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2400 & 3200 Dehydrator Humidity Alarm Troubleshooting Guide

INDOOR MOUNT **POLE MOUNT**

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A humidity alarm is the most common issue that will arise with your dehydrator after several years of un-interrupted service. This guide will detail the necessary steps to troubleshoot the cause of this alarm and outline the corrective action needed to clear it.

Performing the recommended routine maintenance on the dehydrator is the best way to prevent issues before they happen, minimizing downtime and ensuring trouble free operation for the life of the dehydrator.

Model 2400 & 3200 IM/PM **Maintenance Item / Spares List - CALL 1-877-247-3797**			
Part Number	***Spare Part Description***	***Quantity Required***	
		Per Unit	**Maintenance Interval**
0021990001	Compressor Intake Filter Felts	2	6 - Month
0027406501	Air Compressor-Repair Kit	1	12 - Month
44177	Dry-Pak Outlet Dust Filter Element (IM ONLY)	1	12 - Month
0022646001	Dry-Pak Purge Mufflers	2	24 - Month
0020523012	Backpressure Regulator Diaphragm	1	24 - Month
0024815022	Purge Solenoid Valve Repair Kit	2	24 – Month
0024815021	Bypass Solenoid Valve Repair Kit	1	24 – Month
15688	Humidity Sensor	1	24 – Month
30986	Humidity Sensor Plug	1	24 – Month
89795	Humidity Sensor Gasket	1	24 - Month
0028175002	Cabinet Filter (PM ONLY)	1	12 - Month

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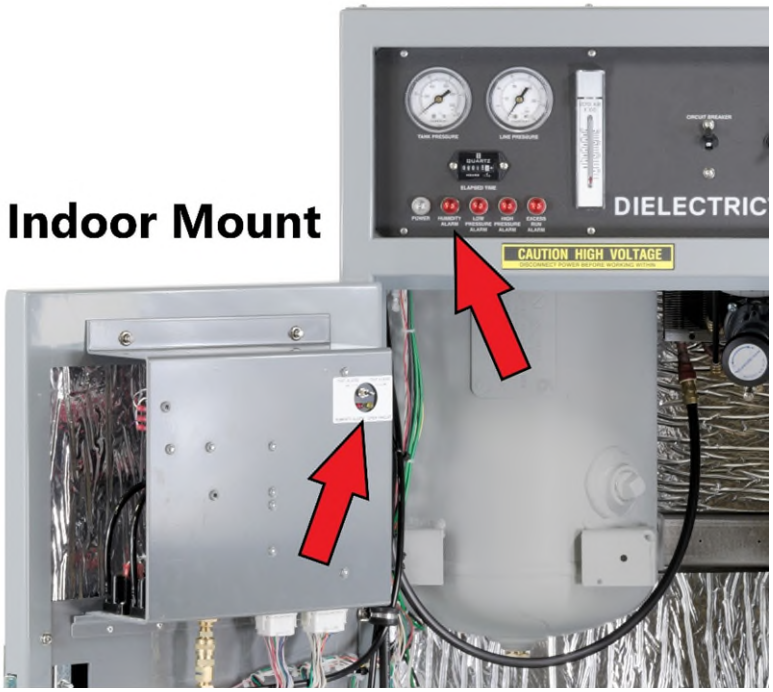
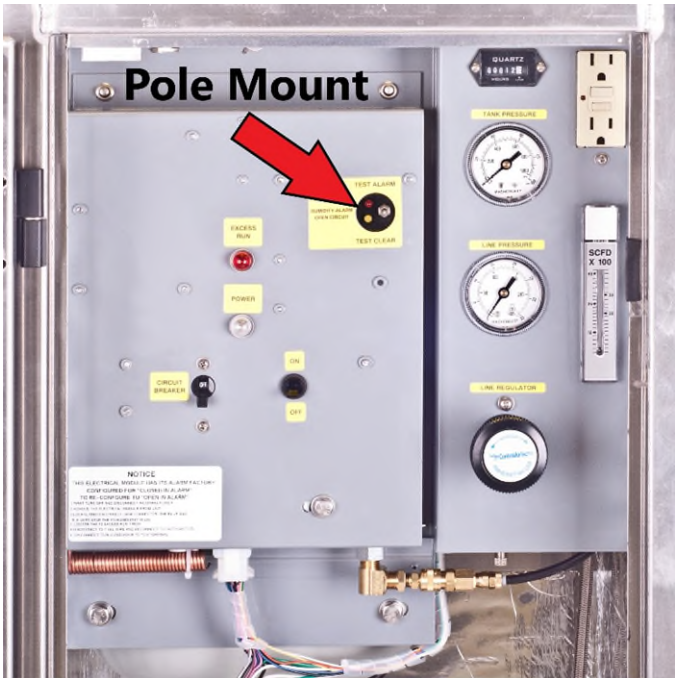
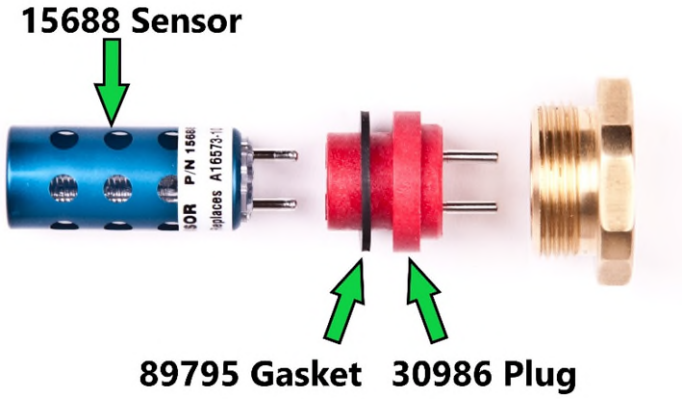
With an active humidity alarm present the first step is to determine which type of alarm is being detected. Open the door on the unit and locate the humidistat. On an IM unit you will see a general humidity alarm light on the front panel and a more specific alarm indication on the humidistat. The PM dehydrators will only indicate the alarm from the humidistat on the electrical module.





- **If the RED LED for humidity is illuminated the humidistat has detected that the air being produced by the dryer exceeds 2% RH and in most cases attention is required.**
- **If the YELLOW LED is illuminated this means the humidistat does not detect a sensor typically due to a faulty humidity sensor or the two pink wires that connect the humidistat to the humidity sensor have become damaged or disconnected.**



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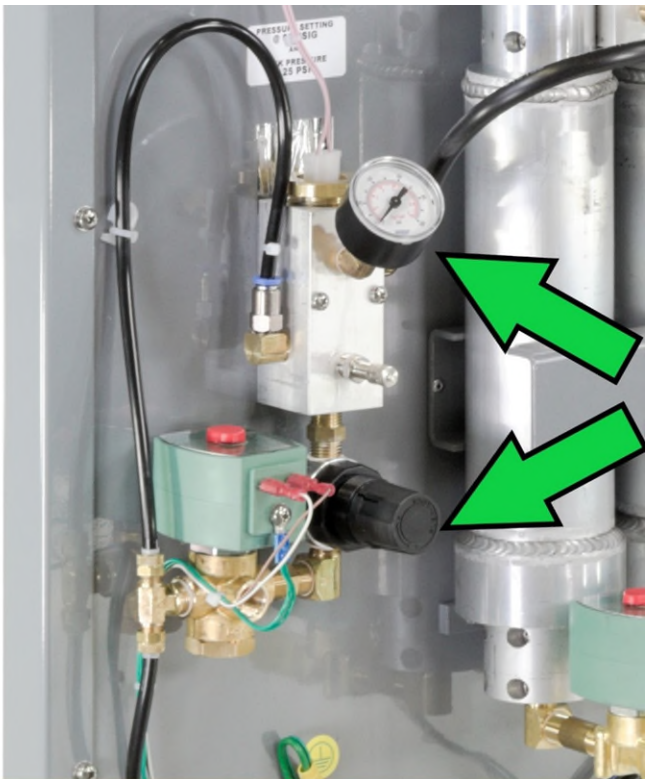
For humidity alarms where the RED led is illuminated, perform the following troubleshooting steps:

1. **Check backpressure (dryer pressure). For model 2400 dehydrators the backpressure setting is 60-65PSI. For model 3200 dehydrators the backpressure setting is 50-55PSI. The backpressure is indicated on the backpressure gauge located on the door and is adjusted using the regulator directly below the gauge. The gauge will only indicate what the backpressure is set to while the compressor is actively running and should be checked and adjusted when the tank pressure is no higher than 25 PSI. As soon as the compressor begins to run the gauge should immediately build up to the set pressure and remain there relatively steadily except for a quick 2-3 second increase and then 1-2 second drop in pressure every 30 seconds as the drying towers cycle. Verify the accuracy of the backpressure gauge by using an external pressure test gauge (tire gauge) and the provided Schrader valve test point on the manifold.**



If the backpressure setting was too low but all other functions appear otherwise normal this alone can cause a humidity alarm condition. Increase the backpressure higher than normal (70 PSI for 2400, 60 PSI for 3200) and allow the dehydrator to run for 1-2 hours to clear the alarm and then return it to normal operating pressure.

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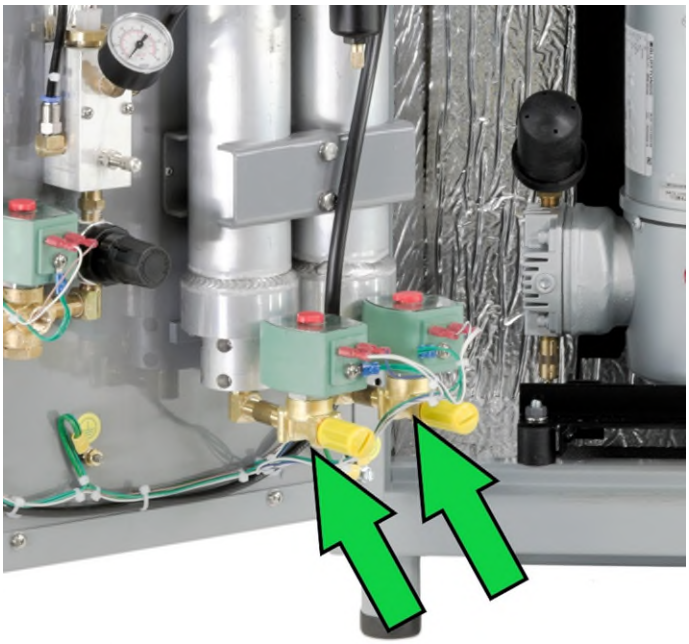
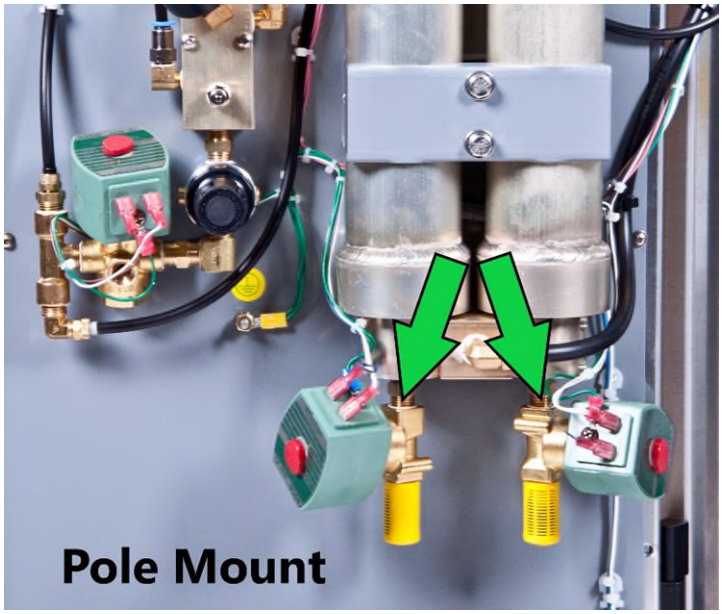
2. **Check for proper purge valve operation. When the compressor is actively running the purge valves will alternate every 30 seconds. For a model 2400 one purge valve will be energized and open for 25 seconds followed by a 5 second dwell time where the valve is de-energized and closed. At 30 seconds the other purge valve will open for 25 seconds and the cycle repeats. On model 3200 dehydrators this cycle is 27 and 3 seconds.**

   You can check for proper timing and operation by removing the mufflers from the purge valves and using a finger to feel when the air starts and stops flowing out of the valves. Use caution as the initial blast of air when the valve first opens will be forceful. You should NEVER feel air coming from both valves at the same time and this would indicate a valve is not closing due to being worn out or a failed purge valve timer.



Indoor Mount



After verifying the correct backpressure, installing purge valve repair kits into the purge valves is normally the next step to take when troubleshooting a humidity alarm.

P/N 0024815022 repair kits should be installed at least once every 2 years. In some cases, particularly with pole mounted dryers that operate in adverse conditions you may need to perform this action more often. <u>After installing the valve repair kits it may take up to 2 hours of continuous runtime to clear the alarm.</u>

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3. **If the purge valves do not seem to be cycling back and forth or one or both valves remains energized all the time, this generally indicates purge valve timer failure. The purge valve timer is a solid state device and requires a load on the output to "sink" the voltage present when there is no load attached. If you attempt to troubleshoot the timer using a voltmeter the power wires connected to the valve coils must remain connected to take an accurate voltage reading.**

   When taking voltage readings start at each purge valve coil across the two terminals looking for either 120VAC or 230VAC depending on the voltage of your specific model. If no voltage is present on the valves take voltage readings directly from the timer. Always measure voltage across the hot and neutral or two hot wires. Taking voltage measurements to ground will yield false results.

The purge valve timer is located on the electrical module mounted on the door (IM dryers) or inside the unit on the tank (PM dryers) and appears similar to the one pictured below. Timer electrical terminal functions are as follows:

L1 *- Incoming hot power wire to timer. Energized at all times when power is present.*

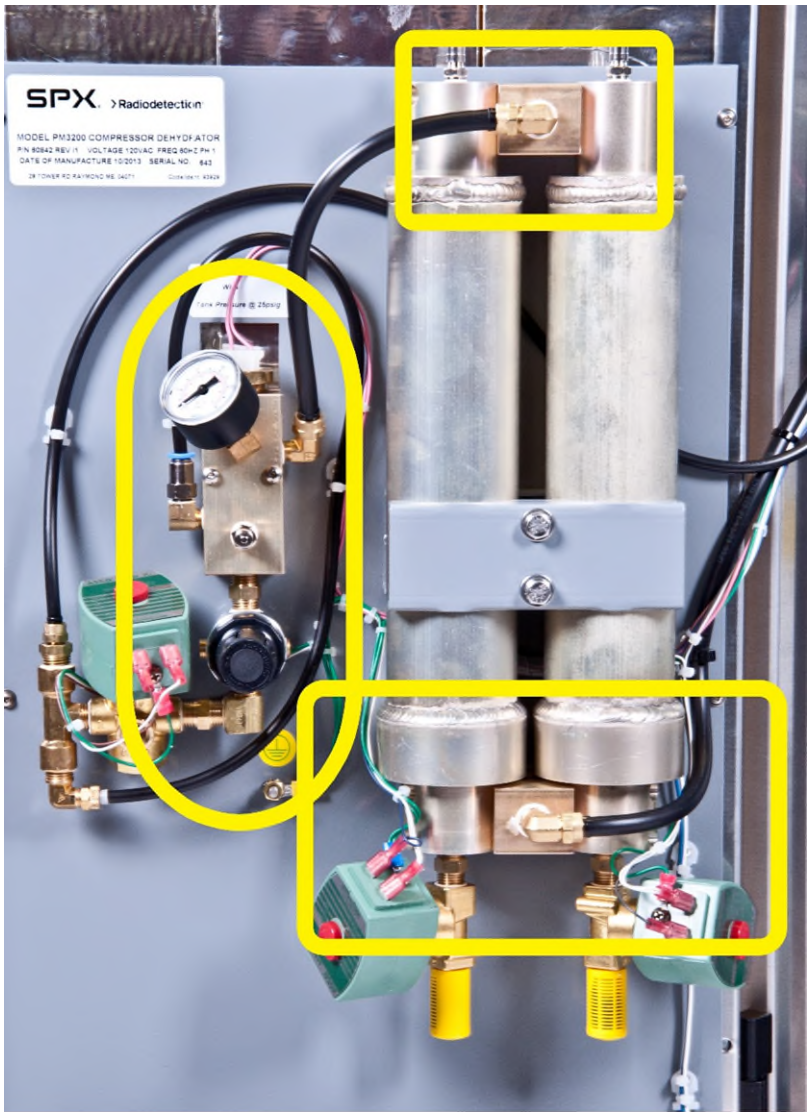
N/L2 *- Incoming neutral (120v models) or hot (230v models) to timer.*

SW *- Switched power incoming to timer. Will be energized when the compressor runs only. Power to this terminal activates timer operation.*

S2 *- Timer output #2 to purge valve coil. Energized only for the timing sequence of 25 or 27 seconds every minute.*

S1 *- Timer output #1 to purge valve coil. Energized only for the timing sequence of 25 or 27 seconds every minute.*

4. **Check for any air leaks on the drypak assembly or within the humidity manifold assembly. Any air leaking from any of the areas outlined in yellow (pole mount dryer shown) can cause a humidity alarm issue. The most common areas would be the humidity sensor plug being cracked and leaking air between the two pins, the backpressure regulator diaphragm being torn and leaking air from the adjustment handle or leaks from O-ring seals and fittings on the drypak assembly.**

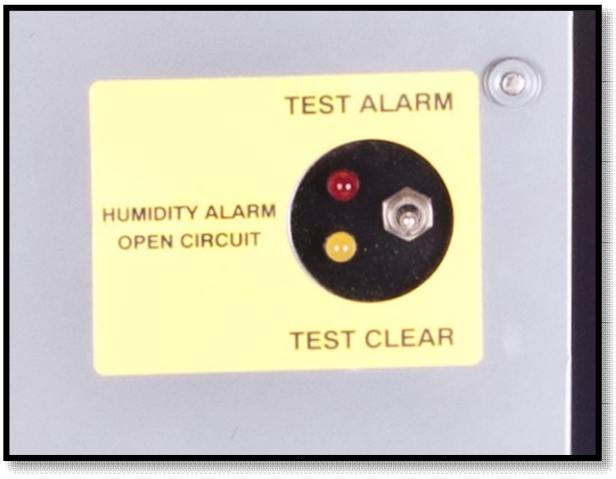


5. **Check for cabinet cooling fan operation. Both the IM and PM dehydrators have a cabinet cooling fan that pulls air across a heat exchanger to cool the air coming out of the compressor before it goes into the drypak. If the fan has failed, the air temperature will be too hot for the drypak to adequately remove moisture. The fan will run only when the compressor is running. You should feel air blowing out of the exhaust vent on the rear of the dehydrator.**

6. **Replace humidity sensor. Humidity sensor failure is rarely the cause of a humidity alarm however it cannot be ruled out without first verifying if the sensor is in working condition. The only way to test a sensor is to have another dryer in known good working condition and either installing the sensor into that dryer or taking a sensor that reads clear in another dryer and putting it into the faulty dryer to see if it will clear the alarm. Note: When the sensor is removed or replaced simply exposing it to atmosphere will cause the sensor to collect moisture and it will take a few minutes of runtime in a dryer to show clear once again.**

7. **Check humidistat operation. While a humidistat failure is also rarely the cause of a humidity alarm, it does come equipped with a self test function. The toggle switch on the humidistat has two test positions. When there is an active humidity alarm and the toggle switch is held in the "TEST CLEAR" position the alarm should clear while the switch is being held and it will begin to build pressure in the tank as normal.**

   When the dehydrator is not in alarm and the switch is held in the "TEST ALARM" position the humidistat should go into red humidity alarm and the dryer will begin bypassing air. If the humidistat or wiring is suspected you can disconnect the electrical plug from the humidity sensor and place a 270K ohm resistor across the two pink wires to test both items together. The humidistat should immediately clear the alarm with the resistor attached. If any of the functional tests outlined above have failed- replace the humidistat.



8. **Check that the compressor is the correct model for the specific dehydrator. The 2400 and 3200 compressors share a similar outward appearance but have different output airflow characteristics. If a 3200 model compressor is installed into a 2400 dehydrator a humidity alarm will soon follow. The additional airflow output from the compressor exceeds what the drypak is capable of drying.**

   Look for a part number tag on the compressor that should indicate which model dryer it is designed for. Another quick way to identify the compressor is the fan shroud which will have either a red or yellow sticker indicating 100 PSI or 50 PSI max respectively. The yellow, 50 PSI max compressor is for model 3200 dryers only. Red, 100 PSI max compressor is for model 2400 dehydrators. Using a model 2400 compressor in a model 3200 dryer will not result in a humidity alarm but would result in extended runtimes and less output airflow capacity.

9. **If all other troubleshooting steps and corrective actions have failed to clear the humidity alarm, complete drypak assembly replacement is required. Over time the desiccant inside the drying towers can become contaminated and fail to remove moisture requiring replacement. This is especially prevalent with pole mounted dryers which are exposed to automobile exhaust and dirt. Refer to the complete user manual for your dehydrator for the specific drypak part number. The complete drypak assembly can also be returned to the factory to be refurbished with all new internal parts and return the drypak to new functional condition. Please contact the factory to obtain a service request authorization before returning any items for repair.**