Owner's Manual — Phoenix 50Hz Dry Max LGR Dehumidifier

Installation, Operation & Service Instructions

Read and Save These Instructions

The Phoenix Dry Max LGR Dehumidifier

- **LGR Capacity** - Removes moisture even in dry conditions for deep drying.
- **Energy Efficiency** - Removes 36 Liters per day (76 pints) at AHAM while drawing only 3.2 amps.
- Smallest Footprint Large Category Dehumidifier.
- Slide Out Handle with Recessed Wheels for Easy Maneuverability and Compact Storage.
- Integrated Cord and Hose Management for Transportation and Storage.
- **Bright, 4 Line Control Panel** – Displays the Most Common Readings without the Need for Scrolling.
- **Status Light Indicator** – Tell at a Glance What Operating Mode the Unit is in.
- Integrated, Superior Stacking for Transportation and Storage.
- **263 M³/hr (155 CFM)** - Optimized process air speeds drying and provides static pressures for ducting.
- **Plastic Housing** - Rugged roto-molded housing resists dents and scratches
- **Outlet Ducting** - 10" lay flat exhaust.
- **Pleated Media Air Filter** – MERV 8
- **Lighted cord** - Easy to determine power to the unit.

The Phoenix Dry Max is 6% smaller than the closest dehumidifier and yet it still has an integrated handle and wheels as well as onboard storage for the power cord and condensate hose! The all-new Phoenix Micro-Channel condenser allows us to pack so much performance into such a small dehumidifier.

The feedback on the stacking of the AirMax was so positive we made sure to build it into the Phoenix Dry Max.

We've also added a new four line display which provides you with all the information you need to take readings directly from the home screen.

A new Status Bar is located at the top of the new control panel to give you instant feedback about the dehumidifier from across the room.

Remove only four fasteners and you have easy access to service the unit.

Phoenix now offers this unit in both Red and Blue

CE

Phoenix Dry Max

Part No. 4036150 (RED)
4036290 (BLUE)

Patent Pending

TS-1017

01/18 Rev. A

Specifications subject to change without notice.

www.youtube.com/user/usephoenix

Table of Contents

Read the operation and maintenance instructions carefully before using this unit. Proper adherence to these instructions is essential to obtain maximum benefit from your Phoenix Dry Max dehumidifier.

⚠WARNING

- It is designed to be used INDOORS ONLY.
- If used in a wet area, plug it into a GROUND FAULT INTERRUPTER.
- DO NOT use the Phoenix Dry Max as a bench or table.
- It must always be used in the horizontal position.
- Never operate a unit with a damaged power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or a similarly qualified person in order to avoid a hazard.
- Do not unplug the unit by pulling on the cord. Grasp the plug firmly and pull it out of the wall socket or power receptacle.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- The appliance shall be installed in accordance with national wiring regulations.
- Please allow .3m (1ft) of clearance for the inlet and outlet of the unit.

1 Safety Certifications

The Phoenix Dry Max conforms to unified standard IEC 60335-2-40 and meets CE requirements.

2 Specifications

Part No.	4036150 (RED) 4036290 (BLUE)
Power	3.2 amps, 230 VAC, Grounded
Water Removal	36 liters/day (76 pints/day) @ AHAM (80°F, 60%)
Blower	263 M^3/hr (155 CFM) without external ducting
Refrigerant Charge	1 lb, 3 oz. R-410A
Operating Range	0.5°C (33°F) to 43°C (110°F)
Filters:	9” x 12” x 1” Pleated Media MERV-8
Duct Options	Outlet – 10” Lay-Flat
Warranty	Five years; 1st year 100% of Parts and Labor 2nd-5th year 100% of sealed refrigeration system parts.

Dimensions

	Unit	**Shipping**
Width	30.5cm (12”)	40.5cm (16”)
Height	44.5cm (17.5”)	48cm (19”)
Depth	53cm (21”)	63.5cm (25”)
Weight	28.5kg (63 lbs)	29.5kg (65 lbs)

Patent Pending

3 Operation

Place dehumidifier inside structure, place condensate hose into a drain, or a very large container, and turn on. To decrease drying times, make sure all windows and doors are closed to the outside and seal off the wet area from any unaffected areas.

3.1 Transporting

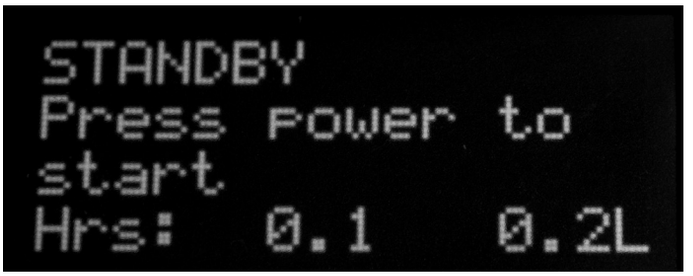
The Phoenix Dry Max features a high-impact roto-molded housing which protects the unit. It is recommended the units are properly secured for transport. The Phoenix Dry Max must always be on its base when transported by vehicle. It may be tipped upright to utilize its handle and back for loading and moving by hand.

3.2 Electrical Requirements

The Phoenix Dry Max plugs into a common grounded outlet on a 15 amp circuit. It draws 3.2 amps at 27°C (80°F), 60% RH. If used in a wet area, a ground fault interrupter (GFI) is required.

3.3 Control Panel

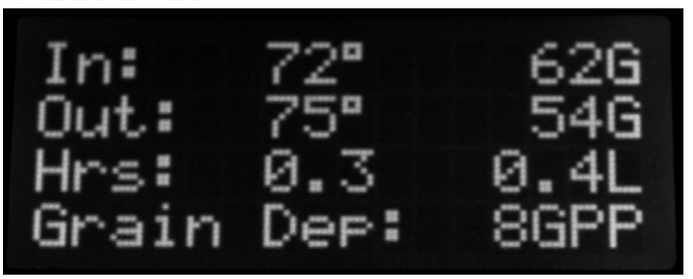
3.3.1 Plugged In - Standby Mode



When plugged in, the display will communicate to the user that the machine is in Standby mode and ready to be powered on. In Standby Mode, the display will also show the current job and life hours on the fourth line.

Light Bar = Off

3.3.2 Dashboard



Dashboard while in Humidistat Mode

When the machine is dehumidifying the unit will display:

- Inlet = Temperature and RH/Grains
- Outlet = Temperature and RH/ Grains
- Hours = Job hours and Life hours
- Grain Depression = Grains per pound value

Light Bar = On

Color = Green

3.3.3 Navigation

Press the 

key to advance to the next screen or to enter a value

Press the 

key to scroll through available values

3.3.4 Purging

Press the 

button to purge the machine.

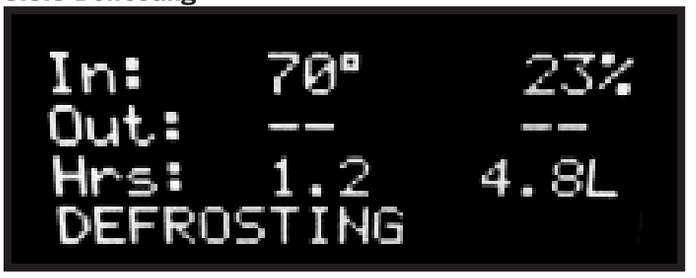
The display will communicate to the user that the machine is purging on the fourth line of the dashboard and show a 20 second countdown timer. This will momentarily replace grain depression until the machine has finished purging.

The display will also communicate to the user that the machine is auto purging in the fourth line of the dashboard and show a 20 second countdown timer.

Light Bar = On

The light bar colors and animations will persist while the machine is purging.

3.3.5 Defrosting



The display will communicate to the user that the machine is defrosting on the fourth line of the dashboard. This will momentarily replace grain depression until the machine has finished defrosting.

Light Bar = On

Color = Blue

3.3.6 Job/Life Hours

Press and hold the 

key for three seconds to reset the job hours from any screen.

Press Next to advance to the next screen.

The life hours are fixed and cumulative from the first use

Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.7 Humidistat Mode

The default mode is Humidistat “Off”

Press the Set button to toggle the Humidistat Mode On/Off.

Press the Next button to advance to the next screen. If Humidistat mode is enabled, then proceed to Humidistat Set point. Else, proceed to Humidity Units.

Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.8 Humidistat Set Point

Press the Set button to adjust the set point RH% in 5% increments ranging from 20% RH to 80% RH and then looping back to 20% RH.

Press the Next button to confirm selection and advance to the next screen.

Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.9 Humidistat Fan Mode

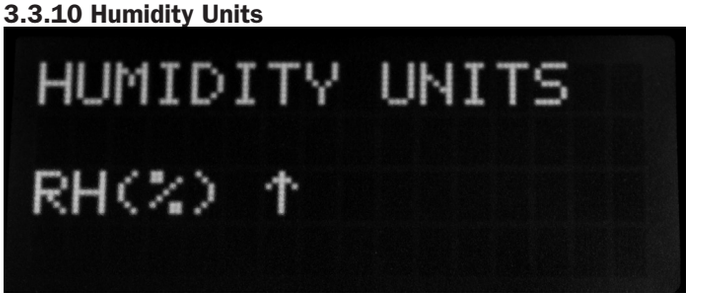
Press the Set button to toggle the Humidistat Fan mode from Always On to Auto.

Press the Next button to confirm selection and advance to the next screen.

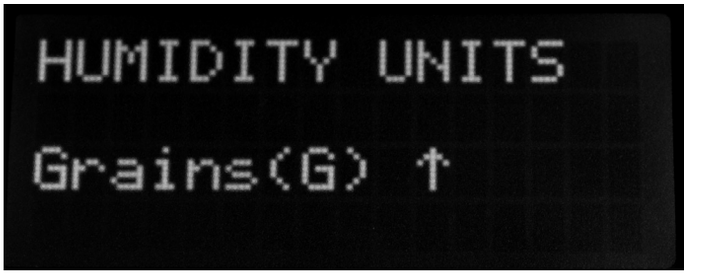
Light Bar = On

The light bar colors and animations will persist while in Settings.

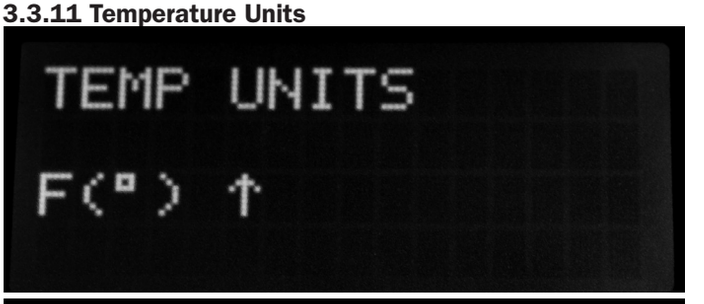
3.3.10 Humidity Units

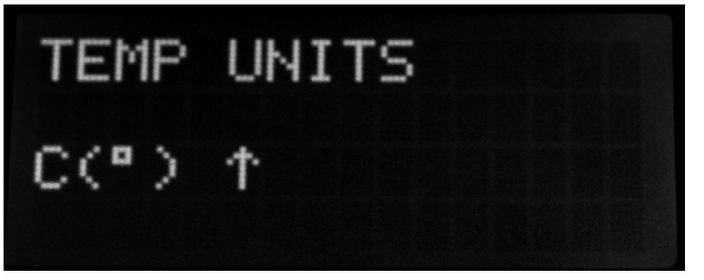


Press the Set button to toggle the humidity units between RH%, Grains, or g/Kg. This will affect the readout on the right of the home screen on lines one and two which show the inlet and outlet conditions.



3.3.11 Temperature Units





Press the Set button to toggle the temperature units between F (o) and C (o)

Press the Next button to confirm selection and advance to the next screen.

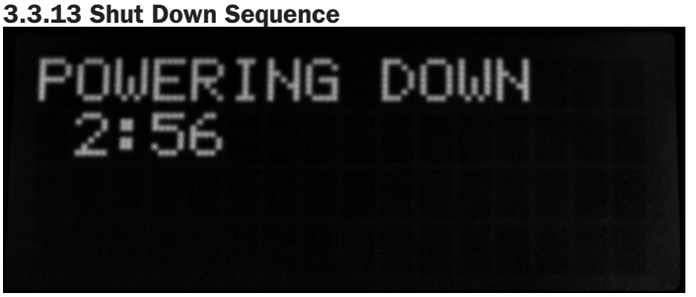
Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.12 Dew Point

The screen displays the ambient dew point.

3.3.13 Shut Down Sequence



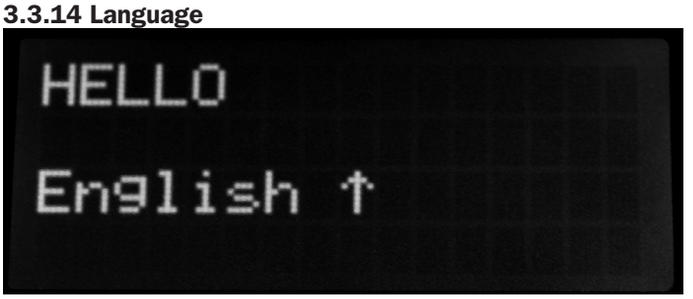
Press the Set button to adjust the shutdown time in one minute increments ranging from 3 – 20 minutes.

The shutdown time allows the blower to run to remove water from the coil and to allow the evaporator to acclimate to the ambient conditions. At the end of the shutdown time the unit will automatically purge to remove any remaining water.

The proper shutdown is dependent on conditions. Increasing your shutdown time will help ensure there is no residual water in the unit.

IMPORTANT - Unplugging the unit without running the shutdown sequence will allow water to remain in the unit after use. If the unit is tilted more than 20 degrees on the non-handle side, water may spill out of unit.

3.3.14 Language



The display will greet the user in order to help them identify the language settings for the machine.

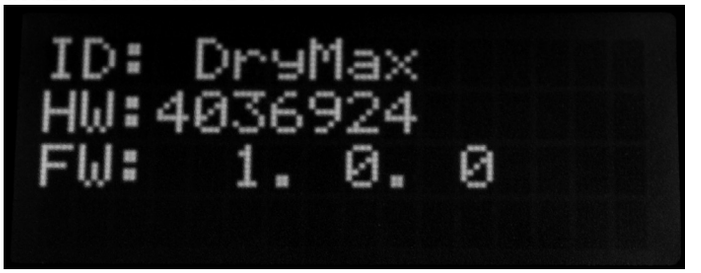
Press the Set button to browse available languages.

Press the Next button to confirm selection and advance to the next screen.

Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.15 About This Device



The following information is displayed on the About this Device screen:

Device ID

Hardware Version

Firmware Version

Press the Next button to advance to the next screen.

Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.16 Diagnostic Mode

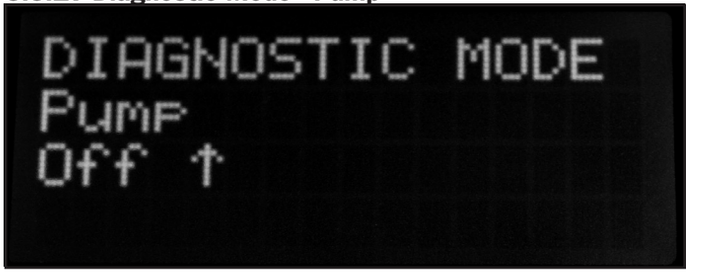
Press the Next button for 3 seconds to enter Diagnostic Mode. This action can also be performed at any time while the machine is powered on.

If Alerts are active, press the Next button to advance to the next screen. Else, press the Next button to return to the Dashboard.

Light Bar = On

The light bar colors and animations will persist while in Settings.

3.3.17 Diagnostic Mode - Pump



Press the Set button to toggle the Pump On/Off.

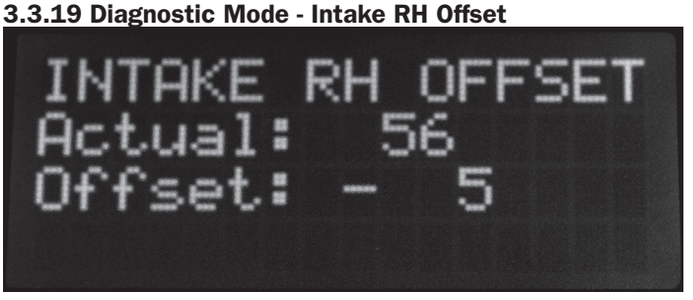
Press the Next button to advance to the next screen.

3.3.18 Diagnostic Mode - Float Switch

This display will communicate to the user the current status of the Float Switch.

Press the Next button to advance to the next screen.

3.3.19 Diagnostic Mode - Intake RH Offset



The Intake RH Offset allows you to calibrate the Dry Max to match your favorite meter.

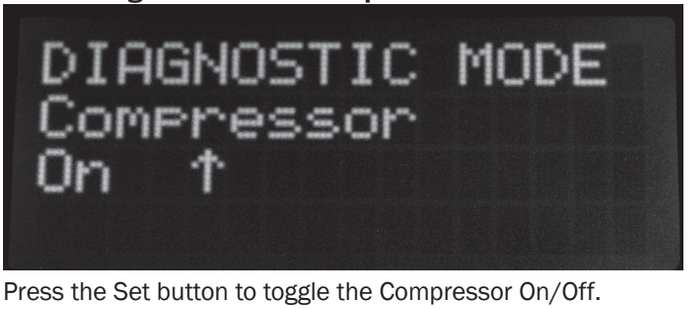
Press the Set button to adjust the intake RH in 1% increments ranging from -20% to 5. Negative values will reduce the RH on the display of the Dry Max.

3.3.20 Diagnostic Mode - Fan

Press the Set button to toggle the Fan On/Off.

Press the Next button to advance to the next screen.

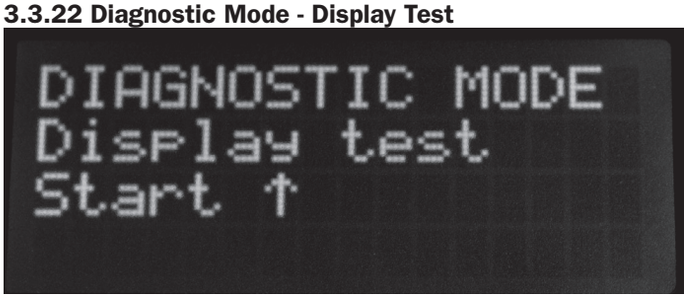
3.3.21 Diagnostic Mode - Compressor



Press the Set button to toggle the Compressor On/Off.

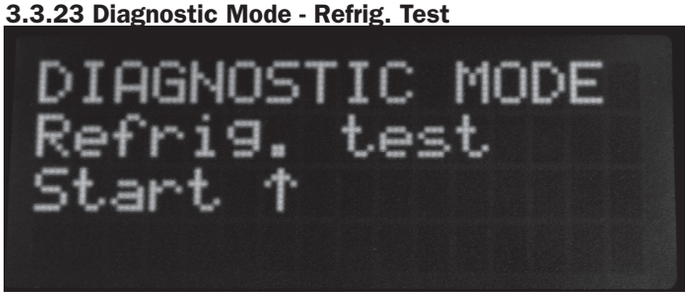
Press the Next button to advance to the next screen.

3.3.22 Diagnostic Mode - Display Test



Press the Set button to start the Display test.

3.3.23 Diagnostic Mode - Refrig. Test



The display will communicate to the user the following information during a Refrigeration Test:

Inlet = Temperature and RH/Grains

Outlet = Temperature and RH/ Grains

Hours = Life hours only.

Evaporator Coil = Temperature

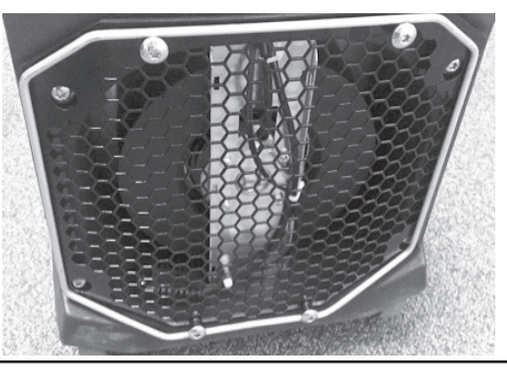
Countdown timer = 20 minutes

Once the 20 minute countdown timer has expired, the display will automatically advance to show the refrigeration test results. The display will communicate to the user either “Refrig. test passed” or “Refrig. test failed”.

Press the Next button to return to the first diagnostic test or press and hold the Next button for 3 seconds to return to the Dashboard.

3.4 Condensate Removal

The Phoenix Dry Max is equipped with an internal condensate pump to remove the water that is condensed during dehumidification. This allows the condensate to be pumped up to 6m with the attached hose. If the condensate must be pumped more than 6m above the unit, a second pump must be added to relay the condensate. The condensate pump automatically purges when the reservoir is full. Use the PURGE button to manually remove condensation.



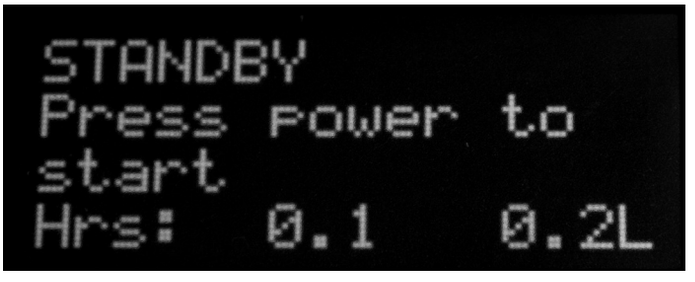
3.5 Ducting

A wire duct collar is supplied to allow 10” lay-flat duct to be attached to the Phoenix Dry Max outlet. Lay-flat plastic ducting is available; see section 6 Options and Accessories. To attach ducting to the wire duct collar, put the plastic duct end through the collar center and roll the duct end outward so that it overlaps the outside of the collar. The duct and collar may then be quickly attached to the Phoenix Dry Max by snapping the collar over the four exhaust tabs.

3.6 Defrost Cycle

If the low side refrigerant temperature drops due to excessive frost formation on the evaporator coil and below the temperature set point, the thermistor activates the PLC and Status Light Indicator. The compressor is cycled off and on by the thermistor temperature measurement. The air mover will continue to run, causing air to flow through the evaporator coil and melt the ice when the compressor is off. When the air temperature and/or humidity increases, the evaporator temperature will rise and the thermistor will end the defrost cycle at the temperature set point

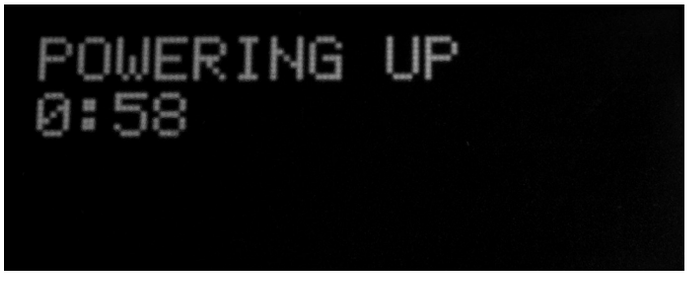
3.7 POWER Button



When the dehumidifier is plugged in it will enter stand-by mode.

Press the 

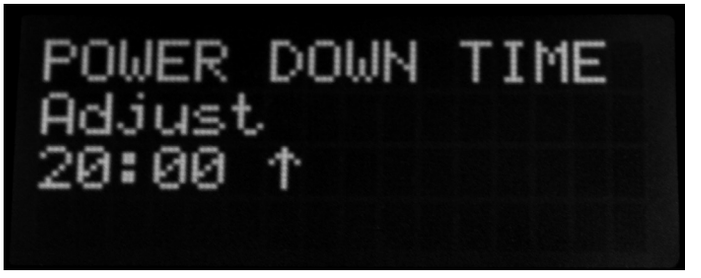
button to turn the dehumidifier on. The unit will begin the Powering Up sequence and you will see this screen:



Press and hold the 

to turn the dehumidifier off. The dehumidifier will go through a powering-down cycle.

The default shut-down time is three minutes plus 20 seconds for a final purge. The shutdown time can be changed be scrolling through the menu to this screen.



*****IMPORTANT***** - Unplugging the unit without running the shutdown sequence will allow water to remain in the unit after use. If the unit is tilted more than 20 degrees on the non-handle side, water may spill out of unit.

3.8 PURGE Button

During normal operation the pump automatically cycles when the reservoir is full.

Press the 

button to remove condensate manually from the reservoir.

4 Maintenance

4.1 Air Filter

The Phoenix Dry Max is equipped with a pleated media air filter that must be checked regularly. The standard filter is a MERV-8 high efficiency filter. Operating the unit with a dirty filter will reduce the dehumidifier’s capacity and efficiency and may cause the compressor to cycle off and on unnecessarily. The filter can generally be vacuumed clean several times before needing replacement. Replacement filters can be ordered from the manufacturer or purchased locally if available **IMPORTANT: DO NOT operate the unit without the filter or with a less effective filter as the coils inside the unit could become clogged and require disassembly to clean.**

4.2 Storage and Freeze Protection

There are two issues to consider when the Phoenix Dry Max is stored between uses and both pertain to water trapped in the unit. The first is biological growth and the second is damage caused by freezing. The effects of the trapped water can be greatly reduced if precautions are taken to remove as much as possible before storage.

1. Use the pump PURGE button to reduce the water level in the reservoir.
2. Stretch the hose flat to drain it completely. Raise one end above your head and spool hose while draining water out the other end.
3. To reduce biological growth flush the unit with a bio-fungicide that is approved for use with copper, aluminum and polyethylene. To flush:
   a. Run the hose to a drain.
   b. Plug in the unit but do not turn it on.
   c. Remove the air filter. Slowly pour a quart of the antimicrobial through the heat exchanger
   d. Hold in the pump purge switch to reduce the water level in the reservoir.
   e. Flush with water.
4. If the unit will be exposed to freezing temperatures, after purging, pull back the filter and pour 1 cup (8oz) of a propylene glycol based anti-freeze through the heat exchanger. It will flow down into the pump reservoir. Do NOT purge the solution out of the unit.
5. Dirty filters should be changed prior to long term storage to prevent biological growth on the filter.

5 Service

⚠WARNING

WARNING: Servicing the Phoenix Dry Max with its high pressure refrigerant system and high voltage circuitry presents a health hazard which could result in death, serious bodily injury, and/or property damage. Only qualified service people should service this unit.

CAUTION: Do not operate unit without the top cover in place.

⚠CAUTION

CAUTION: Do not operate unit without the top cover in place.

5.1 Technical Description

The Phoenix Dry Max uses a refrigeration system similar to an air conditioner's to remove moisture from incoming air and to add heat to the air that is discharged. Hot, high pressure refrigerant gas is routed from the compressor to the condenser coil. The refrigerant is cooled and condensed by giving up its heat to the air that is about to be discharged from the unit. The refrigerant liquid then passes through a filter/drier and capillary tubing which cause the refrigerant pressure and temperature to drop. It next enters the evaporator coil where it absorbs heat from the incoming air and evaporates. The evaporator operates in a flooded condition, which means that all the evaporator tubes contain liquid refrigerant during normal operation. A flooded evaporator should maintain constant pressure and temperature across the entire coil, from inlet to outlet. The mixture of gas and liquid refrigerant enter the compressor after leaving the evaporator coil. The compressor evacuates the cool refrigerant gas from the accumulator and compresses it to a high pressure and temperature to repeat the process.

5.2 Troubleshooting

No dehumidification, control does not light up and unit will not turn on from power button.

1. Unit unplugged or no power to outlet
2. Defective control board
3. Loose connection in internal wiring

Some dehumidification, air mover runs continuously but compressor only runs sporadically.

1. Unit is in defrost cycle, DEFROST light on
2. Defrost thermistor defective or loose
3. Loose connection in compressor circuit
4. Defective compressor overload
5. Defective compressor
6. Defective control board
7. Upper housing is not sealed to lower housing

No dehumidification, air mover runs but compressor does not.

1. Bad connection in compressor circuit
2. Safety float switch closed, check pump reservoir
3. Defective compressor capacitor
4. Defective compressor overload
5. Defective compressor
6. Defective control board

Air mover does not run. Compressor runs briefly but cycles on and off.

1. Loose connection in blower circuit
2. Obstruction prevents impeller rotation
3. Defective air mover

Unit removes some water but not as much as expected.

1. Air temperature and/or humidity have dropped
2. Humidity and/or temperature measurement is out of calibration
3. Defective defrost thermistor
4. Defective humidity sensor

Unit runs but does not pump water.

1. Hose kinked or plugged
2. Pump motor defective
3. Pump check valve plugged
4. Bad connection in pump circuit
5. Hose disconnected internally
6. Float switch

Unit pumps water automatically but not when PURGE button is pushed.

1. Bad connection in PURGE button circuit
2. Defective control board

Evaporator coil frosted continuously, low dehumidifying capacity.

1. Defrost thermistor loose or defective
2. Low refrigerant charge
3. Dirty air filter or restricted air flow
4. Front housing is not sealed to rear housing

Compressor runs with POWER button OFF.

1. Defective control board

5.3 Air Mover

The air movement is created by an impeller.

If defective, the complete assembly must be replaced.

1. Unplug power cord
2. Remove the exhaust and control board
3. Disconnect the impeller leads
4. Remove the impeller bracket
5. Remove the four screws holding the impeller to the mounting plate
6. Reassemble the new impeller using the above procedure in reverse

5.4 Thermistor Probe

A thermistor is used to sense the temperature of the evaporator coil. It is inserted into the evaporator coil thru the top. To replace the thermistor probe:

1. Unplug the dehumidifier
2. Remove the top housing
3. Pull thermistor probe up and out of evaporator coil
4. Remove control board cover
5. Unthread thermistor probe wire from harness
6. Unplug thermistor probe connector on control board
7. Reassemble thermistor probe and dehumidifier using the above procedure in reverse

5.5 Condensate Pump

The internal condensate pump removes water that collects in the reservoir.

To replace the condensate pump:

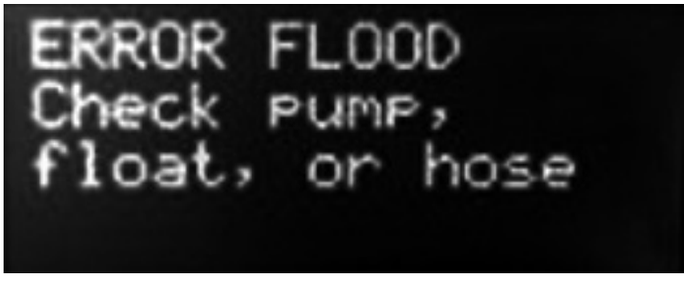
1. Unplug the unit
2. Remove the top housing
3. Unplug the pump wires from the wire harness
4. Remove the condensate hose and the one screw attaching the pump bracket to the bottom housing
5. Replace the pump, hose, wiring, bolts, and housing in the reverse order

5.6 Float Switch

The float safety switch activates the pump when the water rises too high in the condensate reservoir. The float switch also turns off the compressor until the water level lowers and disengages the switch. To replace the float switch:

1. Unplug the unit
2. Remove the top housing
3. Unplug the Float switch wires from the wire harness
4. Remove the one screw attaching the pump bracket to the bottom housing
5. Unscrew the float switch from the bracket
6. Replace the float switch from the bracket

*****IMPORTANT***** - If the float switch is stuck in the up position for more than 60 seconds.



The possible causes of this error are as follows:

- Broken pump
- Blockage on hose
- Mechanical binding of the float switch

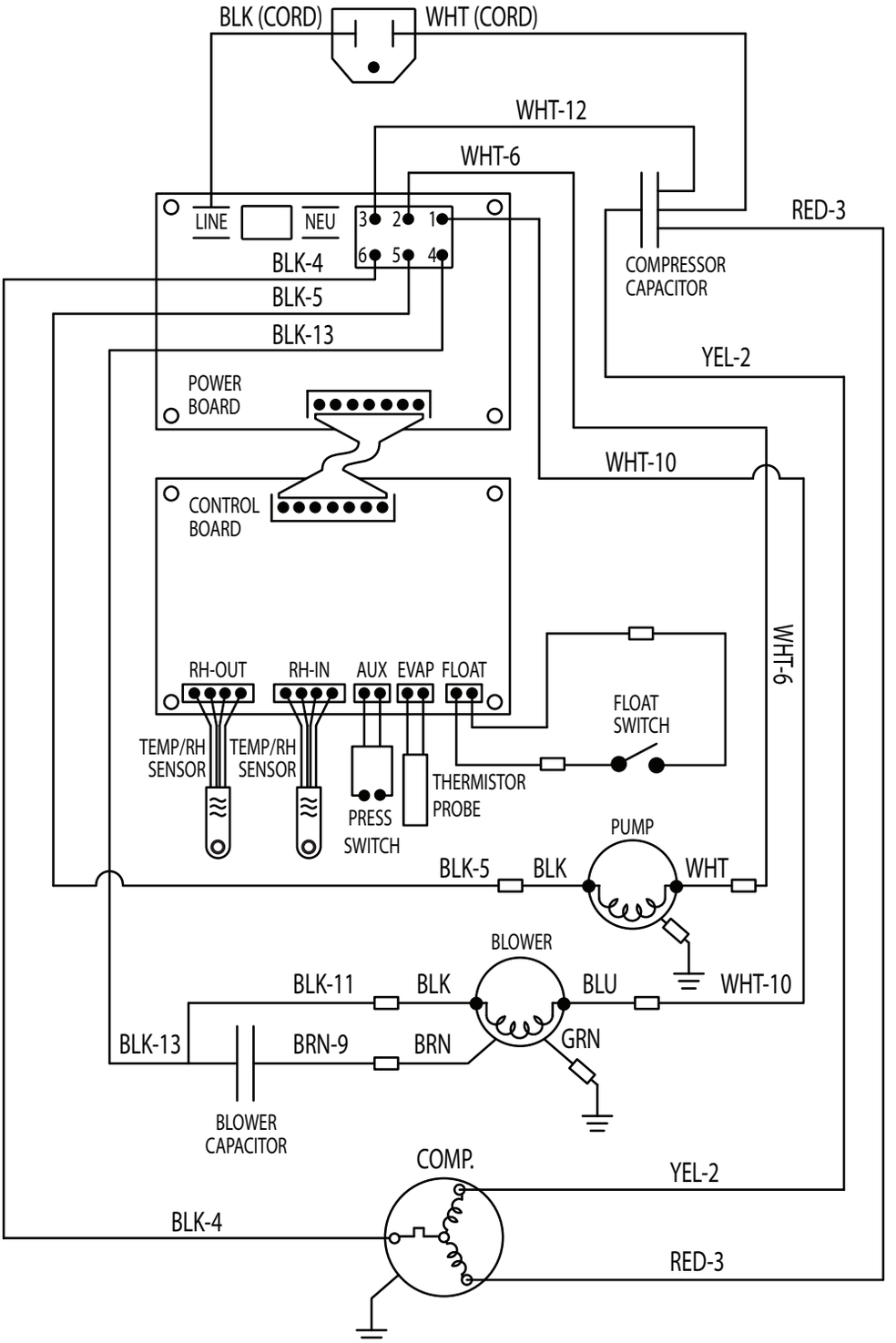
6 Options & Accessories

4038477 Air Filter, Pleated 9” x 12” x 1” MERV-10

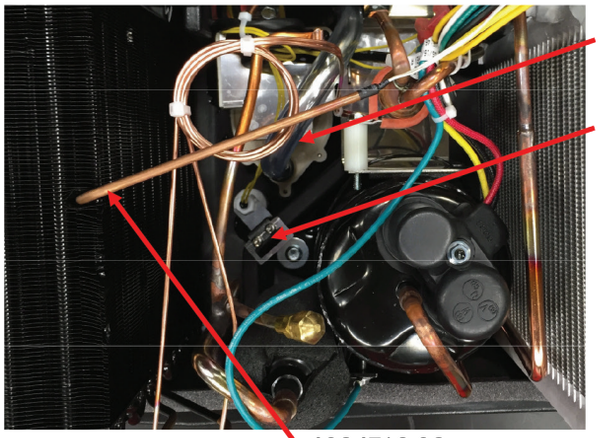
4024935 Lay-Flat Duct 10” Round x 250’ Roll

To order, contact Therma-Stor LLC at 1-800-533-7533.

7 Wiring Diagram



8 Service Parts



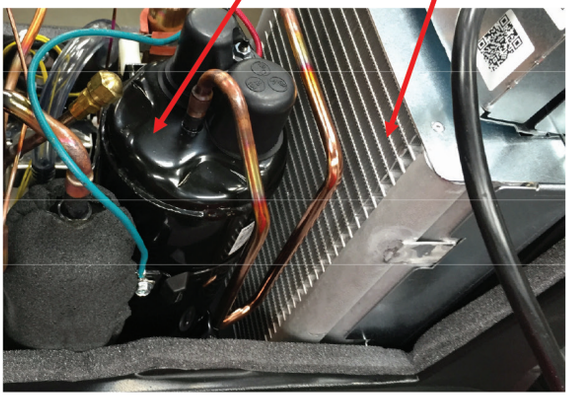
4036959-02
Condensate Pump

4036957
Float Switch

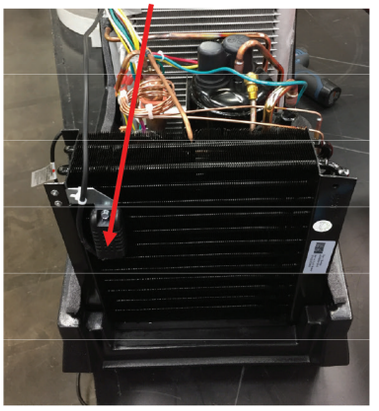
4034716-03
Evap Thermistor

4036934-01
Micro Channel Condenser

4038479
Compressor



4036848
Humidity/Temp Sensor



4036943
Handle Bushing RH
4037847
Handle Bracket RH

4024916
Condensate Hose

4036942
Handle Weldment

4036944
Handle Bushing LH
4037848
Handle Bracket LH

4037429
Control Board

4036927
Filter Support

4038477
Filter

4038478
Impeller

4036928
Exhaust Grill

4037048
Duct Ring

4036935
Rubber Wheel

4036936
Wheel Axle

4036962-01
Upper Housing Red

4036962-02
Upper Housing Blue Granite

4036961-01
Lower Housing Black

Not Pictured
*4035949-02 Capacitor 25MFD
*4037221.03 Capacitor 3 MFD

Phoenix Dry Max Dehumidifier Limited Warranty

Warrantor:

Therma-Stor LLC

4201 Lien Rd.

Madison, WI 53704

Telephone: 1-800-533-7533

Who Is Covered: This warranty extends only to the original end-user of the Phoenix Dry Max dehumidifier and may not be assigned or transferred.

Year One: Therma-Stor LLC warrants that, for one (1) year the Phoenix Dry Max dehumidifier will operate free from any defects in materials and workmanship, or Therma-Stor LLC will, at its option, repair or replace the defective part(s), free of any charge.

Year(s) Two Through Five: Therma-Stor LLC further warrants that for a period of five (5) years, the condenser, evaporator, and compressor of the Phoenix Dry Max dehumidifier will operate free of any defects in material or workmanship, or Therma-Stor LLC, at its option, will repair or replace the defective part(s), provided that all labor and transportation charges for the part(s) shall be borne by the end-user.

Year(s) One Through Seven: Materials and workmanship of the housing are covered.

End-User Responsibilities: Warranty service must be performed by a Servicer authorized by Therma-Stor LLC. If the end-user is unable to locate or obtain warranty service from an authorized Servicer, he should call Therma-Stor LLC at the above number and ask for the Therma-Stor Service Department, which will then arrange for covered warranty service. Warranty service will be performed during normal working hours.

The end-user must present proof of purchase (lease) upon request, by use of the warranty card or other reasonable and reliable means. The end-user is responsible for normal care. This warranty does not cover any defect, malfunction, etc. resulting from misuse, abuse, lack of normal care, corrosion, freezing, tampering, modification, unauthorized or improper repair or installation, accident, acts of nature or any other cause beyond Therma-Stor LLC's reasonable control.

Limitation and Exclusions: If any Phoenix Dry Max Dehumidifier part is repaired or replaced, the new part shall be warranted for only the remainder of the original warranty period applicable thereto (but all warranty periods will be extended by the period of time, if any, that the Phoenix Dry Max Dehumidifier is out of service while awaiting covered warranty service).

UPON THE EXPIRATION OF THE WRITTEN WARRANTY APPLICABLE TO THE Phoenix Dry Max DEHUMIDIFIER OR ANY PART THEREOF, ALL OTHER WARRANTIES IMPLIED BY LAW, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL ALSO EXPIRE. ALL WARRANTIES MADE BY THERMA-STOR LLC ARE SET FORTH HEREIN, AND NO CLAIM MAY BE MADE AGAINST THERMA-STOR LLC BASED ON ANY ORAL WARRANTY. IN NO EVENT SHALL THERMA-STOR LLC, IN CONNECTION WITH THE SALE, INSTALLATION, USE, REPAIR OR REPLACEMENT OF ANY Phoenix Dry Max DEHUMIDIFIER OR PART THEREOF BE LIABLE UNDER ANY LEGAL THEORY FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING WITHOUT LIMITATION WATER DAMAGE (THE END-USER SHOULD TAKE PRECAUTIONS AGAINST SAME), LOST PROFITS, DELAY, OR LOSS OF USE OR DAMAGE TO ANY REAL OR PERSONAL PROPERTY.

Some states do not allow limitations on how long an implied warranty lasts, and some do not allow the exclusion or limitation of incidental or consequential damages, so one or both of these limitations may not apply to you.

Legal Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.