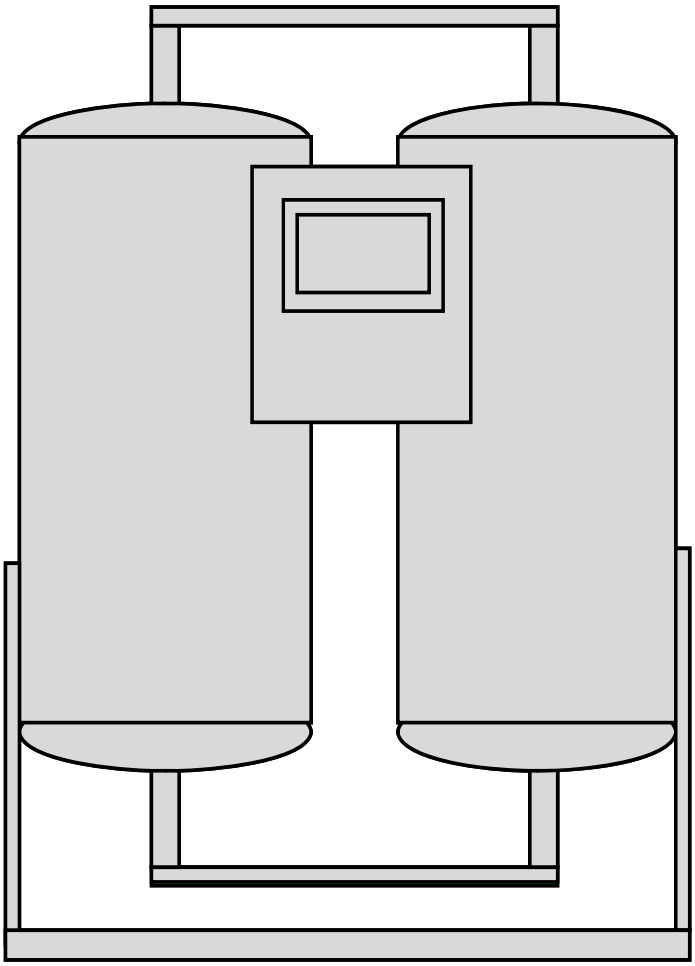
Installation, Operation and Maintenance Manual

Zero-Purge Desiccant Compressed Air Dryers



GENERAL INFORMATION

Pure-Aire is a global leader in the design and manufacturing of products for the drying and purification of compressed air and gas.

Our product line includes pressure flow controllers, closed-loop fluid coolers, water separators, compressed air filters, refrigerated air dryers and heatless, patented zero-purge and heat reactivated desiccant air dryers.

Please review this detailed and comprehensive instruction manual for the use of Pure-Aire zero-purge desiccant air dryers. Operational information is supplied for the user and supporting information for the technical personnel who may repair the dryer in the event that it is ever necessary. It is recommended that all who will have responsibility for the dryer should carefully read all sections of this manual before commencing with installation.

Thank you for choosing Pure-Aire to service your compressed air needs. Please call if we can be of further assistance.

IMPORTANT

Warranty registration will improve the parts availability with your Local Authorized Dealer and Service Center and extend the warranty. Register your products online or complete the warranty registration sheet.

(800) 274-3233
www.pure-aire.net

TABLE OF CONTENTS

SAFETY WARNINGS & PRECAUTIONS

- **DO NOT** service dryer, associated filters and equipment while under pressure.
- Disconnect electrical (and pneumatic) power before servicing dryer and associated filters.
- Eye and ear protection should always be used when working on or near dryer. Dryer exhaust ports can raise dust and particles. Be advised that noise level out of the purge exhaust mufflers is higher during initial blow down or depressurization of dryer towers.
- Automatic drain valve on coalescing pre-filter will eject water, oil, particles and air under pressure when open. Condensate drainage from coalescing pre-filter on dryer may contain oil or other contaminants. Be sure to follow all local regulations for proper handling and disposal.
- Failures on dryer valves and components can result in a large air loss and/or high pressure loss across dryer. One possible reason for failures is from a lack of maintenance. **NOTE:** Recommended maintenance schedule should be followed to minimize the chances of this occurring. For recommended maintenance on dryer, please refer to the Dryer Maintenance Guide on page 16.
- Activated alumina desiccant dust is considered a nuisance dust. Safety precautions should be reviewed when handling desiccant. For proper disposal of desiccant, please refer to Material Safety Data Sheet (MSDS). Also, be sure to comply with any local codes and regulations. **NOTE:** Desiccant is not considered a hazardous waste unless contaminated with oil or other foreign substances. Disposal may need to be handled by a local waste management company.

WARNING	**WARNING**
1. Relieve air pressure before servicing dryer or associated equipment.	1. Always use two wrenches when installing/tightening piping connections to prevent over-torque stress and damage to connection.
2. Disconnect power and **Lock out/Tag out (LOTO)** before servicing dryer.	2. Always read and follow the instructions before operating/servicing dryer.
3. NOT SAFE for human respiration (breathing).	3. Comply with electrical installation and service guidelines for the National Electrical Code and the Federal, State and Local Codes when working with this equipment.
4. Connect oil coalescing pre-filter with automatic drain before the dryer.	4. Follow the Pressurization Start-Up and Shut-Down Procedures daily.
5. Secure drain lines to prevent bodily injury due to unsecured pressurized drain lines whipping.	5. Review the operations of the pre-filter and separator drains for proper removal of condensate/water drainage daily. Use eye and ear protection when in the vicinity of the dryer.
6. The standard designed operation for dryers are: - Ambient temperature of 100°F. - Inlet air process temperature of 100°F. - Operating pressure of 100 psig.	6. Dryer operations above or below these design specifications should be reviewed for proper application.

RECEIVING & START-UP REVIEW

RECEIVING & INSPECTION:

Inspect dryer carefully upon arrival. Uncrate and inspect for concealed damage. Any damage should be notified to the freight carrier immediately on the freight bill. File claims with the freight carrier immediately and notify Pure-Aire's Sales Department.

WARNING

DO NOT install, operate, maintain, adjust or service this unit without thoroughly reading this manual.

All dryers are tested and inspected at the factory prior to shipping. Improper operation will cause poor results or mechanical failures from the dryer.

DRYER LOCATION:

Locate the dryer in an area accessible for maintenance. The area should be clean, cool, well lighted and have a level, vibration free floor. Ambient temperature should be between 50ºF and 100ºF. Dryer should have a 36" minimum clearance on all sides. See dimensional print for specific clearance requirements.

INSTALLATION:

(See typical installation drawing)

WARNING

Connect oil coalescing pre-filter with automatic drain before the dryer to prevent any oil or slugs of water carryover into the desiccant.

Connect particulate after-filter downstream of the dryer to retain any desiccant dust flowing into the process air lines.

Make the following piping connections:

Always use two wrenches when installing piping connections to prevent over-torque stress and damage to connection when tightening.

1. Dryer inlet piping with an isolation valve.
2. Dryer outlet piping with an isolation valve.
3. Coalescing pre-filter and particulate after-filter.
4. Automatic drain on pre-filter.
5. Manual bypass valves are recommended. A bubble tight valve should be used for bypass.

SECURE DRAIN LINES:

Fasten drain lines from pre-filter/separator to floor or drain. Pressurized air will periodically pass through drain lines, which will cause an unsecured line to whip and may cause bodily injury.

WARNING

Comply with the National Electrical Code and the Federal, State and Local Codes when installing or operating this unit.

Make required electrical connections to the control box. Check and read over wiring diagram that pertain to your unit and make sure the correct power supply is connected. **DO NOT energize circuit at this time.** Follow all applicable codes.
NOTE: Customer to provide short circuit protection for dryer..

DESIGN CONCEPT

Every zero-purge dryer has a standard design concept.

The inlet pre-filter and automatic drain provide a standard level of contaminant removal for entrained condensate and oil to prevent fouling of the desiccant.

The air inlet valves for the right and left towers divert the flow of compressed air and provide a positive seal for the pressurization and depressurization of each tower.

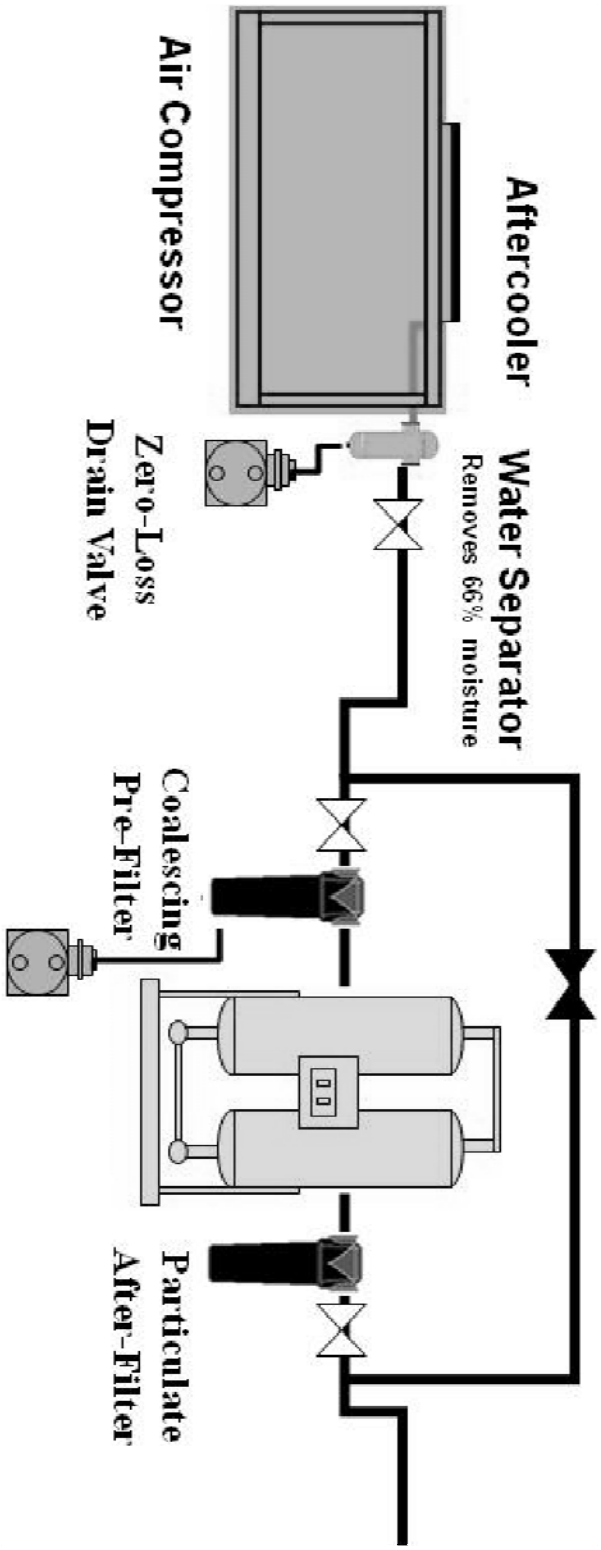
The purge valves (normally closed) for the right and left towers provide a positive seal for the drying process and are diverted open for the depressurized regeneration process of each tower.

The regeneration pump valve (normally closed) provides a positive seal for the drying process and when diverted open it allows the negative pressure regeneration process to draw the moisture off the tower.

The dryer repressurizing valve (normally open) is closed during the drying process and opens prior to the tower switching to assure that the proper flow and repressurization pressure is achieved.

The air outlet check valves are open for the air flow stream during the drying process and provides a positive closed seal for the depressurized regeneration process of each tower.

DIAGRAM #: 1 – COMPRESSED AIR RECOMMENDED INSTALLATION FLOW



WARNING	**DESICCANT DRYERS ARE DESIGNED TO REMOVE WATER VAPOR ONLY!**

The air to be dried must pass through a coalescing pre-filter for removal of entrained condensate and oil to prevent fouling of the desiccant. An optional pre-filter may be recommended for additional contaminant removal to prevent fouling of the desiccant. Liquid condensate entering the bed will lead to overloading of the dryer, poor dew point performance and rapid deterioration of the desiccant. Oil entering the desiccant bed will permanently reduce the capacity of the desiccant.

An automatic drain is required on each pre-filter and all other upstream collection points to remove condensate.

Periodic checking of the dew point just downstream of the dryer is the best indication of whether the dryer is performing as expected. For a rough indication of performance, a color changing moisture indicator is provided as standard equipment. The indicator will be green when the outlet air is dry and white when the outlet air is wet. Two available options are a high humidity alarm or eDemand dew point cycle controller.

WARNING
As equipped, air from compressor and air drying system is not safe for human respiration (breathing).

To provide safe, breathable air, compressor must be capable of producing at least Grade D breathing air as described in Compressed Gas Association Commodity Specification G7.1 1966. Special filtering, purifying and associated alarm equipment must be used to convert compressed air to “BREATHING AIR”. Other special precautions must also be taken.

DISCLAIMER OF WARRANTY

If this unit is used to produce breathing air, OSHA 29 CFR 1910.134 specifications of the necessary equipment and special precautions to make breathing air **MUST** be used or any warranties are VOID and manufacturer disclaims any liability whatsoever for loss, personal injury or damage.

 WARNING	SAFETY PRECAUTIONS

Failure to observe any of the following precautions could result in severe bodily harm and/or damage to equipment.

- Use eye and ear protection when in the vicinity of the dryer or exhaust ports, especially if the dryer is being operated without mufflers. Even when mufflers are used, a tower blowing down to the atmosphere will raise particles, create more noise than during "normal" operation and may startle an individual not used to this portion of the operation.
- In the case of an overpressure situation, there is a safety relief valve on each tower designed to protect the equipment. If these end up pointed in a hazardous direction after dryer installation, they should be piped to a safe location.
- Automatic or manual drain valves will eject water, oil, particles and air under partial pressure when operated. Proper precautions must be taken.
- Condensate drainage from compressed air systems may contain oil or other contaminants. Follow all applicable regulations for safe handling and disposal.
- Various component failures could theoretically cause large air loss and subsequent pressure drop. Preventive maintenance should be performed to reduce the likelihood of this. If this occurs, bypass the dryer immediately to restore flow and pressure.
- Activated alumina dust is considered a nuisance dust. Proper precautions should be taken when handling desiccant. For more information and for other types of desiccant, refer to applicable Material Safety Data Sheet.
- For disposal of used desiccant, refer to the applicable Material Safety Data Sheet and all applicable regulations. **NOTE:** Desiccant contaminated with oil or other foreign substances may be covered under disposal regulations for contaminants.

DRYER CONNECTIONS REVIEW:

An inspection of the dryer is required to ensure that nothing came loose during shipment. A two-wrench approach will minimize stress on piping connections and prevent over-torque damage when tightening. Check all air connections for leaks and tighten as required. Downstream air leaks will affect dew point. During shipment, flanges, connecting bolts and piping unions can come loose. Bypass air leaks will affect dew point. Only soft seat bypass valves are recommended.

Review that the new piping system is not placing undue stress on the dryer connections. Flexible joints and unions are recommended to relieve stress. Piping systems must be properly supported with hangers or brackets. It is recommended that air piping be installed by an experienced pipe fitter.

ELECTRICAL CONNECTIONS:

Check and read over wiring diagram that pertain to your unit and make sure the correct power supply is connected. **DO NOT energize circuit at this time.** Follow all applicable codes. **NOTE:** All components must be load rated as approved by NEC, NEMA, CSA and UL.

During shipment, electrical and wiring connections may become loose. Per UL specifications, torque screws inside the enclosure to an approximate 20 in-lbs.

GROUNDING:

It is mandatory that the dryer be grounded properly. Use an adequately sized ground wire conductor that is sized to NEC.

STORAGE:

In the case that extended storage is required, please consult the Pure-Aire storage procedures.

PRESSURIZATION & START-UP PROCEDURE

Initial Start-Up:

- Qualified personnel must perform the initial start-up. Completion of the warranty registration is required within 30 days of start-up.
- Ensure that all the steps of the installation procedure has been followed.

NOTE: The following units must be started up by an authorized distributor.

- *Refrigerated, Cycling C-Series 3200 cfm and larger*
- *Regenerative H and Z-Series 2000 cfm and larger*
- *Closed Loop Cooling System CLC-300 and larger*

This procedure is to be followed every day at start-up:

- Before starting dryer, the air system should be pressurized and the dryer bypassed and not yet pressurized.
- **Dryer outlet isolation valve should be closed.**
- **Slowly open inlet isolation valve** and gradually increase pressure on the dryer to full line pressure. Watch the pressure increase. **DO NOT** open inlet valve abruptly, as this could shock the filters in the system.
- Wait until both dryer towers are at equal line pressure.
- Turn the dryer ON/OFF switch to the ON position. After the dryer is turned ON in the run position, it will begin to cycle. At this point, one tower will exhaust its air to atmosphere. See cautionary statement above.
- Review the purge flow and make any necessary adjustments with the specifications for your dryer.
- After the dryer is pressurized and ready for operation, **slowly open the outlet isolation valve**. **DO NOT** open outlet valve abruptly, as this could shock the filters in the system and cause the dryer not to function properly. A high volume of air traveling through the dryer will cause moisture to travel downstream.
- Close dryer bypass valve. Bypass valves must be bubble tight to prevent moisture from migrating around dryer and contaminating the dry air outlet.
- Dryer should now operate continually and automatically.

CAUTION: **USE EYE AND EAR PROTECTION IF OPERATING DRYER WITHOUT MUFFLERS. EXCESSIVE NOISE WILL BE CREATED. DUST AND PARTICLES FROM THE SURROUNDING AREA MAY BECOME AIRBORNE. OPERATION WITHOUT MUFFLERS EXCEEDS OSHA LIMITS.**

SHUTDOWN PROCEDURE: ISOLATION & DEPRESSURIZATION

The dryer operates on a standard time cycle for regenerating. This cycle should not be interrupted (except for emergency service). If the dryer needs to be shut down for a certain shift or weekend, the dryer should be turned off at the end of the regenerating cycle and with both towers at line pressure, then the dryer can be shut down.

The following should be completed if the dryer is being shut down for service and or weekend/shift:

- Wait until both of the air dryer towers are at equal line pressure. Then close the dryer outlet isolation valve.
- Turn the dryer ON/OFF switch to the OFF position.
- **Option:** Open the bypass valve to allow process air flow to continue downstream. Then close the dryer inlet isolation valve.
- At this time, the dryer is isolated and can be depressurized for servicing.
- Open the manual ball valves located on the filters to allow full depressurization.
- Leave drain valves on filters open while servicing.
- Be certain that the filters and dryer towers are depressurized.

To restart, follow the **"PRESSURIZATION & START-UP PROCEDURE"**.

WARNING	**ALWAYS REMOVE ALL PRESSURE AND DISCONNECT ALL POWER BEFORE SERVICING DRYER. NEVER SERVICE DRYER OR FILTERS WITHOUT FIRST RELIEVING PRESSURE.**

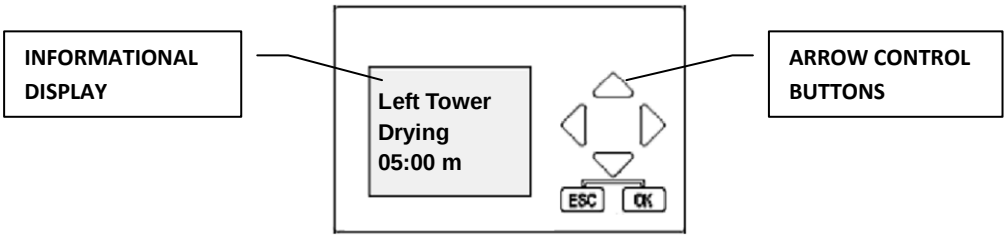
THEORY OF OPERATION

Adsorption is the process of removing water VAPOR from the air to be dried. All condensed liquid water should be removed from the inlet air stream prior to reaching the dryer by suitable separators, traps, filters and drains. The dryer cannot be burdened with liquid condensate carry-over. All desiccants are adversely affected by oil, oil aerosols, carbon, dirt, rust, scale or liquid water contamination. Effective pre-filtration in conjunction with automatic condensate drainage is a must for proper dew point depression and long desiccant life.

The Pure-Aire "Z" series regenerative desiccant dryer functions according to the principle of a zero-purge pressure swing. Two adsorption vessels filled with desiccant are installed in parallel. While the air is being dried in one vessel at line pressure, the other is being regenerated. Regeneration is based on dew point measurement controls and a fixed time rhythm. Regeneration can be at zero-purge with a negative pressure pump or (utilizing the backup controls) at atmospheric pressure using a small portion of expanded dry air. The changeover from one vessel to the other is performed in a fixed rhythm by means of a time-dependent control system. The dryer operates on this fixed cycle continuously and is fully automatic.

The Pure-Aire "Z" series regenerative desiccant dryer has a NEMA cycle time of 10 minutes (standard). In a 10 minute cycle, each tower dries for 5 minutes. This is known as a 5 minute half cycle.

CONTROLLER FEATURES



CONTROLLER AND DISPLAY:

The controller has multiple inputs and outputs controlling the dryer's operations and fixed rhythm by means of a time-dependent control system. Motor overload and low water level protection are designed to fault off the regeneration pump system. The analog eDemand dew point monitoring system has multiple set points and inputs to control the operations of the regeneration pump system and cycle the eDemand dew point control system.

RUN / OFF SELECTOR SWITCH:

This switch activates the timing cycle of the controller. An automatic timing circuit of 30 seconds to RUN and 30 seconds to OFF, incorporates a fixed rhythm delay to starting and stopping the dryer controls.

FAULT LED:

The dryer operations & controls have motor overload and low water level protection, which are designed to fault OFF the regeneration pump system. Corrective action must be taken to repair the FAULT condition and reset the controller circuit.

ARROW CONTROL BUTTONS:

These buttons are used to arrow down ▽ and review the informational display of the dryer controls. Reset of the controller circuit is completed by holding the ESC and the ◁ left arrow button at the same time. These buttons are NOT used for any set point value or controls changes.

DO NOT change dryer settings. All settings are adjusted at the factory during testing and should be adjusted by Pure-Aire trained personnel only. Changing the factory settings may result in loss of dew point and/or failure to repressurize before changeover and will also void warranty coverage.

CONTROLLER OPERATIONS

After the dryer is turned on to the "RUN" position, it will begin to cycle. A designed 30 second delay to RUN will begin to cycle. The timer will begin to count and display the time before tower switching.

STEP 1: LEFT TOWER DRYING

The left inlet valve will remain open (drying tower) and the right inlet valve and solenoid is energized, which will allow the right inlet switching valve to close (regenerating tower).

STEP 2: RIGHT TOWER DEPRESSURIZING

The regenerating tower's purge valve de-energized in the normally closed position will be energized to shift open and depressurize that tower's adsorbent chamber. The tower that is "regenerating off-line" at atmospheric pressure (0 psig) being regenerated by a depressurized purge air flow rate. This is the regenerating bed.

STEP 3: RIGHT TOWER ISOLATION

The right regenerating tower's purge valve is de-energized to close and isolates the right regenerating tower at atmospheric pressure (0 psig).

STEP 4: ZERO-PURGE REGENERATION RIGHT TOWER

The regeneration pump system is activated utilizing the dew point measurement of dryer (lower) than the -40°F set point to begin the zero-purge regenerating process. The regeneration pump valve (normally closed) is energized to open the regenerating tower for the zero-purge regeneration process.

STEP 5: ZERO-PURGE REGENERATION RIGHT TOWER

The regeneration pump is turned on to start the zero-purge regeneration process and allows the negative pressure regeneration process to draw the moisture off the tower.

STEP 6: REPRESSURIZING RIGHT TOWER

The regeneration pump is turned OFF and the regeneration pump valve (normally closed) is de-energized to close the valve and isolate the regeneration pump.

STEP 7: RIGHT TOWER REPRESSURIZING

The right regenerating tower's purge valve is de-energized in the normally closed position. Prior to switching a freshly regenerated bed on-line to become the drying bed, it must be slowly pressurized from atmospheric pressure to line pressure. This step is called repressurization. Repressurization prevents bed fluidization (lifting) and associated dusting.

STEP 8: REPRESSURIZATION

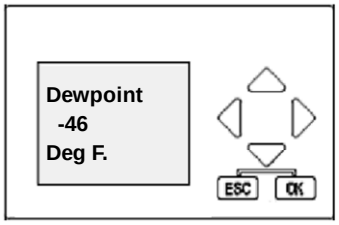
The repressurization valve (normally open) is de-energized to the normally open position and the off-line towers adsorbent chamber will be repressurized from atmospheric pressure to line pressure. The repressurization valve is necessary for proper operations and to assure that the proper flow and repressurization pressure is achieved.

STEP 9: eDEMAND DEW POINT—LEFT TOWER (PAUSE OF FIXED RHYTHM TIMING SYSTEM)

At this moment in the cycle, a dew point measurement with the eDemand system with the left tower drying and the right tower paused in a repressurized state of readiness. The purge valves de-energized in the normally closed position.

The Pure-Aire eDemand cycle controller (dew point energy saving control) provides a variable dryer purge cycle by means of dew point measurement with a precision hygrometer. The air dryer regeneration cycle is initiated only when the desiccant bed in service achieves its full adsorption capacity, based on the minimum determined dew point at the dryer outlet (in most cases -50°F at pressure). The -50°F set point the eDemand system with hold the left tower in drying operation until the readings rise above the -50°F set point.

Following repressurization, the beds switch functions with the fresh bed now drying and the saturated bed being regenerated.



STEP 10: NORMALLY DE-ENERGIZED (POWER-OFF STATE)

For a brief moment in the cycle, all of the valves will be de-energized. Both the right and left inlet valves will remain open and the purge valves de-energized in the normally closed position.

STEP 11: RIGHT TOWER DRYING

The right inlet valve will remain open (drying tower) and the opposite inlet (left) valve solenoid is energized to shift the left inlet switching valve will close (regenerating tower).

STEP 12: LEFT TOWER DEPRESSURIZING

The left regenerating tower's purge valve will be energized to shift open and depressurize that tower's adsorbent chamber.

This cycle will continue automatically unless the dryer is shut down or the timing cycle will be paused and controlled based on the eDemand cycle controller describe below.

STEP 13: eDEMAND DEW POINT—RIGHT TOWER (PAUSE OF FIXED RHYTHM TIMING SYSTEM)

At this moment in the cycle, a dew point measurement with the eDemand system with the right tower drying and the left tower paused in a repressurized state of readiness. The purge valves de-energized in the normally closed position.

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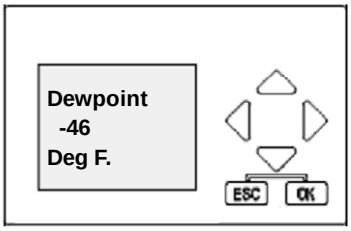
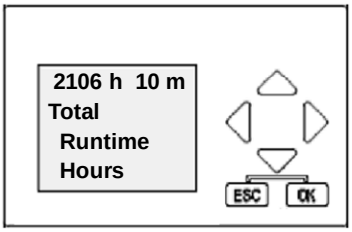
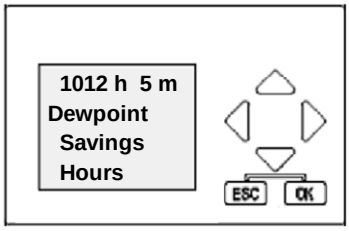


This eDemand system provides continuous monitoring of the actual effluent dew point at the dryer outlet. A small quantity of the effluent air is drawn from the dryer outlet and passed over a hygrometer sensor. This sensor is installed in its own housing with isolation and metering valves for flow adjustment and servicing. The dew point is transmitted to the zero-purge and eDemand controls.





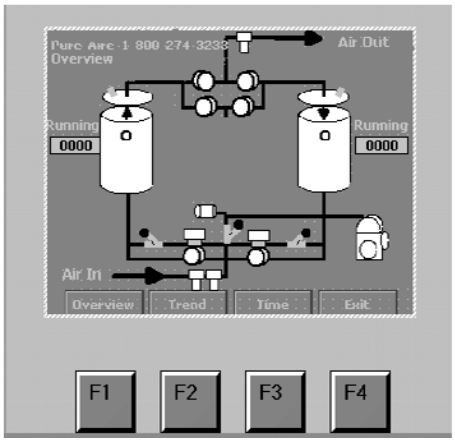
OPERATIONAL NOTES:

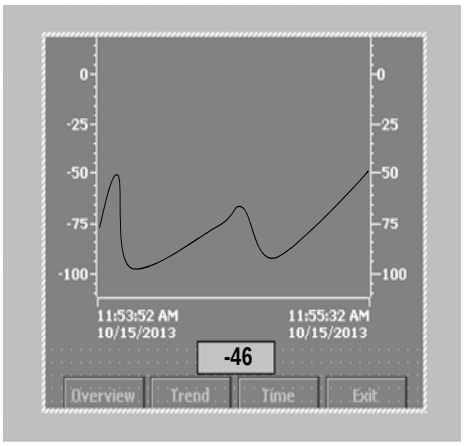
Dryer will not perform without proper oil removal pre-filtration, condensate drainage and purge flow. Dryers may require up to 48 hours of operation to reach normal operating dew points. Therefore, indicators and/or alarms should be monitored for operations and improvement until that time. Applications requiring dew points lower than -40°F or with nonstandard operating conditions may require additional time to reach equilibrium. Exhaust valves and/or exhaust mufflers may have to be cleaned due to dust in shipping and start-up.

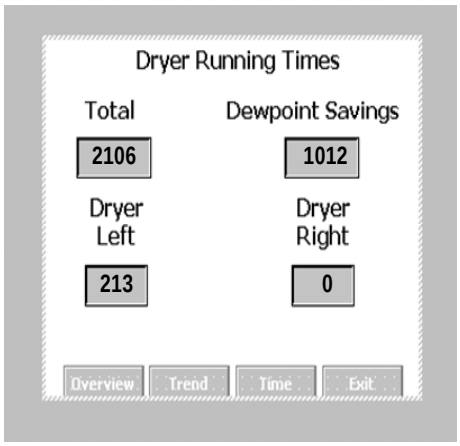
A desiccant dryer should never be suddenly pressurized or depressurized. This will cause fluidizing, crushing of the desiccant material and dusting.

After start-up some dusting may occur, this will diminish with time. Some dusting may occur with normal operation. The exhaust muffler should be cleaned regularly and an after-filter should be used.

"HMI" CONTROL / DISPLAY OPTION: FEATURES AND OPERATIONS







The "HMI" control option allows the operator to quickly review the controlling & dryer operations and fixed rhythm by means of a time-dependent control system. More dryer information and dew point measurement charting is available at the HMI while minimizing the need to go inside the panel. Charting and dryer running time logging are available in the Trend (F2) and Time (F3) screens.

ZERO-PURGE DRYER MAINTENANCE

ZERO-PURGE DRYER MAINTENANCE	Weekly	Monthly	(6) Months	Yearly
Check Auto Drains on All Components	X	X	X	X
Check Moisture Indicator	X	X	X	X
Verify Purge Setting	X	X	X	X
Verify No Back Pressure in Regenerative Tower	X	X	X	X
Check Filter Differential Pressure Gauges	X	X	X	
Replace Pre & After-Filter Elements			X	X
Clean Auto Drain Solenoid on Pre-Filter		X	X	X
Service Moisture Indicator				X
Replace Exhaust Mufflers				X
Check Sample of Desiccant from Each Tower (RMA Number to Return Samples)				X
Recalibrate eDemand Sensor				X
Inspect Operations of Inlet and Purge Valves			X	X
Change Regeneration Inlet Pump Filter			X	X
Inspect / Clean Regeneration Pump Cooler			X	X

TROUBLE SHOOTING GUIDE

DRYER IS NOT OPERATING AND NO DISPLAY.

Verify the correct voltage is connected to the dryer power connections.	Move the connections to a different power source.
Check the wiring schematic to make sure that wiring is correct.	Correct the wiring.
Control lights are not on.	Check for blown fuses.
Control lights are “ON” but the dryer is not switching.	Dryer is in the eDemand cycle mode. Check the operations and set points.
Contact your local Distributor.	Possible controller replacement may be required.

DRYER IS NOT SWITCHING TOWERS.

Controls and lights are working but the dryer is not switching.	Dryer is in the eDemand cycle mode. Check the operations and set points.
The inlet valves are not opening or closing properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.
The controller is not cycling the functions properly.	Check for blown fuses. Check the controller outputs for the proper operating voltages. Repair or replace as required.
The purge valves are not opening or closing properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.

EXCESSIVE FLOW OUT THE DICHARGE MUFFLERS.

The purge valves are not opening or closing properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.
The inlet valves are not opening or closing properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.
The check valves are not closing properly.	Repair or replace the faulty check valves as required.
The (optional) repressurization valve is not closing properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.

THE VESSEL DOES NOT REPRESSURIZE PROPERLY.

The inlet, purge and/or check valves are not opening or closing properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.
The regeneration (purge) orifice is obstructed or closed.	Clean or replace the regeneration (purge) orifice assembly.
The (optional) repressurization valve is not opening properly.	Check to ensure the functions of the control solenoids and actuator are working properly. Repair or replace as required.

THE DEW POINT IS TOO HIGH.

The purge air flow is too low.	Clean or replace the regeneration (purge) orifice assembly. The purge muffler is plugged. Replace all of the mufflers. (On both towers.)
Excessive moisture carryover into the dryer.	Check the pre-filter element and all of the drains on the compressor and pre-filters.
Dryer capacity has been exceeded based on the high inlet flow rates or the low inlet air pressure.	Review the number of operating compressors and flow rates connected to the dryer or correct the operating pressures.
Dryer operating temperatures are above or below the design specifications. This should be reviewed for proper application.	High inlet air temperatures will have an increased water load on the dryer. Low inlet air temperatures (below 70°F) will generate problems with regeneration of the desiccant.
Desiccant is contaminated or has been crushed.	Replace all of the desiccant and upstream filter elements.
Drying flow is entering and affecting the regeneration process.	Check to ensure the inlet and check valves are properly closing to provide a positive closed seal for the regeneration process of each tower. Repair or replace as required.

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