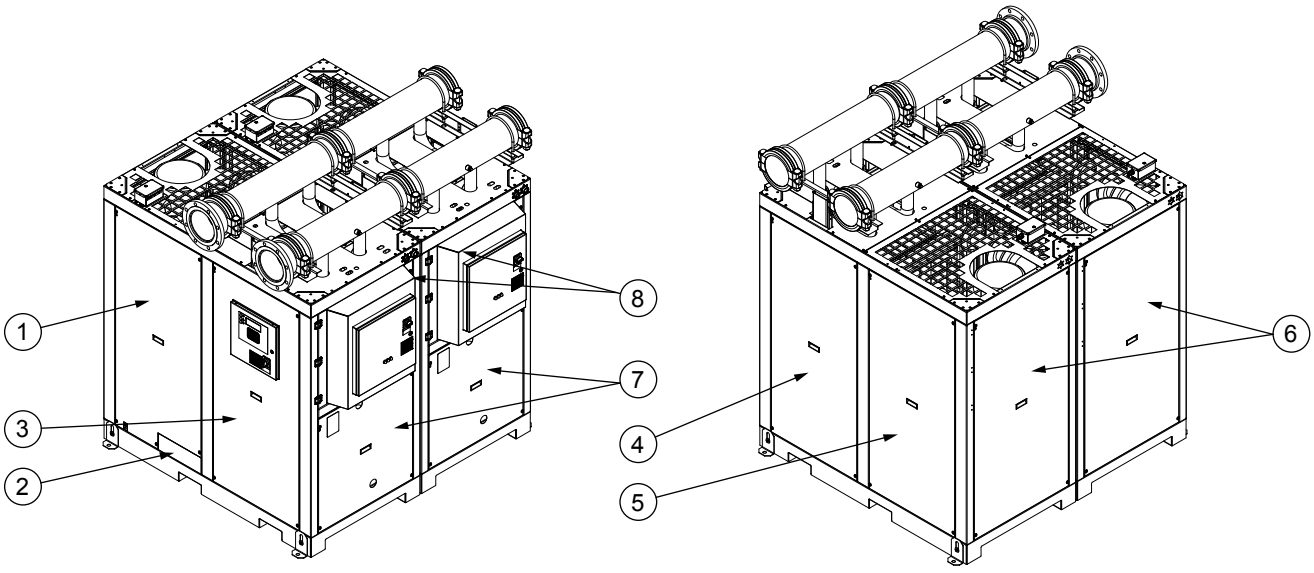
DRAWINGS: AIR-COOLED UNITS

Electrical Schematic

575V option



10.0 REPLACEMENT PARTS: Cabinet Panels



ID #	PARTS DESCRIPTION	Part Numbers
1	Cabinet Panel - Front Left	8000029
2	Cabinet Panel - Front Left Bottom (Air Cooled Units Only)	7428415
3	Cabinet Panel - Front Right	8000239
4	Cabinet Panel - Rear Left	8000025
5	Cabinet Panel - Rear Right	8000025
6	Cabinet Panel - Left	8000026
7	Cabinet Panel - Right Bottom	8000028
8	Cabinet Panel - Right Top	8000027

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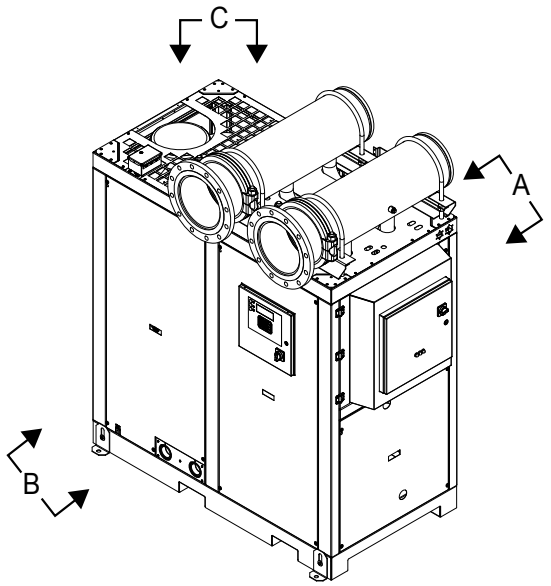
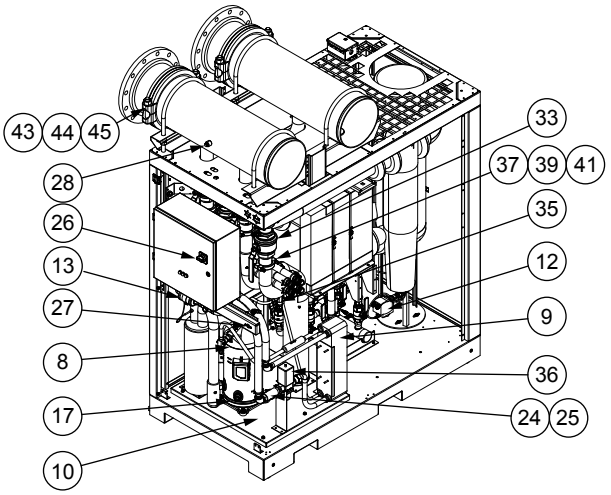
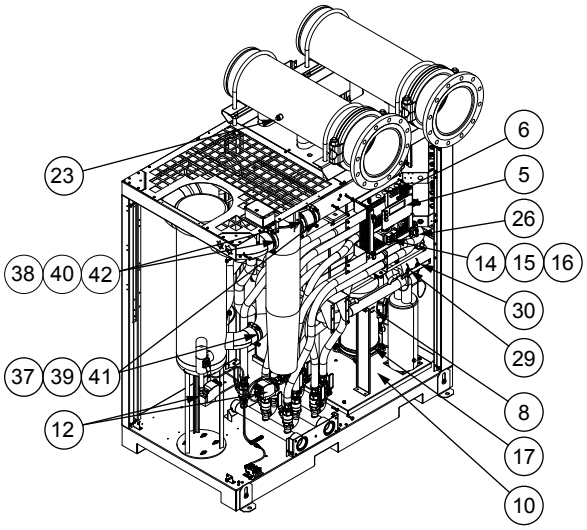
REPLACEMENT PARTS: Water-Cooled Units



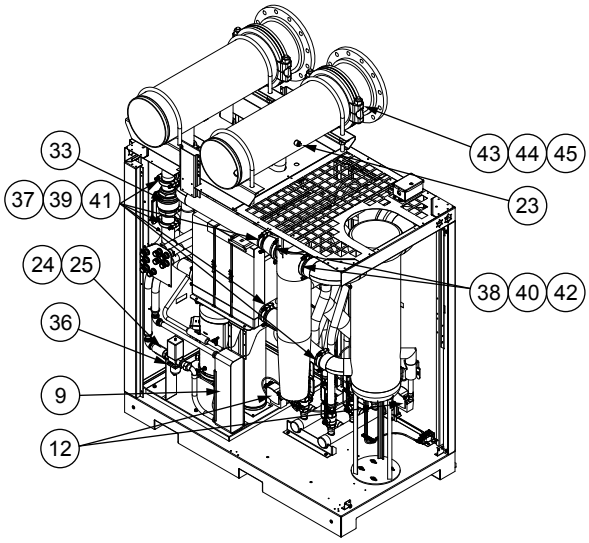
VIEW ORIENTATION REFERENCE



RIGHT REAR, VIEW-A
(covers and center support shelf removed for clarity)



RIGHT FRONT, VIEW-B
(covers and center support shelf removed for clarity)



LEFT REAR, VIEW-C
(covers and center support shelf removed for clarity)

REPLACEMENT PARTS: Water-Cooled Units

MAINTENANCE KITS

MODEL	HES3750	HES5000	HES6250	HES7500	HES8750	HES10000	HES11250	HES12500
Moisture Separator Filter (includes separator elements & drain service kit)	MKHES3750D2	MKHES5000D2	MKHES6250D2	MKHES7500D2	MKHES8750D2	MKHES10000D2	MKHES11250D2	MKHES12500D2
Optional Oil Removal Filter (includes separator elements, oil removal elements & drain service kit)	MKHES3750D2C	MKHES5000D2C	MKHES6250D2C	MKHES7500D2C	MKHES8750D2C	MKHES10000D2C	MKHES11250D2C	MKHES12500D2C
Service Kit - Automatic Drain	7428278	7428278	7428278	7428278	7428278	7428278	7428278	7428278

REPLACEMENT PARTS

ID#	PARTS DESCRIPTION	1250	2500
1	**Auxiliary Contact** - Compressor NO/NC	7427939	7427939
2	**Auxiliary Contact** - MSP SPST	7427940	7427940
3	**Circuit Board** - Analog (Optional)	3255367	—
4	**Circuit Board** - Dryer Module Controller	—	5005922
5	**Circuit Board** - Master Controller	—	5005923
6	**Circuit Board** - Relay	—	3255312
7	**Coil** - Compressor Solenoid	—	7427938
8	**Compressor** - Digital Scroll	3221281	7427937
9	**Condenser** - Water Cooled	7435556	7425887
10	**Condensing Unit** - Water Cooled	8000198	8000004
11	**Contactor** - Compressor	7419137	5002928
12	**Drain** - Electric Demand	7428268	7428268
13	**Filter/dryer** - Liquid Line	3223813	3223813
14	**Fuse** - Circuit Board (Master/Module/Analog/Relay)	5002943	5002943
15	**Fuse** - Control Transformer Primary	3246089	3246089
16	**Fuse** - Control Transformer Secondary	3246090	3246090
17	**Heater** - Compressor Crankcase	4010508	3223265
18	**Motor Starter Protector** (MSP)	5003506	5003504
19	**Power Supply** - 12 VDC Output (Optional)	7427912	—
20	**Refrigerant Type** (see Serial Tag for charge amount)	R-404A	R-404A
21	**Relay** - High Pressure Cut Out	3246088	3246088
22	**Sensor** - Temperature	5007289	5007289
23	**Sensor** - Temperature, Inlet Air (Optional)	7427911	7427911
24	**Strainer** - Water	4009636	4009636
25	**Strainer Screen** - Replacement	3230662	3230662
26	**Switch** - Disconnect	3246083	3246083
27	**Switch** - High Refrigerant Pressure Cut Out	3230771	3230771
28	**Transducer** - Air Outlet Pressure (Optional)	7427910	7427910
29	**Transducer** - Refrigerant High Side Pressure	7461592	7461592
30	**Transducer** - Refrigerant Low Side Pressure	7427299	7427299
31	**Transducer** - Water Inlet Pressure (Optional)	7427910	7427910
32	**Transformer** - Control	3230893	3230893
33	**Valve** - Air Isolation Ball Valve Assembly	8000117	8000117
34	**Valve** - Compressor Solenoid	3232517	—
35	**Valve** - Thermostatic Expansion (TXV)	8000241	8000241
36	**Valve** - Water Regulating	7427946	7427946
37	**Clamp Assembly** - H Clamp Assembly 3" (Clamp & Gasket)	5006558	5006558
38	**Clamp Assembly** - J Clamp Assembly 4" (Clamp & Gasket)	5006559	5006559
39	**Clamp** - H Clamp, SS 3" 119-273	5005550	5005550
40	**Clamp** - J Clamp, SS 4" 119-274	5005551	5005551
41	**Gasket** - H Clamp 3"	5005554	5005554
42	**Gasket** - J Clamp 4"	5005555	5005555
43	**Groove Coupling** - 8.00, RIGID, STYLE S89T	8000139	8000139
44	**Groove Coupling** - 10.00, RIGID, STYLE S89T	8000195	8000195
45	**Groove Coupling** - 12.00, RIGID, STYLE S89T	8000196	8000196

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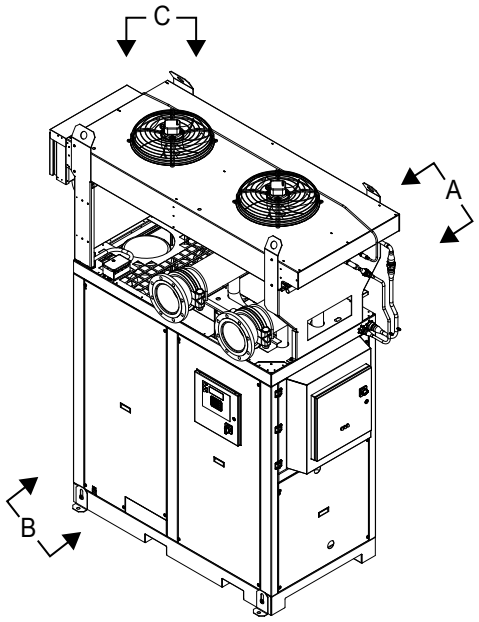
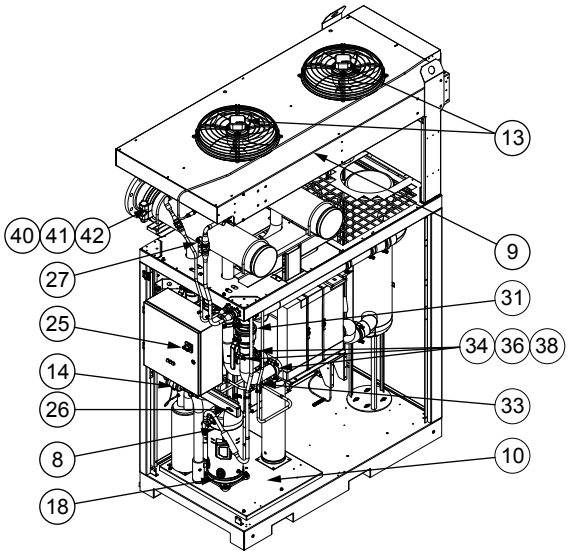
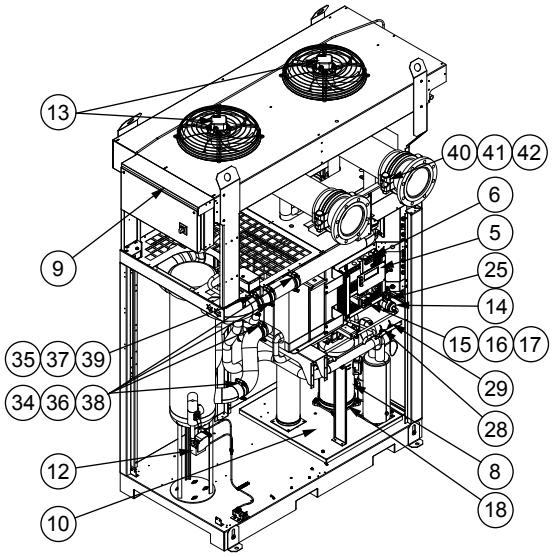
REPLACEMENT PARTS: Air-Cooled Units



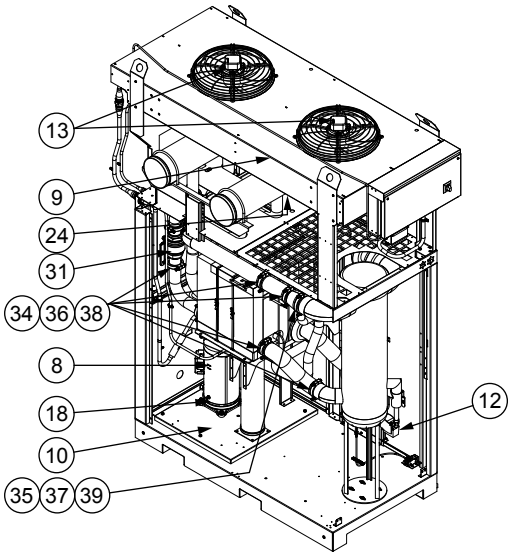
VIEW ORIENTATION REFERENCE



RIGHT REAR, VIEW-A
(covers and center support shelf removed for clarity)



RIGHT FRONT, VIEW-B
(covers and center support shelf removed for clarity)



LEFT REAR, VIEW-C
(covers and center support shelf removed for clarity)

REPLACEMENT PARTS: Air-Cooled Units

MAINTENANCE KITS

MODEL	HES3150AC	HES4200AC	HES5250AC	HES6300AC	HES7350AC	HES8400AC	HES9450AC	HES10500AC
Moisture Separator Filter (includes separator elements & drain service kit)	MKHES3750D2	MKHES5000D2	MKHES6250D2	MKHES7500D2	MKHES8750D2	MKHES10000D2	MKHES11250D2	MKHES12500D2
Optional Oil Removal Filter (includes separator elements, oil removal elements & drain service kit)	MKHES3750D2C	MKHES5000D2C	MKHES6250D2C	MKHES7500D2C	MKHES8750D2C	MKHES10000D2C	MKHES11250D2C	MKHES12500D2C
Service Kit - Automatic Drain	7428278	7428278	7428278	7428278	7428278	7428278	7428278	7428278

REPLACEMENT PARTS

ID#	PARTS DESCRIPTION	1050	2100
1	**Auxiliary Contact** - Compressor NO/NC	7427939	7427939
2	**Auxiliary Contact** - MSP SPST	7427940	7427940
3	**Circuit Board** - Analog (Optional)	3255367	—
4	**Circuit Board** - Dryer Module Controller	—	5005922
5	**Circuit Board** - Master Controller	—	5005923
6	**Circuit Board** - Relay	—	3255312
7	**Coil** - Compressor Solenoid	—	7427938
8	**Compressor** - Digital Scroll	3221281	7427937
9	**Condenser** - Air Cooled	—	7428417
10	**Condensing Unit** - Air Cooled	—	7428412
11	**Contactor** - Compressor	7419137	5002928
12	**Drain** - Electric Demand	7428268	7428268
13	**Fan Motor** - Air Cooled Condenser Fan Motor	—	7427343
14	**Filter/dryer** - Liquid Line	3223813	3223813
15	**Fuse** - Circuit Board (Master/Module/Analog/Relay)	5002943	5002943
16	**Fuse** - Control Transformer Primary	3246089	3246089
17	**Fuse** - Control Transformer Secondary	3246090	3246090
18	**Heater** - Compressor Crankcase	4010508	3223265
19	**Motor Starter Protector (MSP)**	5003506	5003504
20	**Power Supply** - 12 VDC Output (Optional)	7427912	—
21	**Refrigerant Type (see Serial Tag for charge amount)**	R-404A	R-404A
22	**Relay** - High Pressure Cut Out	3246088	3246088
23	**Sensor** - Temperature	5007289	5007289
24	**Sensor** - Temperature, Inlet Air (Optional)	7427911	7427911
25	**Switch** - Disconnect	3246083	3246083
26	**Switch** - High Refrigerant Pressure Cut Out	3230771	3230771
27	**Transducer** - Air Outlet Pressure (Optional)	7427910	7427910
28	**Transducer** - Refrigerant High Side Pressure	7461592	7461592
29	**Transducer** - Refrigerant Low Side Pressure	7427299	7427299
30	**Transformer** - Control	3230893	3230893
31	**Valve** - Air Isolation Ball Valve Assembly	8000117	8000117
32	**Valve** - Compressor Solenoid	3232517	—
33	**Valve** - Thermostatic Expansion (TXV)	8000241	8000241
34	**Clamp Assembly** - H Clamp Assembly 3" (Clamp & Gasket)	5006558	5006558
35	**Clamp Assembly** - J Clamp Assembly 4" (Clamp & Gasket)	5006559	5006559
36	**Clamp** - H Clamp, SS 3" 119-273	5005550	5005550
37	**Clamp** - J Clamp, SS 4" 119-274	5005551	5005551
38	**Gasket** - H Clamp 3"	5005554	5005554
39	**Gasket** - J Clamp 4"	5005555	5005555
40	**Groove Coupling** - 8.00, RIGID, STYLE S89T	8000139	8000139
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NOTES:

WARRANTY

The manufacturer warrants the product manufactured by it, when properly installed, operated, applied, and maintained in accordance with procedures and recommendations outlined in manufacturer's instruction manuals, to be free from defects in material or workmanship for a period as specified below, provided such defect is discovered and brought to the manufacturer's attention within the aforesaid warranty period.

The manufacturer will repair or replace any product or part determined to be defective by the manufacturer within the warranty period, provided such defect occurred in normal service and not as a result of misuse, abuse, neglect or accident. Normal maintenance items requiring routine replacement are not warranted. The warranty covers parts and labor for the warranty period unless otherwise specified. Repair or replacement shall be made at the factory or the installation site, at the sole option of the manufacturer. Any service performed on the product by anyone other than the manufacturer must first be authorized by the manufacturer.

Unauthorized service voids the warranty and any resulting charge or subsequent claim will not be paid. Products repaired or replaced under warranty shall be warranted for the unexpired portion of the warranty applying to the original product.

The foregoing is the exclusive remedy of any buyer of the manufacturer's product. The maximum damages liability of the manufacturer is the original purchase price of the product or part.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR STATUTORY, AND IS EXPRESSLY IN LIEU OF THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THE MANUFACTURER SHALL NOT BE LIABLE FOR LOSS OR DAMAGE BY REASON OF STRICT LIABILITY IN TORT OR ITS NEGLIGENCE IN WHATEVER MANNER INCLUDING DESIGN, MANUFACTURE OR INSPECTION OF THE EQUIPMENT OR ITS FAILURE TO DISCOVER, REPORT, REPAIR, OR MODIFY LATENT DEFECTS INHERENT THEREIN.

THE MANUFACTURER, HIS REPRESENTATIVE OR DISTRIBUTOR SHALL NOT BE LIABLE FOR LOSS OF USE OF THE PRODUCT OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE BUYER, WHETHER ARISING FROM BREACH OF WARRANTY, NEGLIGENCE OR STRICT LIABILITY IN TORT.

The manufacturer does not warrant any product, part, material, component, or accessory manufactured by others and sold or supplied in connection with the sale of manufacturer's products.

Warranty Period

Parts and labor for two (2) years from the date of shipment from the factory; heat exchangers are covered (parts only) for an additional three (3) years (total of five [5]).

AUTHORIZATION FROM THE SERVICE DEPARTMENT IS NECESSARY BEFORE MATERIAL IS RETURNED TO THE FACTORY OR IN-WARRANTY REPAIRS ARE MADE.

SERVICE DEPARTMENT: (724) 746-1100

HES Series

Refrigerated Type Compressed Air Dryers

Water Cooled Models:
HES3750, HES5000, HES6250, HES7500, HES8750, HES10000, HES11250, HES12500

Air Cooled Models:
HES3150AC, HES4200AC, HES5250AC, HES6300AC, HES7350AC, HES8400AC, HES9450AC, HES10500AC

SPXFLOW

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Improvements and research are continuous at SPX FLOW, Inc.
Specifications may change without notice.

ISSUED 11/2017 Form No.: 7427751 Revision: G