

VERIFY conditions and complaint before testing to rule out user errors.

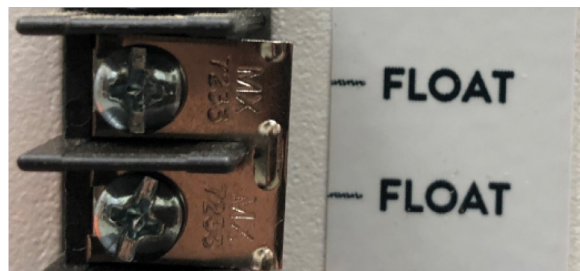
1. Verify temperature - Unit will only work between 56°F to 110°F degrees.
2. Verify specific humidity - Units will only work down to 35 grains or 40°F dew point.
3. Verify airflow thru the unit. Fan should spin Counter Clockwise when looking at exhaust.
4. Power supply - Should be 440 volts to 480 volts three phase. Phase rotation is Clockwise.
5. Verify complaint - Run unit to produce failure described by customer.

FUNCTION TEST runs through all operations of the dehumidifier. This will let you know what is and is not functioning.

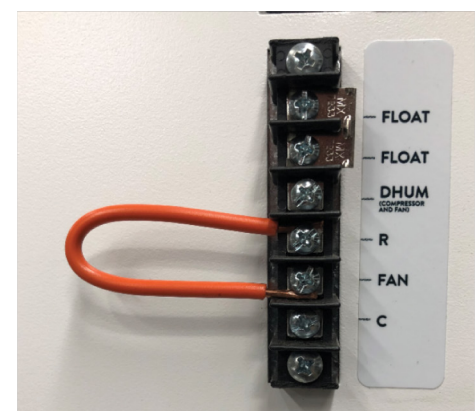
1. Remove any exterior controls hooked to the terminal block.
 - A. Exterior controls are often the cause of improper dehumidifier function.
2. Plug unit in to known good power outlet.
3. Press in on 3 amp circuit breaker to reset. (24v Control Reset)



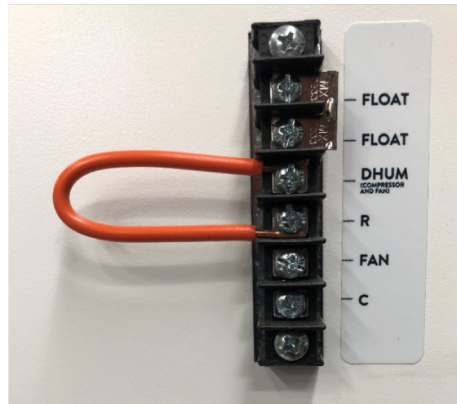
4. Install jumper between 2 FLOAT terminals.



5. Place wire between R and FAN terminal. Fan should turn on.



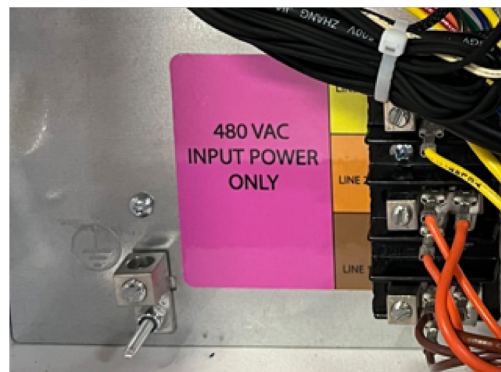
6. Place wire between R and DHUM terminal. Fan should come on after 15 seconds. Compressor should come on after 3 minutes.



7. Run unit for 10 minutes and take a temperature measurement to see the temperature rise of the air coming out. Outlet should be 10°F to 25°F higher than the inlet.
8. If problems occur see below for further testing.

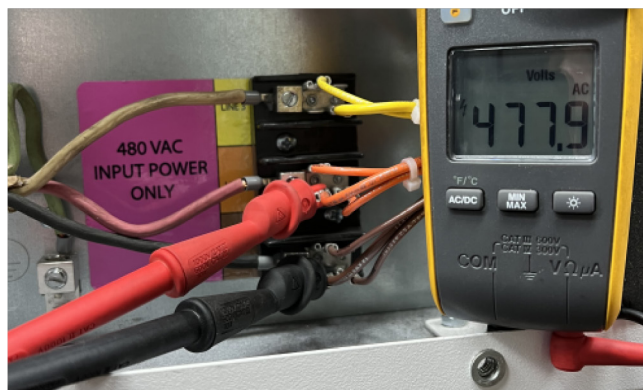
COMMON ISSUES

1. AL39 code
 - A. Phase wiring error. Swap any 2 of the 3 phase.



- B. 15% voltage imbalance. Check all 3 phase to phase voltages to see imbalance. Correct at supply transformer or incoming power.
2. Power issue: Test phase to phase power. All voltages should be between 440 and 480 volts. (Test voltage under a load to prevent false positive from induced voltage or bad connections)

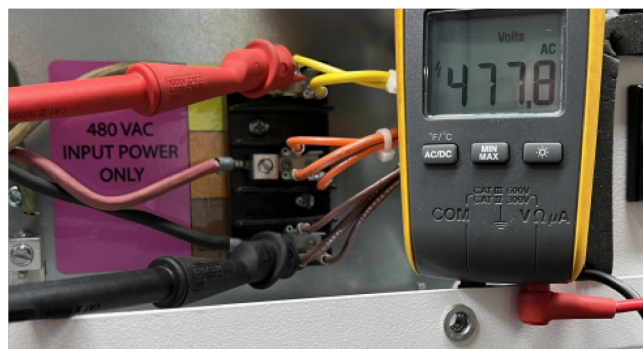
A. L1 to L2



B. L2 to L3

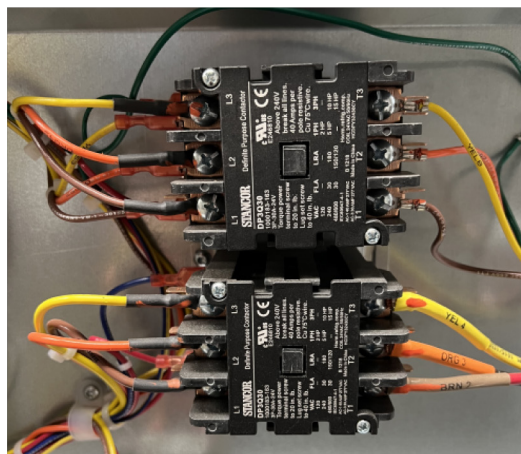


C. L1 to L3



3. Tripped circuit breaker at electrical panel.
 - A. Check for intermittent fan operation or blocked airflow. Lack of air can cause compressor to over amp.
 - I. Change filters.

- B. If circuit breakers trips when compressor is activated a bad compressor or wrong phase rotation to compressor can be suspected.
- 4. Tripped 3 amp circuit breaker on unit.
 - A. R (24v+) and C (24v-) terminal shorted together.
 - I. Adjust control wiring to fix
 - B. Multiple units R wire hooked in daisy chain.
 - I. Only one R wire should be connected in daisy chain between master unit and control.
 - C. Too many units or consumers hooked to the master unit. 6 units max
 - D. Failed circuit breaker
 - E. Failed internal relay coil or control.
 - F. Excessively high voltage applied to the unit cord. Example 600v
 - G. Excessively high voltage applied to the terminal block. Example 120v
 - H. Exterior 24v power source applied to terminal block. (Bucking transformers)
- 5. Fan noise - Could be normal or impeller rubbing on inlet ring.
 - A. To test, run fan but block inlet completely. Cardboard or plastic sheeting works well.
 - I. If noise goes away then noise is normal. High volume of air movement makes noise.
 - II. If noise remains then impeller is likely rubbing on inlet ring.
 - a. Verify the unit is level.
 - b. Adjust fan bracket to relieve rubbing if needed.
- 6. Slow fan speed, intermittent fan or no fan operation.
 - A. Failed fan.
 - B. Failed fan relay. Top relay



- 7. Fan runs but compressor does not after 3 minute delay.

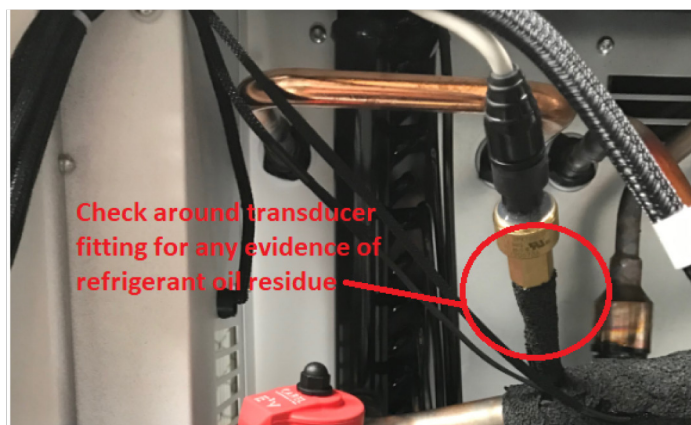
- A. Compressor relay failed. Bottom Relay
 - I. See above picture
- B. High pressure switch open.
 - I. To bypass connect 2 blue wires for testing only. DO NOT RUN FOR EXTENDED PERIODS
 - II. High pressure switch open could indicate restriction, extreme overcharge or failed pressure switch.



8. Loose nut for EEV or bad EEV. Can cause low performance, freezing, random error codes for low charge and super heat but system otherwise tests ok.



9. Refrigerant leak leading to low charge. Check transducer fitting for oil and/or leaks.



If further assistance is required please contact Therma-Stor Service Department. Please have the serial number and/or model number ready when calling in. Our Technicians will happy to help you with diagnosing problems, repair solutions and obtaining parts.

DIAGNOSTICS

1. Check for 24v power at R and C terminal with unit plugged in and power switch on. Power will be between 20 volts and 30 volts.



- A. If no voltage at terminal then:
 - I. Reset or replace 3amp breaker



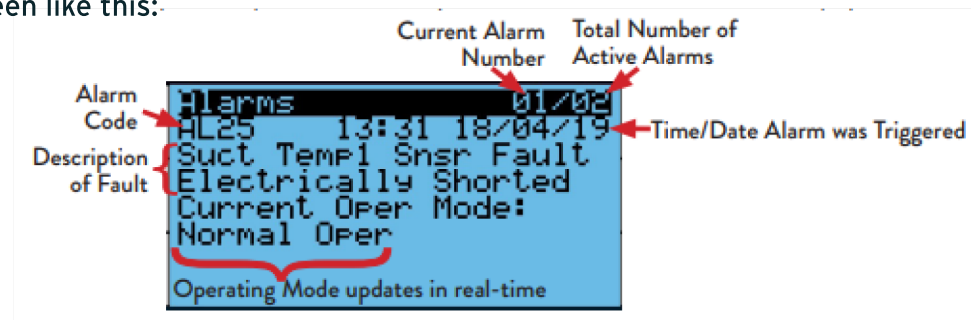
II. Replace transformer



2. Check User Interface for Alarm

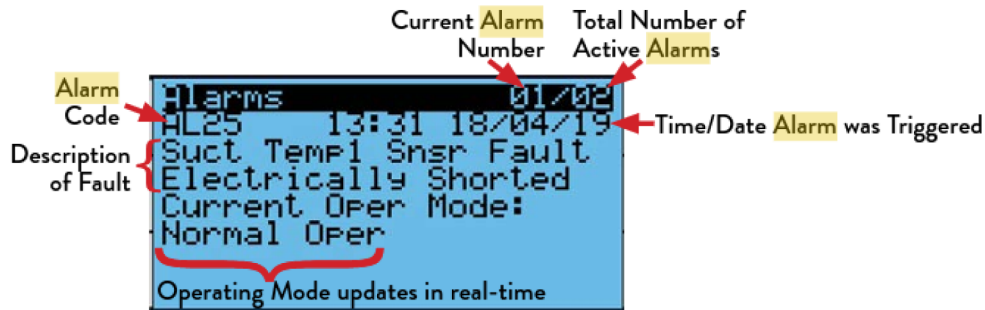


- A. From any screen, press the alarm key. If there are active alarms, this will display a screen like this:



- B. Usually component indicated in fault description is the cause. See below info for more details.
- C. How to reset alarms:

1. From any screen, press the **Alarm** key. If there are active **alarms**, this will display a screen like this.



2. Press Up/Down to cycle through all active **alarms**. The **alarms** are arranged in order of their **alarm** code (lowest to highest). One screen beyond last active **alarm**, the following screen will be displayed.

* Note that if a fault condition is still present, resetting an **alarm** will have no effect. Active **alarms** will automatically be removed from the list when the fault condition is resolved.



- D. If User Interface reads "no link" or is blank but main PLC is active then check cord between 2 components. May be loose, bad or unplugged.



	Fault Description	Name	Possible Causes	Check	Repair	Location
0	Board Resistor Fault	BoardResis_Open_Fault	Control or adapter board not compatible. Resistor wires unplugged, loose or shorted.	Check control and adapter board part numbers. Check wires and connections	Replace control and/or adapter board. Repair wires or connection. Channel U8 Low input voltage, Weak/overtaxed Transformer or bad relay coil could cause this.	Behind side angle panel. Red plastic circular piece attached to copper pipe.
1		BoardResis_Short_Fault				
2		BoardResis_High_Fault				
3		BoardResis_Low_Fault				
4	Flood Switch Fault	Flood_Switch_Fault	Float terminal not jumped. Wires to float switch loose. Float switch up (open)	Check terminal block connection, Float wires and float switch.	Insert jumper between float terminals, repair float wires, repair or replace float switch.	Terminal block or drain pan
5	Valve Fault	AI_EEV_1	Valve (mechanical) stuck, solenoid (magnetic) bad or out of place, solenoid wires loose or damaged. Control issue (rare)	Check valve and solenoid for damage. Check wiring.	Replace solenoid first, If not issue replace mechanical valve.	Behind side angle panel. Red plastic circular piece attached to copper pipe.
6	Inlet Temp Fault	InletT_Open_Fault	Sensor unplugged, loose, cut or defective	Check sensor and wiring	Replace sensor	Behind filters but connected to control
7		InletT_Short_Fault	Sensor shorted together or to ground, defective	Check sensor and wiring	Replace sensor	
8		InletT_High_Fault	Inlet temp above 120F or bad sensor	Check inlet temp in room	Lower room temp if too hot, replace sensor if reading is incorrect.	
9		InletT_Low_Fault	Inlet temp below 40F or bad sensor	Check inlet temp in room	Raise room temp if too cold, replace sensor if reading is incorrect.	
10	Memory Faults	AI_retain	Internal control issues (Unlikely)	Check to see if control was tampered with	No service required	Behind angle panel
11		AI_Err_retain_write				
12	Suction Pressure Sensor Fault	SuctP_Open_Fault	Unplugged or loose, bad sensor	Check wires and sensor	Repair wires, replace sensor	Behind angle panel, round black piece attached to copper pipe
13		SuctP_Short_Fault	Shorted together or to ground, bad sensor	Check wires and sensor	Repair wires, replace sensor	
14		SuctP_High_Fault	Over charge, Valve stuck open, restriction, bad sensor calibration, outside operating envelope, no/reduced airflow	Check suction pressure and charge level, fan function, filter obstruction	Correct charge, replace valve, replace sensor, replace fan, fan capacitor	

	Fault Description	Name	Possible Causes	Check	Repair	Location
15	Suction Pressure Sensor Fault	SuctP_Low_Fault	Low charge, valve stuck closed, bad sensor calibration, outside operating envelope, no/reduced airflow	Check suction pressure and charge level, fan function, filter obstruction	Correct charge, replace valve, replace sensor, replace fan, fan capacitor	Behind angle panel, round black piece attached to copper pipe
16	Defrost Thermistor Sensor Fault	EvapT1_Open_Fault	Sensor unplugged, loose, cut or defective	Check sensor and wiring	Replace sensor	Usually in coil, probe type
17		EvapT1_Short_Fault	Sensor shorted together or to ground, defective	Check sensor and wiring	Replace sensor	
18		EvapT1_High_Fault	Coil temp above 120F or bad sensor, or no/reduced airflow	Check inlet temp in room or evaporator temp, blower function, filter obstruction	Lower room temp if too hot, replace sensor if reading is incorrect. Replace fan or fan capacitor.	
19		EvapT1_Low_Fault	Coil temp below 10F or bad sensor, or no/reduced airflow	Check inlet temp in room or evaporator temp, blower function, filter obstruction	Raise room temp if too cold, replace sensor if reading is incorrect. Replace fan or fan capacitor.	
20		EvapT2_Open_Fault	Sensor unplugged, loose, cut or defective	Check sensor and wiring	Replace sensor	Usually on the side of the coil, on manifold
21		EvapT2_Short_Fault	Sensor shorted together or to ground, defective	Check sensor and wiring	Replace sensor	
22		EvapT2_High_Fault	Coil temp above 120F or bad sensor, or no/reduced airflow	Check inlet temp in room or evaporator temp, blower function, filter obstruction	Lower room temp if too hot, replace sensor if reading is incorrect. Replace fan or fan capacitor.	
23		EvapT2_Low_Fault	Coil temp below 10F or bad sensor, or no/reduced airflow	Check inlet temp in room or evaporator temp, blower function, filter obstruction	Raise room temp if too cold, replace sensor if reading is incorrect. Replace fan or fan capacitor.	
24	Suction Temp Sensor Fault	SuctT1_Open_Fault	Sensor unplugged, loose, cut or defective	Check sensor and wiring	Replace sensor	Behind angle panel, next to suction pressure sensor, attached to copper pipe
25		SuctT1_Short_Fault	Sensor shorted together or to ground, defective	Check sensor and wiring	Replace sensor	
26		SuctT1_High_Fault	Suction temp above 150F, low airflow or bad sensor, low charge	Check suction line temp, dirt filter or bad fan	Replace air filter, Replace fan or Fan capacitor. Replace sensor if reading is incorrect.	

	Fault Description	Name	Possible Causes	Check	Repair	Location
27	Suction Temp Sensor Fault	SuctT1_Low_Fault	Suction temp below -20F, low airflow or bad sensor, low charge	Check suction line temp, dirt filter or bad fan	Replace air filter, Replace fan or Fan capacitor. Replace sensor if reading is incorrect.	Behind angle panel, next to suction pressure sensor, attached to copper pipe
28		SuctT2_Open_Fault	Sensor unplugged, loose, cut or defective	Check sensor and wiring	Replace sensor	
29		SuctT2_Short_Fault	Sensor shorted together or to ground, defective	Check sensor and wiring	Replace sensor	
30		SuctT2_High_Fault	Suction temp above 150F, low airflow or bad sensor, low charge	Check suction line temp, dirt filter or bad fan	Replace air filter, Replace fan or Fan capacitor. Replace sensor if reading is incorrect.	
31		SuctT2_Low_Fault	Suction temp below -20F, low airflow or bad sensor, low charge	Check suction line temp, dirt filter or bad fan	Replace air filter, Replace fan or Fan capacitor. Replace sensor if reading is incorrect.	
32	Low Charge Fault	Low_Charge_Fault	Low charge, valve stuck, suction pressure sensor off calibration, suction temps off calibration	Check charge and sensor calibration, coil restriction	Repair leak and recharge, replace sensors.	See above sensor locations
33	Inlet - EvapT delta	Sys_Verif_Fault	Low charge, compressor not working, valve stuck closed, inlet or evaporator sensor calibration, compressor contactor bad, compressor wiring bad	Check charge, sensor calibration, compressor function, valve movement	Repair leak and recharge, replace sensors.	
34	LOP	AI_LOP_EVD	Low charge, valve not in correct position, low airflow, outside of operating range	Check charge, valve function, fan function, filter obstruction, coil restriction	Change filters, Replace blower, blower capacitor, valve solenoid or valve	
35		AL_LOP_SVC				
36	Low SH	AI_LowSH	Low airflow, valve not in correct position, low load application (may be normal)	Check filters, check valve for movement	Change filters, Replace blower, blower capacitor, valve solenoid or valve	
37	MOP	AI_MOP_EVD	High Charge, valve not in correct position, low airflow, restriction, high operating condition (high inlet temp/RH)	Check charge, filter, blower, valve	Change filters, Replace blower, blower capacitor, valve solenoid or valve	
38		AL_MOP_SVC				
39	Bad Power	Phase Relay Fault	High, Low voltage. Wrong Phase rotation	Check Power	Reverse any 2 wires to reverse rotation	

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TS-Phone Tech Support: ts-phone-tech-support@Thermastor.com

Tech Department: 800-533-7533 option #4, then option #2

TS-Parts Department: ts-parts@thermastor.com

Parts Department: 800-533-7533 option #4, then option #1