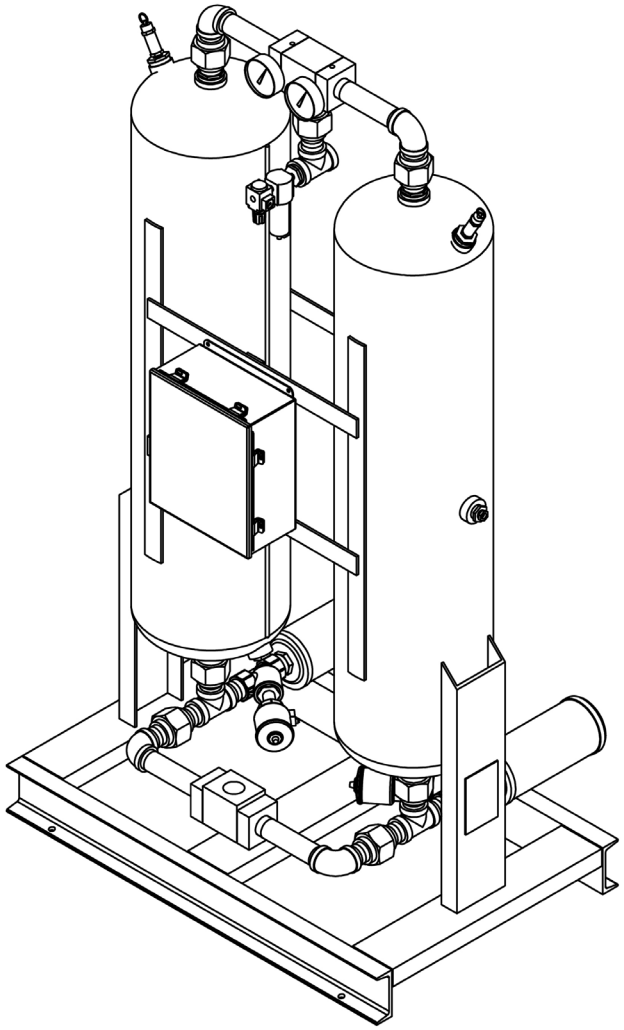
Installation and Operation Manual

Installation, Operation, and Service Information

Aircel
CDP-Series Regenerative Air Dryer
Models CDP-600, 750, 1000, 1250



Throughout this manual, signal words are present to advise of safety precautions and/or standard practices. Obey these signal words as defined below:

DANGER! - indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING! - indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION! - indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Notice: - used to address practices not related to personal injury.

This manual is property of the owner, and should be left with the unit when start-up is complete. Aircel LLC. reserves the right to change design and specifications without prior notice.

WARNING!

General Safety Procedures

- Improper installation, operation, or maintenance may contribute to conditions in the work area or facility that could result in personal injury and product or property damage. Check that all equipment is properly selected and sized for the intended use.
- Consult and comply with national and local codes relating to fire or explosion and all other appropriate codes when determining the location and operation of this equipment.
- Safe and efficient operation of the unit depends on proper installation.
- Authorities with jurisdiction should be consulted before installing to verify local codes and installation procedures. In the absence of such codes, install unit according to the National Electric Code, NFPA No. 70-latest edition.
- A qualified installation and service agent must complete installation and service of this equipment.
- DO NOT weld on / to pressure vessel or modify it in any way.
- DO NOT remove, modify, or adjust protective or safety devices.
- Lock out power supply and depressurize system before performing maintenance or service work.
- DO NOT operate the equipment with the control panel door open.

  Notice: For optimum performance, use only Aircel replacement parts.

Notice: For optimum performance, use only original equipment replacement parts.

Notice: For information and notes specific to a custom designed and built dryer, reference the drawing package provided with the unit. See warranty on manual back cover for custom engineered products.

This manual contains specific precautionary statements relative to worker safety. Read thoroughly and comply as directed. Discuss the use and application of this equipment with a representative. Instruct all personnel on safe use and maintenance procedures. Understand and obey the following signal words used in this manual.

- **DANGER!** - indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING!** - indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION!** - indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
- **Notice:** - used to address practices not related to personal injury.

Contents

Safety Statements 2
Introduction 3
Data Sheet 4
Safety Symbols 5
General Safety Instructions 6
Description 7
    Purpose & Intended Use 7
    Features & Options 8
Inspection on Arrival 9
Technical Specifications 10
How it Works Diagram 11
Installation 12
Typical Installation 12
Installation Checklist 13
Start-Up Procedure 14
Shut-Down Procedure 15
Sequence of Operation 15
Service Information 17
    Maintenance & Checklists 17
Troubleshooting 19
Troubleshooting Table 20
Desiccant Material Safety Data Sheet 22
Aircel Programmable Controller 27
Electrical Drawings 36
    Main Power & PLC Input 36
    PLC Output & Sensors 38
    Back Panel 40
    Enclosure Layout 41
Service Notes 42
Warranty 44

Introduction

Thank you for purchasing Aircel's CDP-Series Regenerative Air Dryer System. You are now the proud owner of one of the finest air dryers on the market. Aircel CDP-Series regenerative air dryers are engineered and manufactured to provide you with many years of trouble free service.

To ensure that you get the get first class service from this equipment, we recommend you take some time and read the contents of this manual.

This manual contains all the information required for installing and maintaining your new equipment. It also includes the safety procedures and corresponding drawings. We strongly suggest that all personnel involved with the machine, read the entire contents of the manual before proceeding with the installation or maintenance activities.

The manufacturer reserves the right to make changes without any prior notification and is not obligated in any manner. Information in this manual is deemed current at the time of publication and Aircel disclaims all liability for any errors resulting in any loss or damage.

If you have questions or need additional copies or would like to schedule a Aircel's serviceman visit, contact your distributor.

Aircel
323 Crisp Circle
Maryville, TN 37801
Toll-Free: (800) 767-4599
Tel: (865) 681-7066
Fax: (865) 681-7069

Sales Information:
sales@AircelDryers.com

Order Entry:
orderentry@AircelDryers.com

www.AircelDryers.com

Data Sheet

Model Number _____ Serial Number _____

Dryer Type _____ Date of Manufacture _____

Ship Date _____ Installation Date _____

Customer Name _____ Address _____

Address Cont'd _____

Accessories _____

Other _____

Dryer Inlet Air Flow Rate _____

Dryer Inlet Temperature _____

Dryer Ambient Temperature _____

Dryer Voltage _____

Dryer MCA Minimum Circuit Ampacity _____

Dryer MOP Maximum Overcurrent Protection _____

Dryer Operating Pressure _____

Dryer Maximum Operating Pressure _____

Dryer Vessel Pressure Relief Valve Setting _____

Dryer Desiccant Type _____

Dryer Desiccant Weight per Vessel _____

Dryer Desiccant Weight Total for System _____

Dryer Outlet Dewpoint _____

Dryer Control Time Cycle _____

Dryer EMS RH Sensor Setting (for sensing mid-bed moisture) _____

High Dewpoint Setting (option) _____

Demand Cycle Setting (option) _____

Outlet Dewpoint Readout on Display (option) _____

Electrical Drawing No. _____

Mechanical Drawing No. _____

PLC Software Program No. _____

Control Air Filter Element No. _____

Inlet Pre-Filter Element No. (option) _____

Outlet After-Filter Element No. (option) _____

Inlet Valve _____

Purge Exhaust Valve _____

Vessel National Board No. (left and right vessels) _____

Dryer System Weight _____

Safety Instructions

Safety Symbols Used in Manual

Important Information: Readers of the manual must pay extra attention to instructions and information succeeding this symbol.

Warning: This indicates that it is dangerous and could result in physical injury and death if the instructions are not followed correctly.

Electrical Danger High Voltage: This means that there is a risk of electric shock and only authorized personnel with proper gear must approach it.

High Noise Area: All personnel are required to wear ear protectors before approaching the vicinity of the equipment.

Hazardous Fumes & Gases: Personnel must wear protective gear to prevent inhaling of the gases and fumes.

Suspension Points: Look for these symbols before making any attempt to move or relocate your equipment.

Tips & Suggestions: Following these tips can make your work easier.

Extreme Caution: This indicates that there might be possible risk of material damage and personnel are advised to exercise extra caution.

General Safety Instructions

What You Must Do

1. Certified/authorized electricians must perform electrical work
2. Electrical work must conform to the specifications indicated by Aircel and any local or state laws that may apply.
3. Personnel must wear appropriate safety gear before working on any electrical or mechanical aspects of the machine.
4. Appropriate tools have to be used for all installation and maintenance work. If special tools are required and are not available to the installation crew, contact the factory or your Aircel representative.
5. A copy of the Operation Manual must be made available to all personnel involved with the installation, operation and maintenance of the equipment.
6. Before performing any maintenance operations on the equipment, the unit must be shut down, isolated, electrical power removed, and completely depressurized.
7. To ensure compatibility and continued trouble free operation, only genuine Aircel parts must be used.

What You Must Not Do

1. Do not make constructional changes to the unit. Only Aircel or its authorized representatives with the prior approval can perform any constructional work on the machine.
2. Do not use foreign parts.
3. Compressed air from the dryers is not to be used for breathing purposes – install a breathing air package to ensure conformance with OSHA regulations
4. Do not disable or disengage any protective equipment used on the machine.

Safe Operating Procedures

1. Pressurize and depressurize compressed air SLOWLY! Always open air valves slowly when pressurizing the airline system or equipment. Replace air slowly when depressurizing your air system or equipment.
2. Circuit breakers, fusible disconnect, and wiring should conform to national and/or local electrical codes. Make certain that qualified electrical personnel perform the electrical installation for this unit.
3. Only use original fuses for the rated voltage and current.
4. Shut down the unit in the correct recommended procedure.
5. Before any work on system always Depressurize the unit and remove all electrical power.
6. After shut down, put up warning notice to prevent the unit from being switched “ON” accidentally.
7. Inspect all piping, hoses and connections. Make sure that all hoses are in good condition and are rated for the correct working pressure. Do not allow hoses to come into contact with oil, chemicals, or sharp objects.
8. Secure condensate drain lines. Unsecured flexible drain lines may whip violently under pressure and may cause bodily harm.

   Aircel air dryers do not remove carbon monoxide and is not safe for human respiration (breathing). Breathing air must be at least grade D quality as described in compressed air and gas association (CAGI) commodity specifications 67.1-1966. User may refer to OSHA 29 CFI 1910.134 for special precautions and equipment suitable for breathing air applications. Aircel disclaims any liability what so ever for loss, injury or damage.

Product Description

Why We Need Compressed Air Dryers

Untreated compressed air contains many contaminants such as water, compressor oil, pipe scale and contamination from ambient air. All these contaminants cause excessive corrosion, erosion, freezing and product contamination to all components that come in contact with the untreated compressed air. A regenerative type dryer system with all recommended filtration will remove these contaminants to harmless levels. The end result is that instruments that come in contact with the dry compressed air stay clean and do not corrode, therefore lasting much longer. Products that may come in contact with clean dry compressed air are virtually unaffected. Therefore rejection rates are reduced.

Why We Need Compressed Air Dryers

Aircel Regenerative Desiccant Air Dryers can dry compressed air to -100°F PDP (Pressure Dew Point), Standard Regensrative Desiccant Air Dryers dry compressed air down to -40°F PDP. The compressed air stream is passed through a desiccant bed, which removes the moisture through the process of adsorption. Twin towers filled with desiccant alternate between drying and regenerating either based on the Energy Management System (EMS) control or a fixed time cycle. Aircel manufactures various types of desiccant air/gas dryers. These dryers offer fail-safe design in the event of power interruption. Air will continue to flow through the dryer without deadheading; also purge exhaust valves will close preventing loss of air pressure. The tower operating status lights and the highest quality non-lubricated air/gas inlet valves will ensure reliable operation for many years to come.

Standard Features

- Optimal tower size for low velocities reducing desiccant fluidization, and high contact time for efficient. low dewpoint performance.
- Tower pressure relief valves.
- Standard design capacity based on 100 psig, 100°F inlet air, 100°F ambient air and PDP of -100°F.
- Purge exhaust mufflers for quiet operation.
- Tower pressure gauges for additional visual operation of dryer operation.
- Stainless steel desiccant supports and air diffusers to prevent channeling.
- Counter-current reactivation for efficient desiccant regeneration.
- PLC Controlled Electrical System
- Adjustable (5 min., 10 min.) Cycle times: 10 min. cycle = -40°F PDP, 5 min. cycle = -100°F PDP
- Controlled repressurization to slowly repressurize the regenerated vessel to line pressure prior to switch over preventing desiccant bed movement and attrition.
- Fail safe design: failure of power and/or pilot air causes the purge exhaust valves to close eliminating loss of air pressure. The System also provides uninterrupted drying air flow preventing a deadheading affect.
- Control pilot air filter provides clean air to air control system for long trouble-free reliable operation.
- Desiccant towers are designed, fabricated and stamped according to ASME code.(CDP-70 and up).
- Desiccant fill and drain ports for ease of desiccant replacement.
- Structural steel frame.
- Highly reliable non-lubricated high performance inlet butterfly valves. (CDP-600 — CDP-1250)
- Highly reliable angle seat design purge exhaust valves.(CDP-600 - CDP-1000).
- Highly reliable non-lubricated high performance purge exhaust butterfly valves. (CDP-1250 and up)
- Common alarm indicator and common alarm dry relay contact for remote indication.
- Tower Operating L.E.D. status lights (Left/Right Tower Drying, Left/Right Tower Regenerating)
- ON/OFF switch and power ON light.
- NEMA 4 weather resistant electrical system construction.

Additional Options

- Tower pressure display and Failure to shift alarm utilizing pressure transducers
- Outlet dew point sensor with dew point readout on system display
- Mounted, piped and wired filtration packages
- Outlet dew point 4-20 mA signal
- High humidity alarm

Inspection on Arrival

All Aircel dryers are tested and operated before shipment. However, shipping stresses have the potential to cause damage to the unit. To ensure smooth installation, it is recommended that immediately upon receipt of the unit, the system is checked for the following:

1. Make sure you have received all the crates/ packages that are indicated in the packing slip.
2. Remove the crate and packaging. Inspect the unit for any visible damage.
3. Report any damage to the delivery carrier.
4. Request a written inspection report from the Claims Inspector to substantiate the claim.
5. File claims with the delivery carrier.
6. Compare unit received with description of product ordered. Check the serial plate label and make sure that it is the correct Model was ordered. Note the equipment Capacity and Power Supply requirements and ensure that they are in accordance with your specifications. The rated conditions of the dryer are indicated on the serial plate label. If there is any discrepancy, contact your representative listed on the manual back cover.
7. Shipping stresses can loosen connections. All pipe and tubing connections should be inspected.
8. Report incomplete shipments to the delivery carrier and your Aircel service representative.

CAUTION!

- Do not misuse or modify under any conditions. Misuse or modification of this equipment may result in personal injury.

Technical Specifications

How Does it Work? (see diagram 1)

Moisture.saturated.compressed.air.enters.the coalescing pre-filter (F1) where.aerosols.are. coalesced then drained via an automatic drain system. The moist water vapor-laden inlet air free of liquid water flows to the inlet of the dryer through the High Performace Butterfly valve (V1) which diverts the inlet air to the drying vessel, in this example tower (T1), Air flows upward through the adsorbent bed removing the moisture vapor; the dried airflow exits the tower through the outlet valve (V5) flowing to the outlet particulate after filter (F2) which removes particulates from the air stream. Clean and dry air now flows to the process air distribution system.

As one tower is drying air, the other tower will be regenerating (purging) the adsorbent bed. In this example, tower (T2) will be regenerating. Prior to regeneration, the exhaust valve (V4) is opened and the tower is depressurized to near atmospheric pressure, the tower will now be regenerating. During the regenerating process a small portion of dry outlet compressed air is used, 15% on average based on standard design capacity of 100 psig, 100°F inlet air, 100°F ambient air and PDP of -100°F. The dry regeneration airflow is channeled through the outlet orifice to the regenerating tower (T2) removing moisture from the adsorbent bed and exits the regenerating tower (T2) through exhaust valve (V4) and exhaust muffler to ambient. After regeneration cycle is complete, valve (V4) closes causing tower (T2) to repressurize to line pressure.

Next, the towers will switch when exhaust valve (V3) opens causing tower (T1) to depressurize and regenerate, simultaneously the inlet valves (V1) and (V2) will shift causing the inlet airflow to be diverted to tower (T2) which will now be the drying tower. This switching process will continue repeatedly.

The dryer control system is completely automatic and cycles the system through the drying and regeneration cycles. The standard cycle drying time is 2.5 minutes, regeneration cycle is 1.5 minutes, and repressurizing cycle is 1 minute.

The Aircel CDP-Series Heatless Dryer incorporates a unique energy saving control system to reduce purge air loss with its integrated Energy Management Purge Reduction System which utilizes a moisture sensor sampling the air from the outlet of the dryer, after the fixed purge time is complete the regenerating/purging tower will repressurize. If the moisture sensor senses a low moisture condition or low load in the drying tower, the drying tower will remain in the drying mode after the fixed drying time cycle for an extended period of time. The end result is an overall purge reduction and significant energy savings.

CAUTION!

- Do not misuse or modify under any conditions. Misuse or modification of this equipment may result in personal injury.

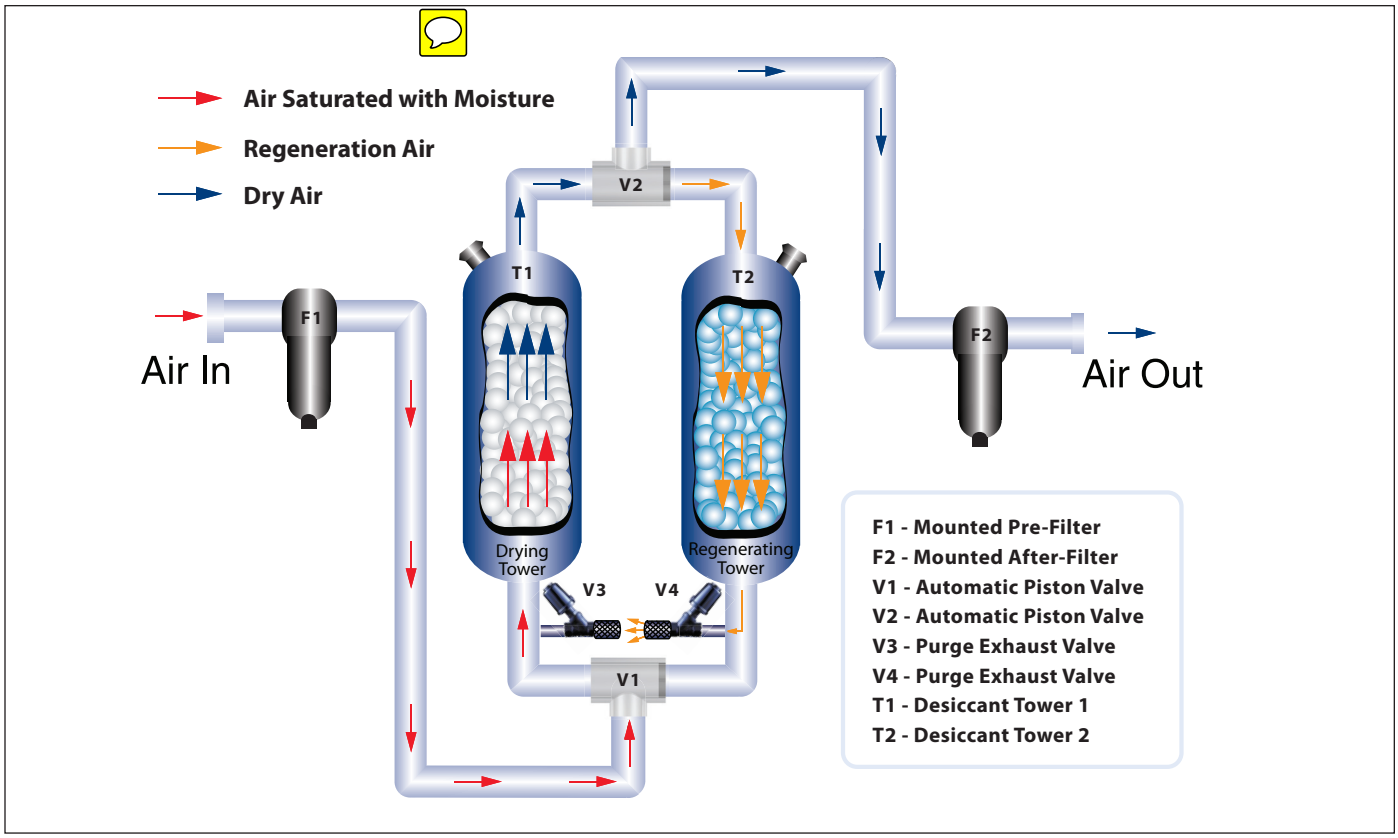


Diagram 1: How it Works

Installation

Pre-requisites for Installation

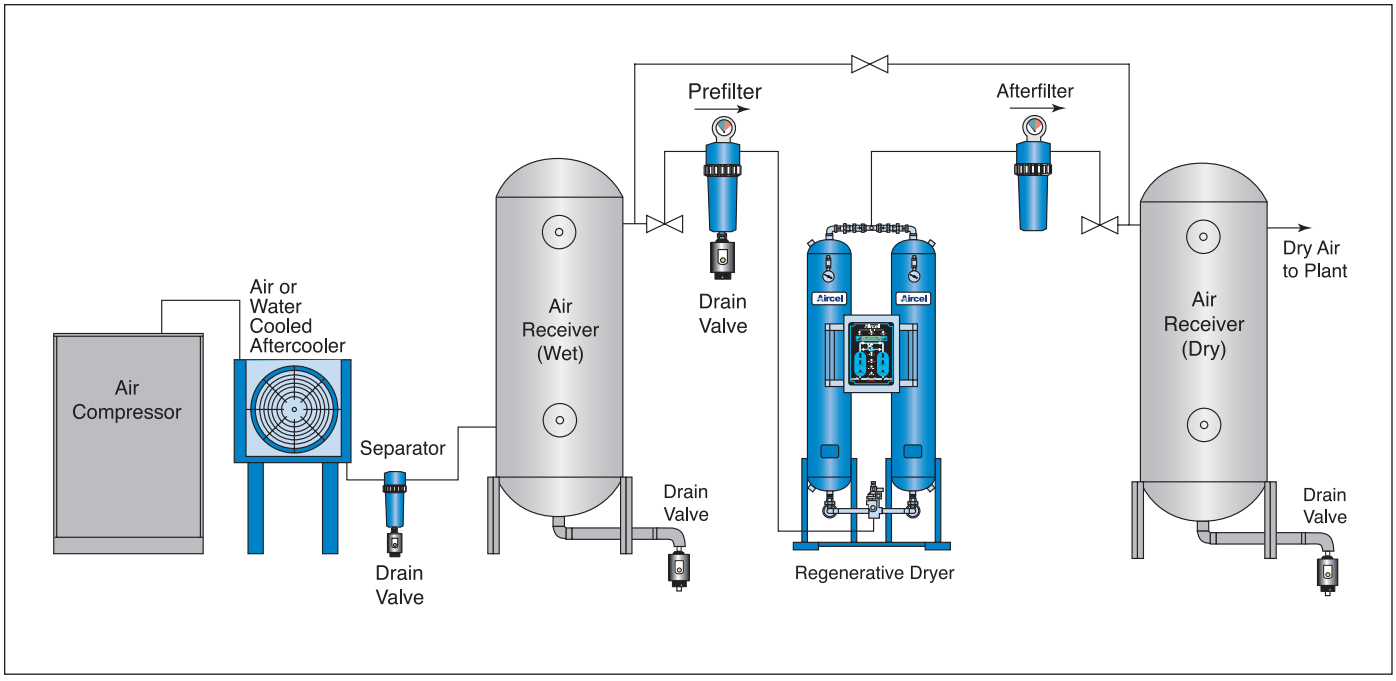
To ensure a safe and smooth installation, we recommend you go through the steps indicated below:

- Make sure that all personnel involved have read this Operation Manual thoroughly. If you have any questions, feel free to contact your Aircel representative or the factory and we will be glad to assist you. If you need help with the commissioning, we will be glad to schedule a factory serviceman to visit your site and commission the dryer for a nominal fee.
- Have extra copies of the Operation Manuals.
- Special care must be taken while transporting the unit to the installation site.
- Dryer must not be moved or lifted by the attached piping.

Location

- Careful consideration should be given to the location of the dryer in order to assure optimum results. Ensure that the load bearing weight of the floor is adequate for the weight of the dryer.
- The dryer should be located in an open area and a level ground. Dryer should be bolted to the floor to eliminate vibrations.
- The ambient temperature should be between 40°F and 100°F. Low temperature could affect the dryer process and result in high outlet dew point.
- In conditions where the ambient drops below freezing, Aircel recommends the use of heat trace on any coalescing filter sumps and drain lines and the use of heated type drains.
- Dryer and accompanying filters should be installed with at least 2-5 feet clearance from the adjoining walls to provide easy access for routine maintenance.

Typical Installation



Installation

Only qualified personnel should make electrical and mechanical connections.

Equipment for Installation: This dryer does not need any special tools for installation

Foundation: Dryer should be mounted on a suitably structured flat and level floor or base that is free from vibration. Special care must be used when lifting the dryer to prevent tip-over

Mounting: Bolt dryer to the foundation using the boltholes provided in the frame.

Piping: Connect the inlet of the dryer to the moist gas from the compressor/receiver/inlet filter. Install the Inlet piping and the inlet shutoff valve, Install the Outlet piping and the outlet shutoff valve (a union with a valve by-pass can be installed at the inlet and outlet valves to accommodate isolation of the dryer for maintenance). Compressed air piping has to be at least the same size as that of the inlet and outlet connections of the dryer. Larger pipe sizes can be used with reducers.

Back Pressure Regulator: Install backpressure regulator to prevent any possibility of fluidization of the desiccant bed. When there is a sudden increase in the demand for compressed air downstream of the dryer, a huge pressure drop develops and can affect the performance of the dryer and the drying material (desiccant).

Desiccant: Make sure that the dryer towers are filled with desiccant. Larger dryers may have desiccant shipped separately – in which case, the media has to be filled into the pressure vessels from the desiccant fill ports. Care must be taken when filling the media and it must be done gradually to prevent powdering.

Muffler: If the event that mufflers have been shipped loose, they must be installed and secured

By-pass: If the dryer is not supplied with optional by-pass valve it is highly recommended that by-pass valve be installed around the dryer and filters. These by-pass shut-off valves will permit the dryer and filters to be removed from the compressed air system for servicing without shutting down the entire compressed air system.

Electrical: Make all electrical connections to the dryer as shown on the wiring diagram. Special care must be taken in connecting the proper voltage as indicated on the specification sheet and wiring schematic.

Additional Valving/Piping: When installing equipment or components keep in mind the serviceability of the equipment and provide additional valves to isolate, bypass, and to depressurize as needed.

Exhaust: If you intend to vent your exhaust with additional piping, the discharge piping from the exhaust should not be piped upward without an arrangement for removing trapped condensate. Make sure that you do not apply a backpressure on this exhaust system. If exhaust piping is to be extended, try to stay within 15 to 20 feet and use the next larger pipe size.

Note: It is mandatory that dryer be grounded. Use of your plants frame as a ground may cause problems with the control. A fused disconnect is not supplied with this equipment therefore one must be supplied by customer. All electrical fuses, breakers, etc. should be properly sized.

Aircel is not liable for any code violations; component damage, downtime or consequential damage related to customer supplied electrical components and connections.

Start-Up Procedure

At any point during the process of startup or shutdown, you notice anything unusual; we recommend you refer to the operation manual immediately. If you cannot find the answer in the troubleshooting section, contact your Aircel representative or the factory at once.

1. Ensure that the dryer is connected to a suitable compressed air supply. Make sure that the pressure of the supply is equal to the normal operating pressure of the dryer.
2. Check to make sure the "shut-off' valves are closed and that by-pass valve is open.
3. Close all manual drain/vent valves.
4. Slowly pressurize the dryer by gradually (slowly) opening the inlet shut-off valve to the OPEN position.
5. When both towers of the dryer are completely pressurized, check the complete system for possible air leaks. Use soap and water to test all joints and fittings. If any leaks are detected, immediately depressurize the unit and correct the leaks.
6. Make certain that any automatic condensate drain isolation valves are in the open position so proper condensate draining can occur.
7. When normal operating pressure is reached, switch on electrical power (Turn switch to ON position)
8. With by-pass valve closed, open the outlet valve slowly to allow air downstream.
9. When energized one of the towers should depressurize.
10. Check the operation of several cycles completely by following the control panel display screen operation, the panel lights on the electrical box, and the tower pressure gauges to make certain the dryer system is operating as displayed. Also refer to the how it works section, flow diagram, electrical drawing, dryer control display screen descriptions, and sequence of operation in this manual for reference.
11. Check the drain valve for proper operation and discharge of liquid (filters and separators, etc.).
12. Near the dryer outlet (APV) valve, check the control air/ pilot air regulator secondary pressure, the regulator gauge should read 100 psig. Increase or decrease regulator knob to achieve a 100 psig control air secondary pressure reading.
13. Make certain the purge exhaust valves slowly open within an 8 to 12 second time period, some adjustment of the flow control valve attached to the actuator may be required, after adjustment tighten down the locking collar.
14. Make certain a slight amount of air flow is felt at the end of the Dew Point Sensor (if aplicable). Adjust the needle valve, as needed, for more or less flow. Typical flow is +/- .1 SCFM.
15. Review the dryer system display screen shots (in this manual) to make certain the parameters are set as needed in the customer dryer.
16. Purge air flow is preset and not adjustable.

After the initial startup, the dryer operation is completely automatic. To understand the details of the operation, we recommend you use the how it works section, flow diagram, electrical drawing, dryer control display screen descriptions, and sequence of operation in this manual for reference.

Shut-Down Procedure

At any point during the process of startup or shutdown, you notice anything unusual; we recommend you refer to the operation manual immediately. If you cannot find the answer in the troubleshooting section, contact your Aircel representative or the factory at once.

1. Slowly OPEN the by-pass valve.
2. Slowly CLOSE the Inlet and outlet "shut-off" valves.
3. To depressurize the dryer after the Dryer is isolated. Turn Power ON … a purge exhaust valve will open and the dryer system starts to depressurize, also the manual vent valve on the outlet afterfilter can be opened to depressurize the Dryer until the tower pressure gauges read '0' psig.
4. Switch off electrical power after both towers have been depressurized.

Sequence of Operation

Step 1: **Vessel 2 Depressurizing**
Vessel 2 (T2) purge exhaust pilot solenoid valve is energized which supplies control air to the purge exhaust valve (V4) which opens slowly, depressurizing vessel 2 (T2). Simultaneously the inlet valves V1 & V2 shift positions with a pneumatic signal from vessel 2 (T2) purge exhaust pilot solenoid valve to the inlet tower selector valve which in-turn supplies a pneumatic signal to the inlet vlaves to open valve (V1) and close valve (V2), directing the inlet air to vessel 1 (T1) to be drying the air. The air flows up through the desiccant bed and exits to the outlet APV valve (V2) to the outlet particulate filter then to the customer dry process air system.

Step 2: **Vessel 2 Regenerating**
Step 2 is a continuation of step 1 except vessel 2 (T2) will be regenerating, vessel 2 (T2) purge exhaust valve (V4) is still open, vessel 1 (T1) is drying the inlet air. A small portion of dry outlet air from vessel 1 (T1) (15% average based on standard design capacity of 100 psig, 100°F inlet air, 100°F ambient air and PDP of -100°F) is taken through a small orifice in the outlet line and used to regenerate the desiccant bed in vessel 2 (T2) until end of process has been reached.

Step 3: **Vessel 2 Repressurizing**
Vessel 2 (T2) purge exhaust pilot solenoid valve will de-energize causing vessel 2 (T2) purge exhaust valve (V4) to close, this allows vessel 2 (T2) to repressurize to line pressure, since air continues flowing though the small outlet orifice pressurizing vessel 2 (T2). The inlet tower selector pneumatic pilot vlave maintains the inlet valves (V1 & V2) positions.

Sequence of Operation (cont'd)

Step 4: **Extended Drying Vessel 1**
A few seconds before the end of repressurization the CDP -SERIES Controller's integrated Energy Management Purge Reduction System looks at the moisture sensor, if the moisture load is low enough, vessel 1 (T1) will continue to dry for an extended drying period until the moisture load has reached a set high level, the controller will then advance to step 5 and the vessels will switch. This feature reduces the overall purge consumption saving energy and money.

Step 5: **Vessel 1 Depressurizing**
Vessel 1 (T1) purge exhaust pilot solenoid valve is energized which supplies control air to the purge exhaust valve (V3) which opens slowly, depressurizing vessel 1 (T1). Simultaneously the inlet valves V2 and V1 shift positions with a pneumatic signal from vessel 1 (T1) purge exhaust pilot solenoid valve to the inlet tower selector pneumatic pilot valve which in-turn supplies a pneumatic signal to the inlet valves to open (V2) and close valve V1 directing the inlet air to vessel 2 (T2) to be drying. The air flows up through the desiccant bed and exits to the outllet valve (V6).

Step 6: **Vessel 1 Regenerating**
Step 6 is a continuation of step 5 except vessel 1 (T1) will be regenerating, vessel 1 (T1) purge exhaust valve (V3) is still open, vessel 2 (T2) is drying the inlet air. A small portion of dry outlet air from vessel 2 (15% average based on standard design capacity of 100 psig, 100°F inlet air, 100°F ambient air and PDP of -100°F) is taken through a small orifice in the outlet line and used to regenerate the desiccant bed in vessel 1 (T1) until set time has been reached.

Step 7: **Vessel 1 Repressurizing**
Vessel 1 (T1) purge exhaust pilot solenoid valve will de-energize causing vessel 1 purge exhaust valve (V3) to close, this allows vessel 1 (T1) to repressurize to line pressure, since air continues flowing though a small outlet orifice pressurizing vessel 1 (T1). Inlet valve positions maintained by the tower selector solenoid.

Step 8: **Extended Drying Vessel 2**
A few seconds before the end of repressurization the CDP -SERIES Controller's integrated Energy Management Purge Reduction System looks at the moisture sensor, if the moisture load is low enough, vessel 2 (T2) will continue to dry for an extended drying period until the moisture load has reached a set high level, the controller will then advance to step 1 and the vessels will switch. This feature reduces the overall purge consumption saving energy and money.

Maintenance

Prior to performing any maintenance on the dryer, all personnel are strongly advised to familiarize themselves with the equipment by reading the entire contents of this operation manual. Aircel strongly recommends the strict adherence of all the safety procedures prior to any performing any maintenance activity on the dryer.

A. The pressure differential indicator referred to as the “Delta-P” is a very good indicator of the state of the filter elements. Maintenance personnel must pay attention to these to keep the dryer running with full efficiency Change filter elements on a regular basis, once a year maximum for a 1-shift operation. Change more frequently if operating 2 or 3 shifts such as every 6 months.
B. The useful life of a filter element depends on the quality of air. Free open areas for input and exhaust will ensure lesser intake of dirt and particles.
C. Powdered desiccant can accumulate in the muffler and increase the backpressure in the regenerating tower change mufflers on a regular basis typically every 2-3 months for optimum performance.
D. Oil and oil vapor can drastically reduce the life of the desiccant. Take precautions to eliminate all traces of oil from the airflow
E. Fluctuating dewpoint indicates uneven drying and regeneration between the towers, an exhaust valve may not be working properly or muffler may be clogged or dirty, also vessel diffuser screen may be clogged.

Weekly Checklist

1. Check all drain valves, prefilter, afterfilter and separators
2. Check any pressure differential indicators (Delta-P) on the pre-filter and afterfilter (filter elements should still be changed on regular basis once a year maximum for a 1 shift operation. Change more frequently if operating 2 or 3 shifts such as every 6 months.).
3. Check dryer for correct operation.
4. Verify dryer is purging at the purge exhaust, after dryer depressurizes.
5. Check the dewpoint (if available) to ensure the dewpoint is being achieved.
6. Check backpressure in regenerating tower, if more than a few psig on the pressure gauge, clean or replace exhaust mufflers (Change mufflers on a regular basis typically every 2-3 months for optimum performance).

Maintenance (cont'd)

Semi-Annual Checklist

1. Remove and inspect all filters for excessive particulate loading and physical damage – if required replace prefilters, afterfilters, pilot air filter and mufflers (filter elements should still be changed on regular basis once a year maximum for a 1 shift operation. Change more frequently if operating 2 or 3 shifts such as every 6 months.).
2. Check pressure differential indicator and if it turns red, replace the element.
3. Remove exhaust mufflers. Knock out excess particulate and back flow with dry compressed air. If particulate cannot be removed completely change the exhaust mufflers. Check backpressure in regenerating tower, if more than a few psig on the pressure gauge, clean or replace exhaust mufflers. (Change mufflers on a regular basis typically every 2-3 months for optimum performance)
4. Check desiccant condition. Powder in the mufflers is a indication of the status of the desiccant.
5. Check all solenoid valves - coil condition and control circuit.
6. Check dryer operation.
7. Inspect and clean inlet and outlet Valves.

Annual Checklist

1. Replace elements in prefilters, afterfilters, and pilot air filter.
2. Replace mufflers.
3. Recalibrate dewpoint analyzer probe (if used) send back to factory for recalibration.
4. Replace inlet and outlet valve seals.
5. Check dryer for proper operation.

WARNING!

- Before any service or maintenance work is performed on the refrigerated air dryer system, disconnect power supply and lock out power supply and depressurize system.
- Follow proper lock out/tag out procedures before performing service or maintenance work.
- Follow all safety procedures prior to performing any maintenance activity on the dryer.

Troubleshooting

The following section briefly discusses the various faults that can occur in the dryer, the reason of the fault and how it can be rectified. If you do not find the solution to your problem, contact your Aircel representative or the factory. All necessary safety and precautionary steps must be followed before attempting to perform any of the recommended measures to resolve any faults in the air dryer.

Before any attempt is made to undertake any action, the machine must be shut down, isolated, depressurized, and powered down. Follow the shut down procedures.

Note: Some troubleshooting will have to be done while system is pressurized and energized so use extreme caution.

1. Depressurize the unit
2. Check to make sure if the unit has been damaged externally or if any part is missing.
3. Check if there is proper power supply and if it corresponds to that mentioned on the data plate.
4. Check to see if there is power at all the electrical connections in the machine and the proper voltage.
5. Check if control air is available and the proper pressure at all pneumatically operated components.
6. Make sure all shut-off valves are in the correct position.
7. Check the airflow, inlet temperature and pressure and make sure it falls within the operating range.

Troubleshooting (cont'd)

Problem	Probable Cause	Remedy
High Dewpoint	High inlet air flow	Reduce inlet air flow
	Inlet air temperature above design spec	Reduce inlet air temperature to design spec
	Poor pre-filtration	Check pre-filter element, replace if needed
	Inlet air pressure below design spec	Increase pressure to the dryer
	Desiccant contaminated	Replace desiccant
	Purge flow orifice in the Purge orifice union may be clogged	Dismantle orifice union, and clean out the orifice
	Back pressure in regenerating chambers	Mufflers are clogged, install new mufflers
	Exhaust valve(s) not fully opening or closing	Check pilot valve and pilot air supply, dismantle and clean exhaust valve, check flow control valve attached to purge exhaust valve actuator may not be adjusted properly (should be adjusted so exhaust valve opens within a 8-12 second time period)
	Inlet valve leaking	Dismantle and clean, replace seals and if needed
	No input power	Check that dryer is on with correct voltage
	Input power on, unit not running	Check that the controller is setup properly
	Controller failure	Check, replace if needed
High-Pressure Drop	Low inlet pressure	Increase inlet pressure to design pressure
	Desiccant dusting	High inlet flow velocities due to high flow
	Inlet prefilter dirty	Inspect and replace as needed
	High inlet flow rate	Reduce inlet flow rate to meet dryer spec
	Outlet filter dirty	Inspect and replace as needed
	Desiccant diffuser screens clogged	Inspect and clean if needed
High Back Pressure in Regenerating Tower	Purge muffler clogged	Clean and replace if needed
	Desiccant diffuser screens clogged	Inspected and clean if needed
	Restrictive purge exhaust piping	Clean and replace with larger pipe if required

Troubleshooting (cont'd)

Problem	Probable Cause	Remedy
Dryer Fails to Shift Towers	Exhaust valves(s) not functioning	Check pilot valve and pilot air supply, dismantle and clean exhaust valve check flow control valve attached to purge exhaust valve actuator may not be adjusted properly (should be adjusted so exhaust valve opens within a 8-12 second time period)
	No input power	Check that dryer is on with correct voltage.
	Controller failure	Check, replace if needed
	Pilot air supply restricted	Check pilot filter, and pilot tubing restriction.
	Purge flow orifice in the purge orifice union may be clogged	Dismantle orifice union, and clean out the orifice
	Inlet valve malfunction	Dismantle, clean, and reinstall
	Outlet valve malfunction	Dismantle, clean, and reinstall
Purge Failure	Purge muffler clogged	Remove and clean, replace if needed
	Purge flow orifice in the purge orifice union may be clogged	Dismantle orifice union, and clean out the orifice
	Controller failure	Check, replace if needed
	Exhaust valves(s) not functioning	Check pilot valve and pilot air supply, dismantle and clean exhaust valve purge exhaust valve actuator may not be adjusted properly (should be adjusted so exhaust valve opens within a 8-12 second time period) check control system
Pressurization Failure	Purge flow orifice in the purge orifice union may be clogged	Dismantle orifice union, and clean out the orifice
	Exhaust valves(s) not functioning	Check pilot valve and pilot air supply, dismantle and clean exhaust valve purge exhaust valve actuator may not be adjusted properly (should be adjusted so exhaust valve opens within a 8-12 second time period) check control system

Desiccant Material Safety Data Sheet

The Chemical Company

Safety data sheet
F200

Revision date : 2009/12/04 Page: 1/5
Version: 3.0 (30286124/MDS_GEN_US/EN)

1. Substance/preparation and company identification

Company
BASF CORPORATION
100 Campus Drive
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

2. Composition/information on ingredients

CAS Number	Content (W/W)	Chemical name
1333-84-2	>= 94.0 - <= 100.0 %	Aluminum oxide (Al_2O_3), hydrate

3. Hazard identification

Emergency overview

CAUTION: MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
May cause difficulty breathing.
Prolonged or repeated contact may result in dermatitis.
Contact with the eyes or skin may cause mechanical irritation.
Contains material which may indicate/cause the possibility of sensory and pulmonary irritation.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of dusts.
Use with local exhaust ventilation.
Wear a NIOSH-certified (or equivalent) particulate respirator.
Wear safety glasses with side-shields.
Wear chemical resistant protective gloves.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.

Potential health effects

Primary routes of exposure
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

4. First-aid measures

If inhaled:
Keep patient calm, remove to fresh air. If necessary, give oxygen. If not breathing, give artificial respiration.
Seek medical attention if necessary.

Desiccant Material Safety Data Sheet

Safety data sheet
F200

If on skin:
After contact with skin, wash immediately with plenty of water and soap. Consult a doctor if skin irritation persists.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:
No hazards anticipated. If large quantities are ingested, seek medical advice.

5. Fire-fighting measures

Flash point: Non-flammable.
Additional information:
Use extinguishing measures to suit surroundings.

Hazards during fire-fighting:

No particular hazards known.

Protective equipment for fire-fighting:
Wear self-contained breathing apparatus and chemical-protective clothing.

NFPA Hazard codes:
Health : 0 Fire: 0 Reactivity: 1 Special:

6. Accidental release measures

Cleanup:
Vacuum up spilled product. Place into suitable container for disposal.

7. Handling and storage

Handling

General advice:
Avoid dust formation in confined areas. Avoid contact with the skin, eyes and clothing. Ensure adequate ventilation.

Storage

General advice:
Keep container tightly closed in a cool, well-ventilated place.

Storage stability:
Keep container dry.

8. Exposure controls and personal protection

Components with workplace control parameters

Aluminum oxide (Al2O3), hydrate	OSHA	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ;
	ACGIH	TWA value 1 mg/m3 Respirable fraction ;

Desiccant Material Safety Data Sheet

Safety data sheet
F200

Advice on system design:
Provide local exhaust ventilation to control dust. Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) particulate respirator. Observe OSHA regulations for respirator use (29 CFR 1910.134). Wear appropriate certified respirator when exposure limits may be exceeded.

Hand protection:
Wear chemical resistant protective gloves., Consult with glove manufacturer for testing data.

Eye protection:
Safety glasses with side-shields.

Body protection:
Body protection must be chosen based on level of activity and exposure.

9. Physical and chemical properties

Form:	powder, granules, pellets, balls	
Odour:	odourless	
Colour:	off-white	
pH value:	9.4 - 10.1	
Melting point:	2,050 °C	
Boiling point:		No data available.
Vapour pressure:		No data available.
Density:		No data available.
Bulk density:	approx. 650 kg/m3 38.0 - 52 lb/ft3	(68 °F)
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Viscosity, dynamic:		No data available.
Solubility in water:		insoluble

10. Stability and reactivity

Substances to avoid:
water

Hazardous reactions:
The product is chemically stable.
Addition of water leads to increase in temperature.

11. Toxicological information

Oral:

Information on: Aluminum oxide
LD50/rat: > 5,000 mg/kg (OECD Guideline 401)

Desiccant Material Safety Data Sheet

Safety data sheet
F200

Skin irritation:

Information on: Aluminum oxide
rabbit: non-irritant (OECD Guideline 404)

---

12. Ecological information

Information on: Aluminum oxide
Acute and prolonged toxicity to fish:
DIN 38412 Part 15 static
golden orfe/LC50 (96 h): > 500 mg/l
The product has not been tested. The statement has been derived from products of a similar structure and composition.

Information on: Aluminum oxide
Acute toxicity to aquatic invertebrates:
OECD Guideline 202, part 1 static
Daphnia magna (48 h): > 100 mg/l
---

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with local authority regulations.
Check for possible recycling.
Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.
All waste materials should be reviewed to determine the applicable hazards (testing may be necessary).

14. Transport information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory information

Federal Regulations

Desiccant Material Safety Data Sheet

Safety data sheet
F200

Registration status:
TSCA, US released / listed

OSHA hazard category: ACGIH TLV established

SARA hazard categories (EPCRA 311/312): Acute

SARA 313:

CAS Number	Chemical name
1333-84-2	Aluminum oxide (Al2O3), hydrate

State regulations

State RTK

CAS Number	Chemical name	State RTK
1333-84-2	Aluminum oxide (Al2O3), hydrate	MA, NJ, PA

16. Other information

HMIS III rating
Health: 1 Flammability: 0 Physical hazard: 1

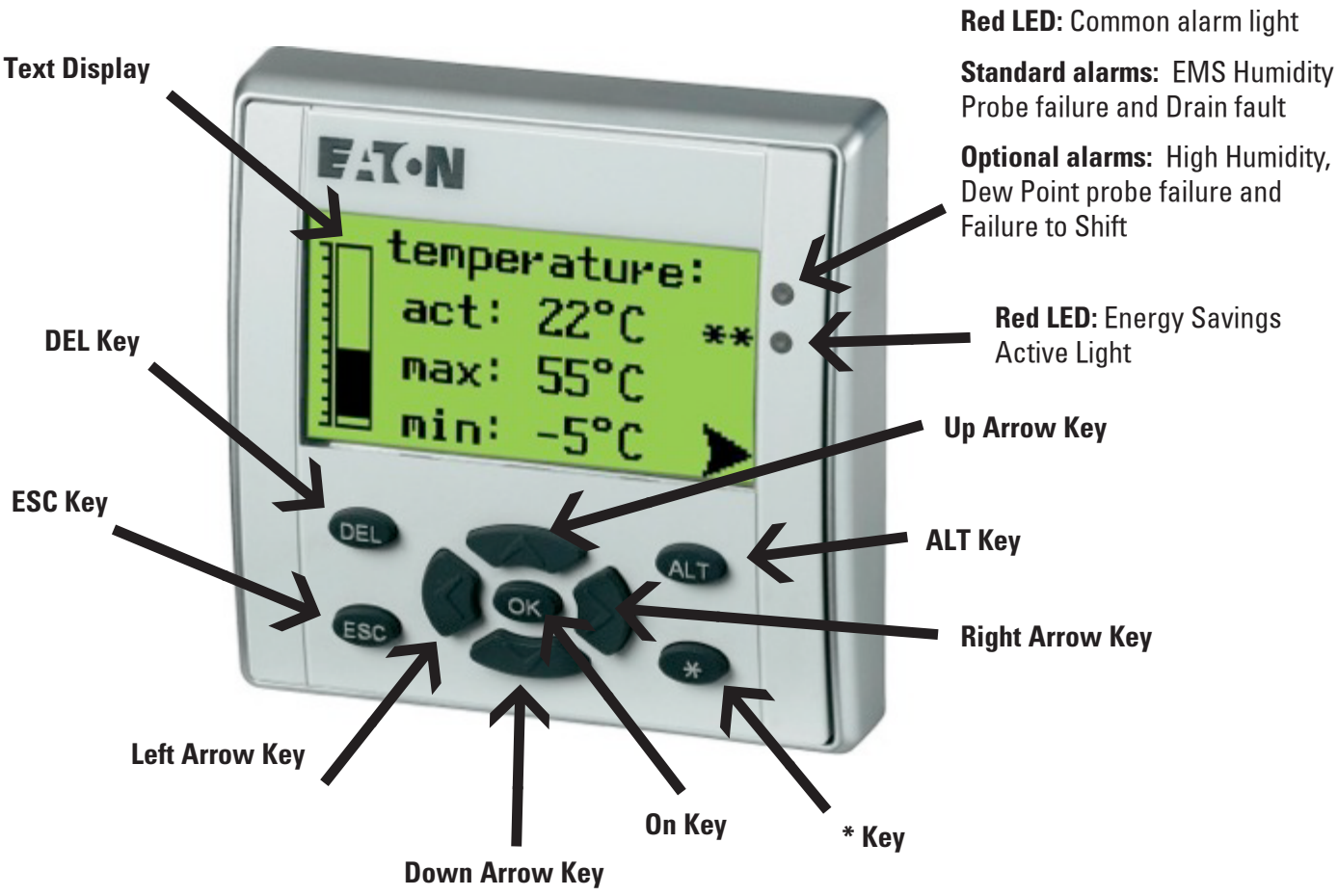
HMIS uses a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates high hazard.

Local contact information
prod_reg@basf.com

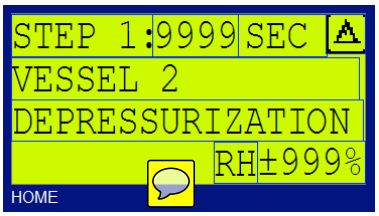
IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY BASF HEREUNDER ARE GIVEN GRATIS AND BASF ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

Aircel Programmable Controller

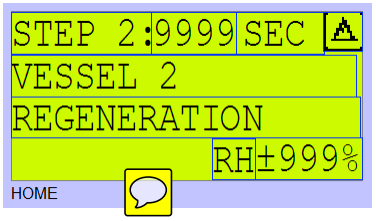
System display shows the dryer operations and provides the user the ability to change certain dryer settings.



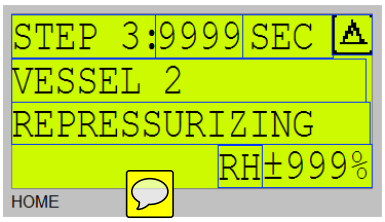
Aircel Programmable Controller



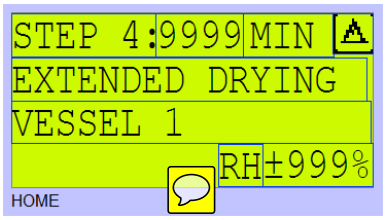
Step 1: Vessel 2 Depressurizing
Vessel 2 (T2) purge exhaust pilot solenoid valve is energized which supplies control air to the purge exhaust valve (V4) which opens slowly, depressurizing vessel 2 (T2). Simultaneously the inlet valves (V1 & V2) shift positions with a pneumatic signal from vessel 2 (T2) purge exhaust pilot solenoid valve to the inlet tower selector valve which in-turn supplies a pneumatic signal to the inlet valves to open (V1) and close (V2) directing the inlet air to vessel 1 (T1) to be drying the air. The air flows up through the desiccant bed and exits to the outlet valve (V5) to the outlet particulate filter then to the customer dry process air system.



Step 2: Vessel 2 Regenerating
Step 2 is a continuation of step 1 except vessel 2 (T2) will be regenerating, vessel 2 (T2) purge exhaust valve (V4) is still open, vessel 1 (T1) is drying the inlet air. A small portion of dry outlet air from vessel 1 (T1) (15% average based on standard design capacity of 100 psig, 100°F inlet air, 100°F ambient air and PDP of -100°F) is taken through a small orifice in the outlet line and used to regenerate the desiccant bed in vessel 2 (T2) until time has been reached. The screen also shows the (optional) dew point when applicable. The timer on this step counts to 90 seconds (1.5-minutes).
There is a warning sign that will flash in the upper right hand portion of the screen for any alarm. There is also a red LED alarm light that will flash on the PLC display for any alarm. The user must scroll to the alarm screen to view the alarms.(press the left arrow once from the main screen to view the alarm screen)...



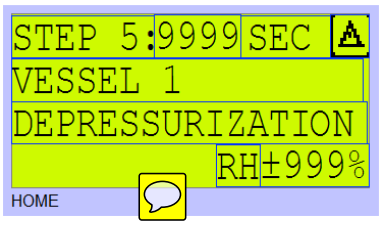
Step 3: Vessel 2 Repressurizing
Vessel 2 (T2) purge exhaust pilot solenoid valve will de-energize causing vessel 2 (T2) purge exhaust valve (V4) to close, this allows vessel 2 (T2) to repressurize to line pressure, since air continues flowing though the small orifice in the outlet line pressurizing vessel 2 (T2).



Step 4: Extended Drying Vessel 1
A few seconds before the end of repressurization the CDP -SERIES Controller's integrated Energy Management Purge Reduction System looks at the moisture sensor, if the moisture load is low enough, vessel 1 (T1) will continue to dry for an extended drying period until the moisture load has reached a set high level, the controller will then advance to step 5 and the vessels will switch. This feature reduces the overall purge consumption saving energy and money. The extended drying cycle timer will count to 30 minutes unless the outlet dew point sensor is higher than the set point. After 30 minutes, the unit will switch and continue normal operation until the next extended savings step. At the start of each extended savings step the PLC checks for faults, outlet dew point sensor value (optional) to ensure if the dryer needs to continue drying and the dryer will go into extended drying. If the dryer needs to continue to the next step to regenerate, the extended savings step 4 will be skipped. This step will also be skipped if the dew point option is not installed.

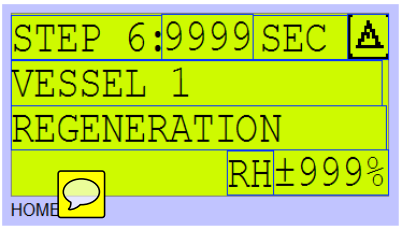
Aircel Programmable Controller

Step 5: Vessel 1 Depressurizing



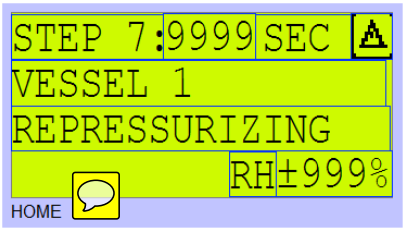
Vessel 1 (T1) purge exhaust pilot solenoid valve is energized which supplies control air to the purge exhaust valve (V3) which opens slowly, depressurizing vessel 1 (T1). Simultaneously the inlet valves (V1 & V2) shift positions with a pneumatic signal from vessel 1 (T1) purge exhaust pilot solenoid valve to the inlet tower selector valve which in-turn supplies a pneumatic signal to the inlet valves to open (V2) and close (V1) directing the inlet air to vessel 2 (T2) to be drying the air. The air flows up through the desiccant bed and exits to the outlet valve (V6) to the outlet particulate filter then to the customer dry process air system.

Step 6: Vessel 1 Regenerating



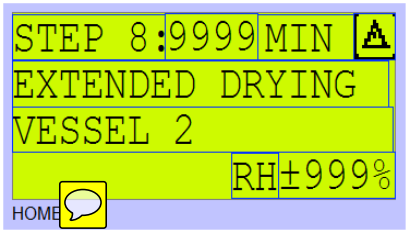
Step 6 is a continuation of step 5 except vessel 1 (T1) will be regenerating, vessel 1 (T1) purge exhaust valve (V3) is still open, vessel 2 (T2) is drying the inlet air. A small portion of dry outlet air from vessel 2 (15% average based on standard design capacity of 100 psig, 100°F inlet air, 100°F ambient air and PDP of -100°F) is taken through a small orifice in the outlet line and used to regenerate the desiccant bed in vessel 1 (T1) until 90 seconds has been reached.

Step 7: Vessel 1 Repressurizing



Vessel 1 (T1) purge exhaust pilot solenoid valve will de-energize causing vessel 1 purge exhaust valve (V3) to close, this allows vessel 1 (T1) to repressurize to line pressure, since air continues flowing though the small orifice in the outlet line pressurizing vessel 1 (T1).

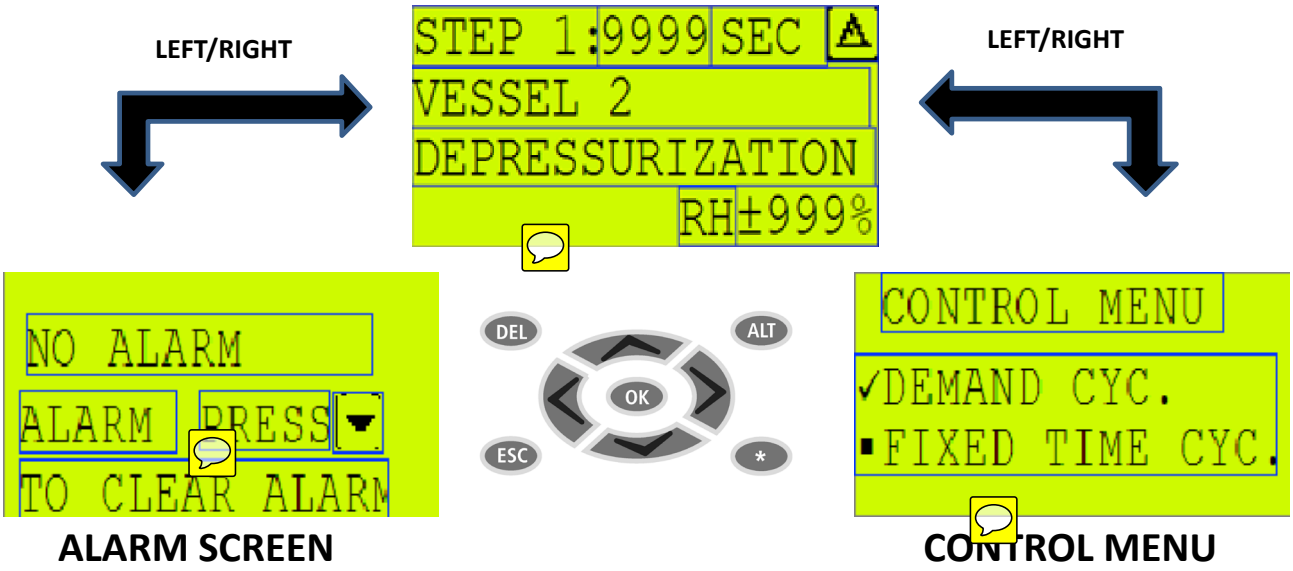
Step 8: Extended Drying Vessel 2



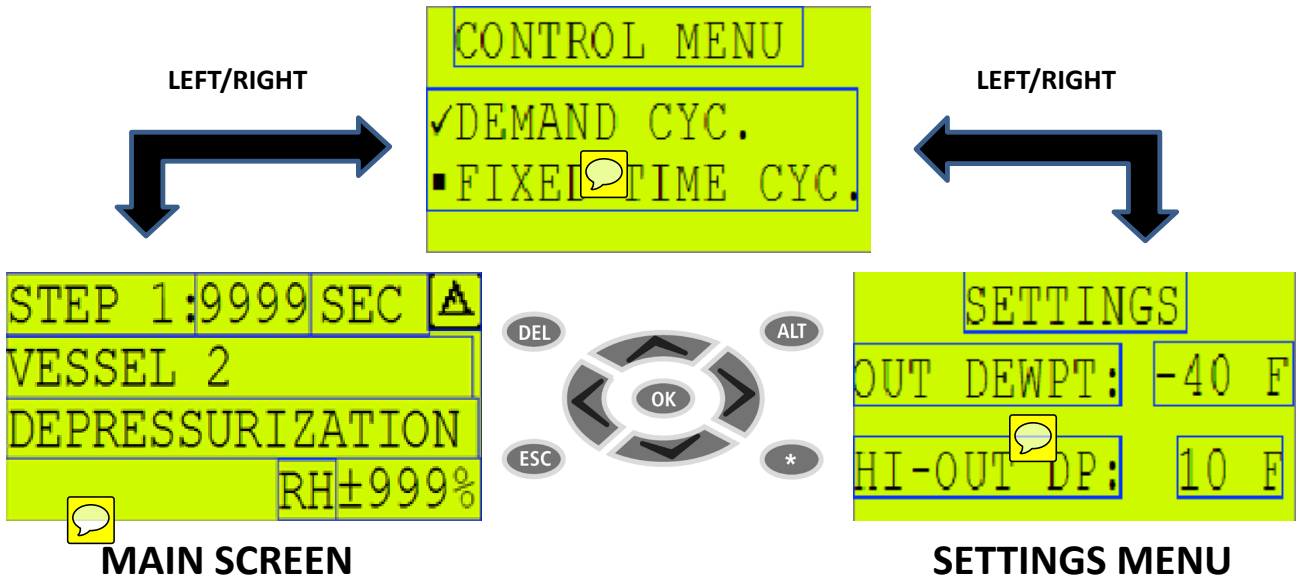
A few seconds before the end of repressurization the CDP -SERIES Controller's integrated Energy Management Purge Reduction System looks at the moisture sensor, if the moisture load is low enough, vessel 2 (T2) will continue to dry for an extended drying period until the moisture load has reached a set high level, the controller will then advance to step 1 and the vessels will switch. This feature reduces the overall purge consumption saving energy and money. The extended drying cycle timer will count to 30 minutes unless the outlet dew point sensor is higher than the set point. After 30 minutes, the unit will switch and continue normal operation until the next extended savings step. At the start of each extended savings step the PLC checks for faults and high outlet dewpoint setting (optional) to ensure if the dryer needs to continue drying and the dryer will go into extended drying. If the dryer needs to continue to the next step to regenerate, the extended savings step 8 will be skipped. This step will also be skipped if the dew point option is not installed.

Aircel Programmable Controller

Main Screen Navigation

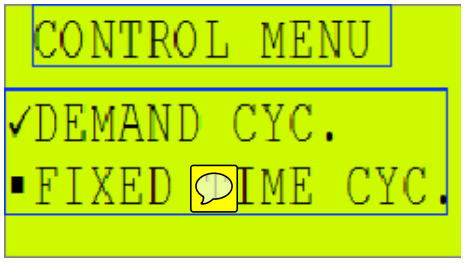


Control Menu Navigation



Aircel Programmable Controller

Control Menu Operation



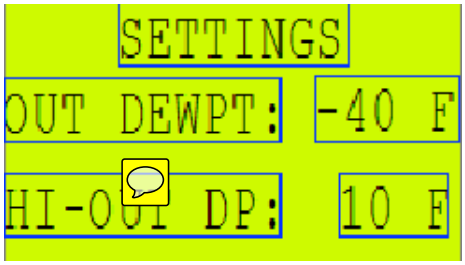
CONTROL MENU

- Push OK to engage the menu
- Scroll to the desired selection and Push OK

Settings Screen Operation

For use with optional outlet dewpoint display and high humidity alarm.

SETTINGS SCREEN

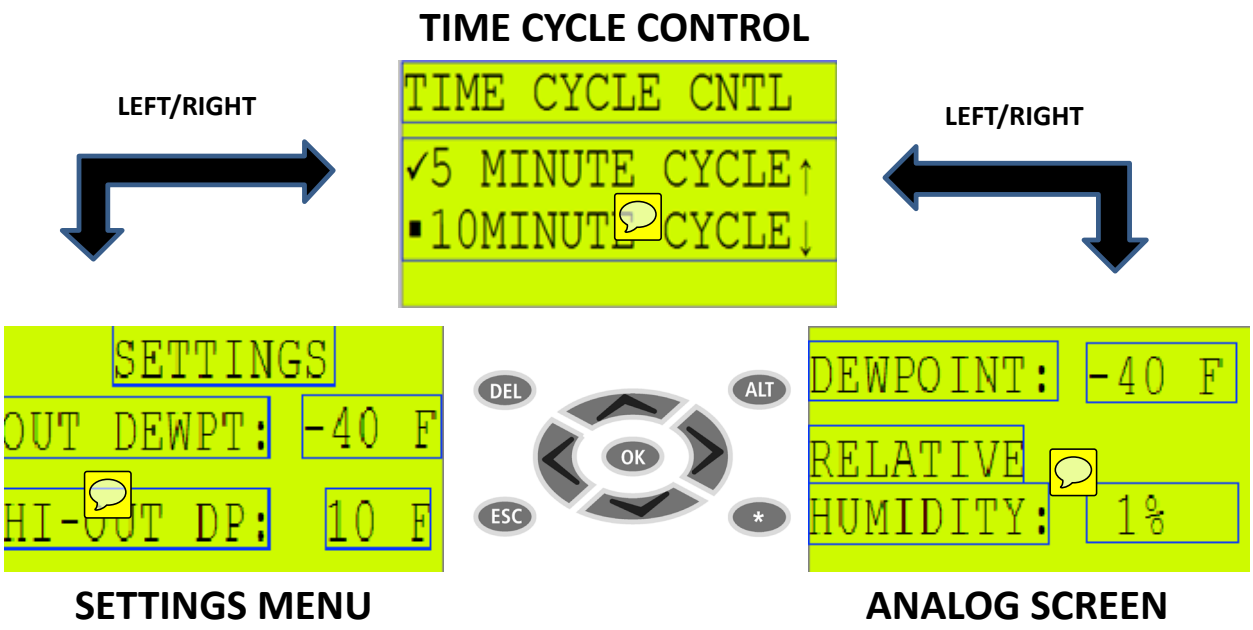


- To engage, Push OK then scroll to the desired set point to be changed
- Push OK on the set point to be changed and use the up or down arrows to change the set point
- Push OK to complete the change and ESC to de-select the screen. Push ESC again to exit to the main screen or use the left or right arrows to scroll to the next screen.

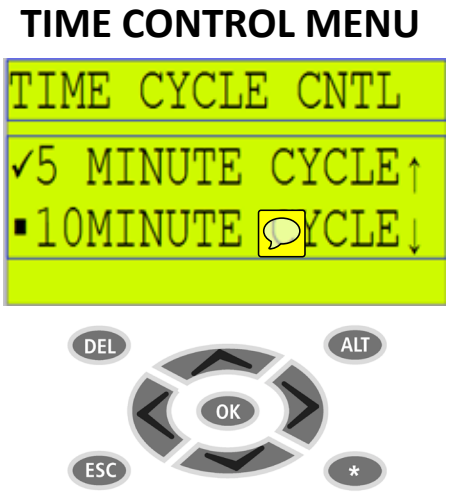
Aircel Programmable Controller

Time Control Menu Navigation

This time cycle control menu allows the user to choose between a 10 minute standard time cycle and a shorter 5 minute cycle for lower dewpoint option.



Time Control Menu Operation

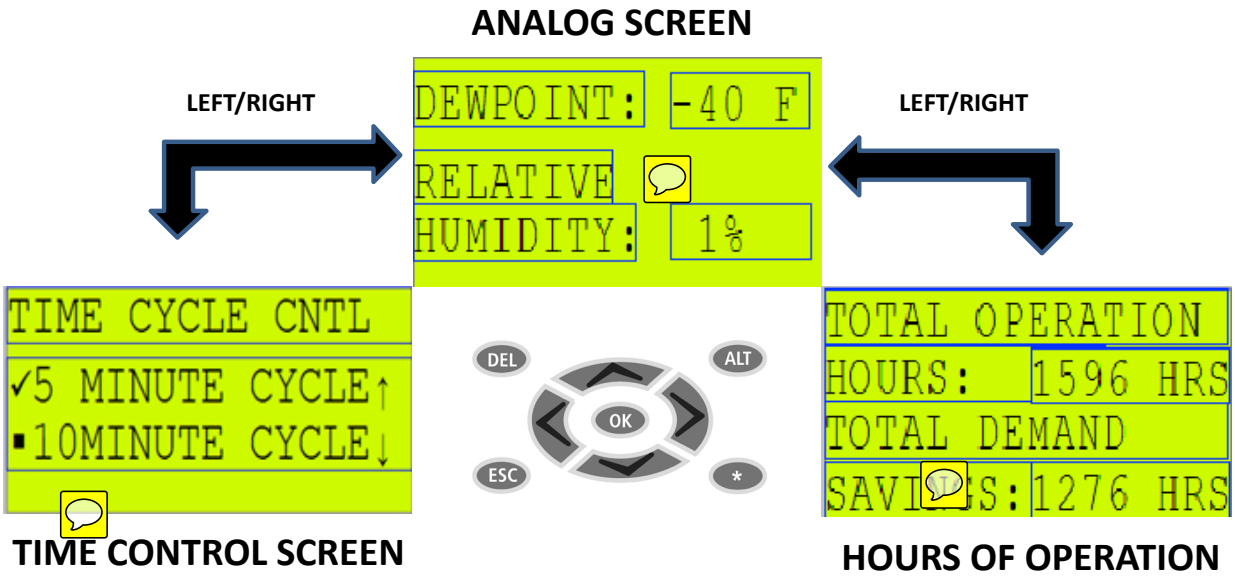


- To change the time cycle, Push OK then scroll to the time cycle to be selected. Push OK then Push ESC.
- When changes are complete, Push ESC to exit changes. Push ESC again to return to the main screen.

Aircel Programmable Controller

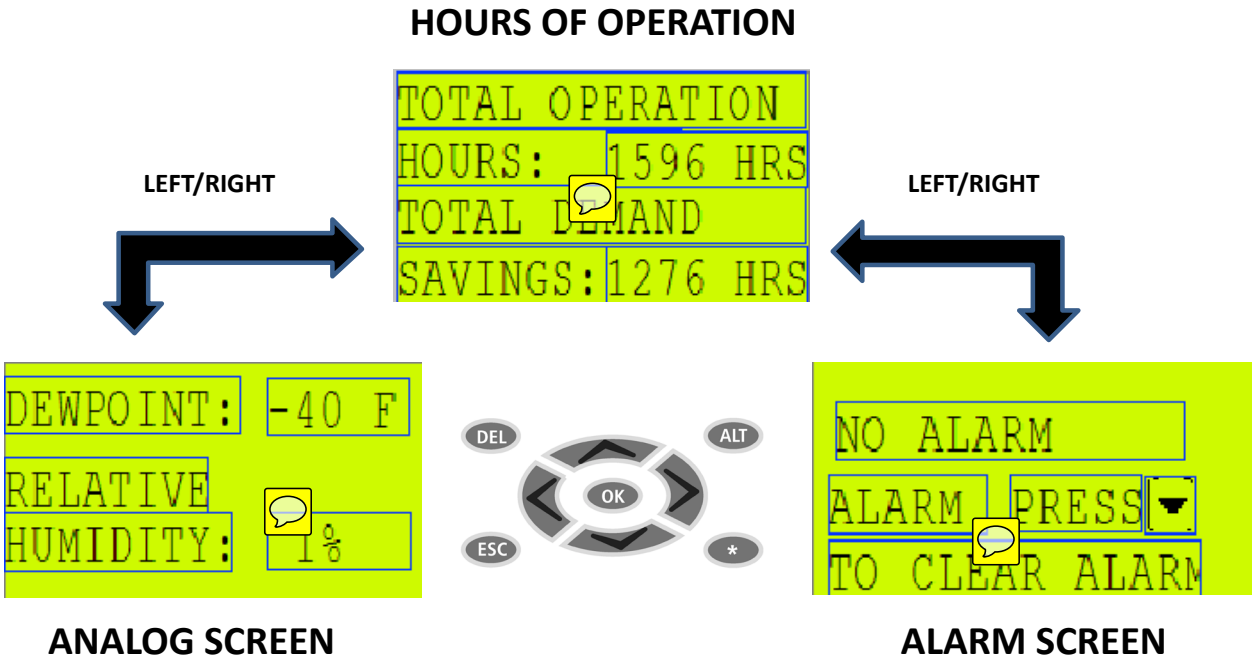
Analog Screen Navigation

The analog screen simply displays the analog output signals



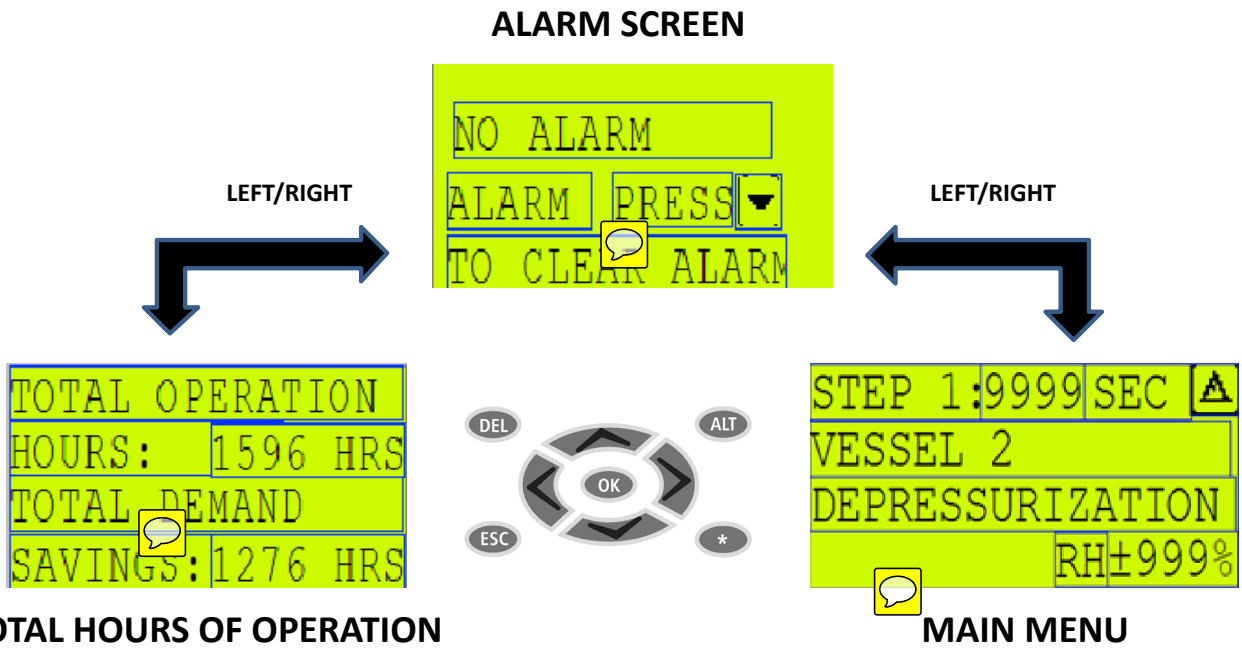
Hours of Operation Screen Navigation

The hours of operation screen gives the user the amount of run time as well as the total amount of hours saved with the energy management system.



Aircel Programmable Controller

Alarm Screen Navigation



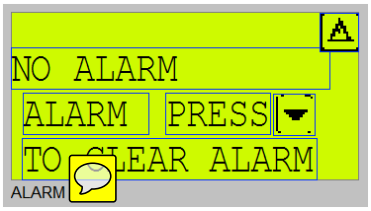
Alarm Pop-Ups

- **No Alarm:** alarm has been corrected
- **High Outlet Dew Point (option):** dew point has reached set point (check desiccant, prefilters, control system)
- **Failure to Shift (option):** tower did not properly repressurize
- **Bad Probe (option):** the Dew Point sensor has reached an out of range signal (check sensor and cable)

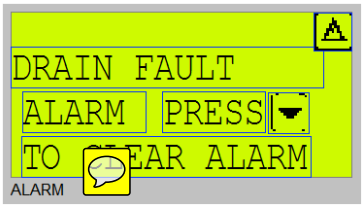
Aircel Programmable Controller

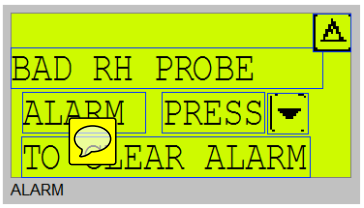
Alarm Pop-Up Screens

No Alarm is the normally closed state of the common alarm relay.

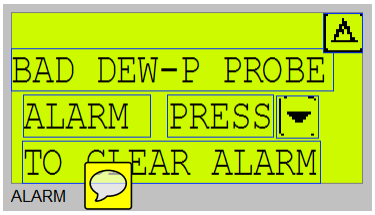


The Drain Fault is an alarm that triggers when there is no air present on the drain or when the liquid level has reached a point that needs to Drain and cannot. The drain will also fault if there is a loss of power to the drain.

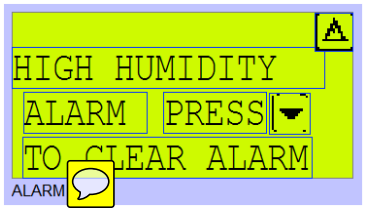




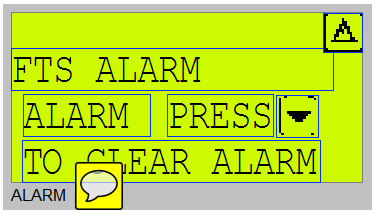
The Bad DEW-P Probe is the alarm for the dew point sensor probe out of range. The out of range can be either high or low. This can be either a complete loss of signal/voltage, the resistor can be disconnected or the sensor may need to be calibrated. (option)



The High Humidity Alarm is an alarm that is visible when the dew point is higher than the set point. The set point for the high humidity alarm can be changed but it is not recommended. (option)

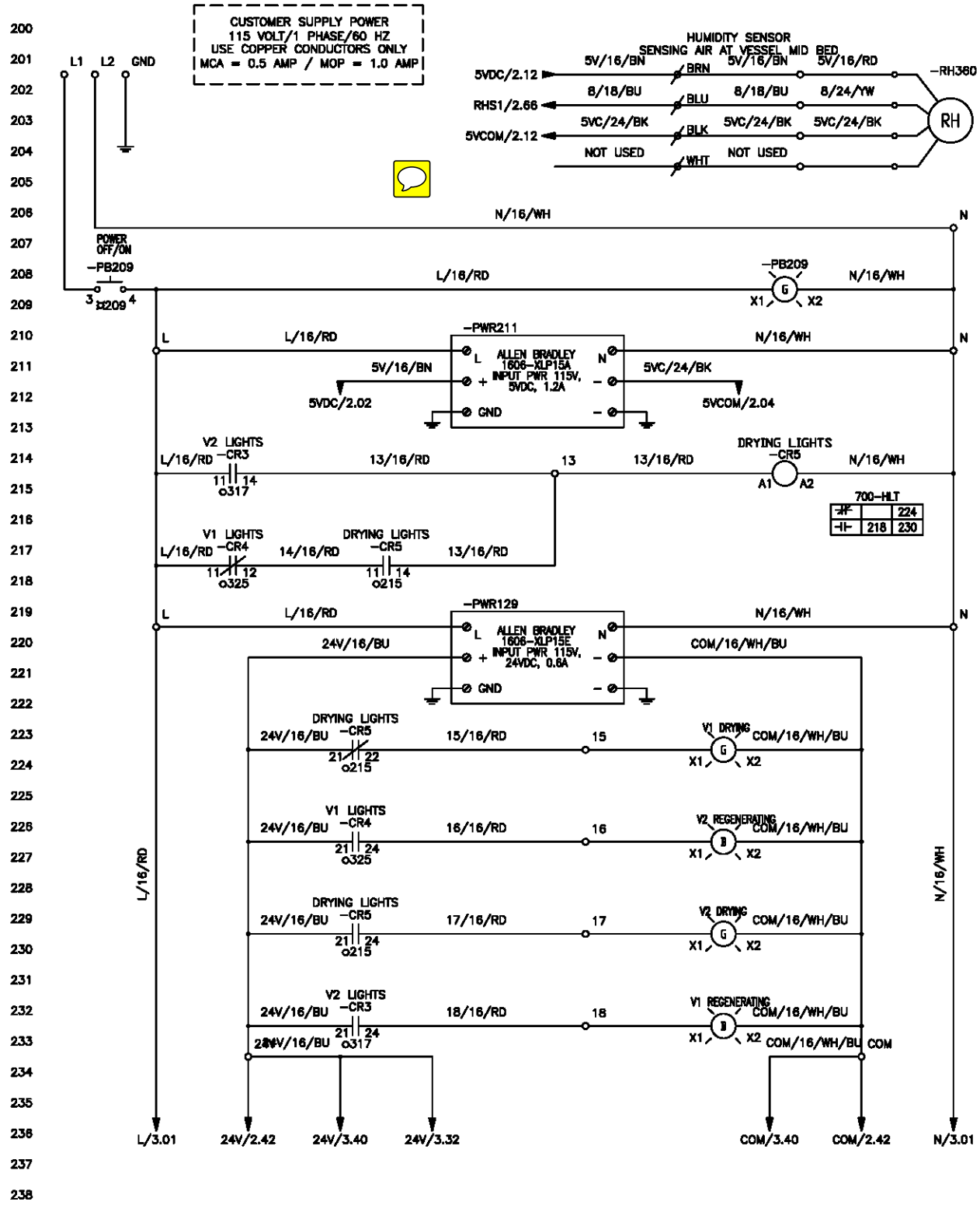


The FTS Alarm (Failure-to-Shift) is an alarm that is present when a vessel does not depressurize correctly or if a vessel that is to be drying does not have a pressure at or above a certain set pressure. (option)



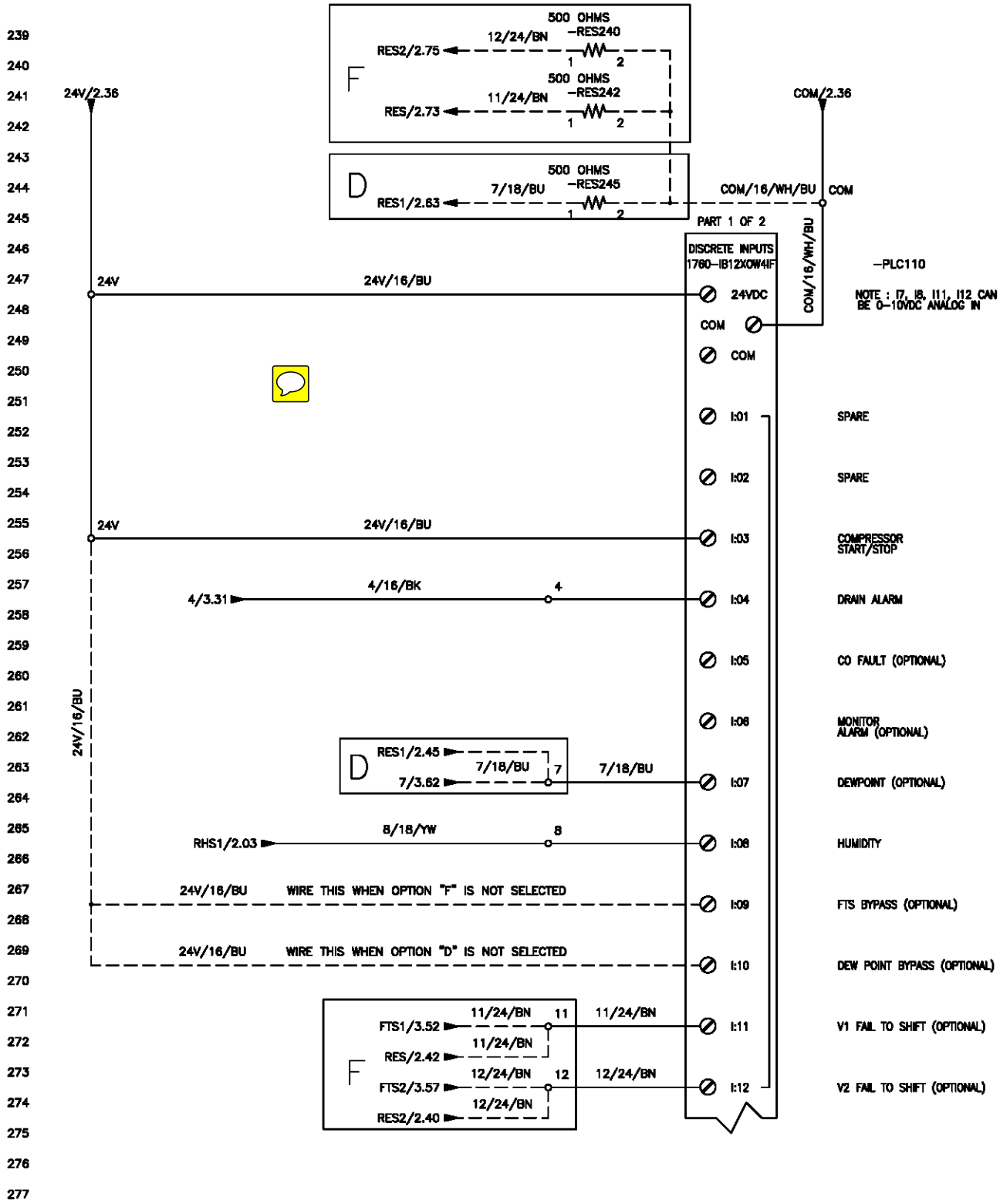
Electrical Drawings

Main Power & PLC Input: All CDP Models



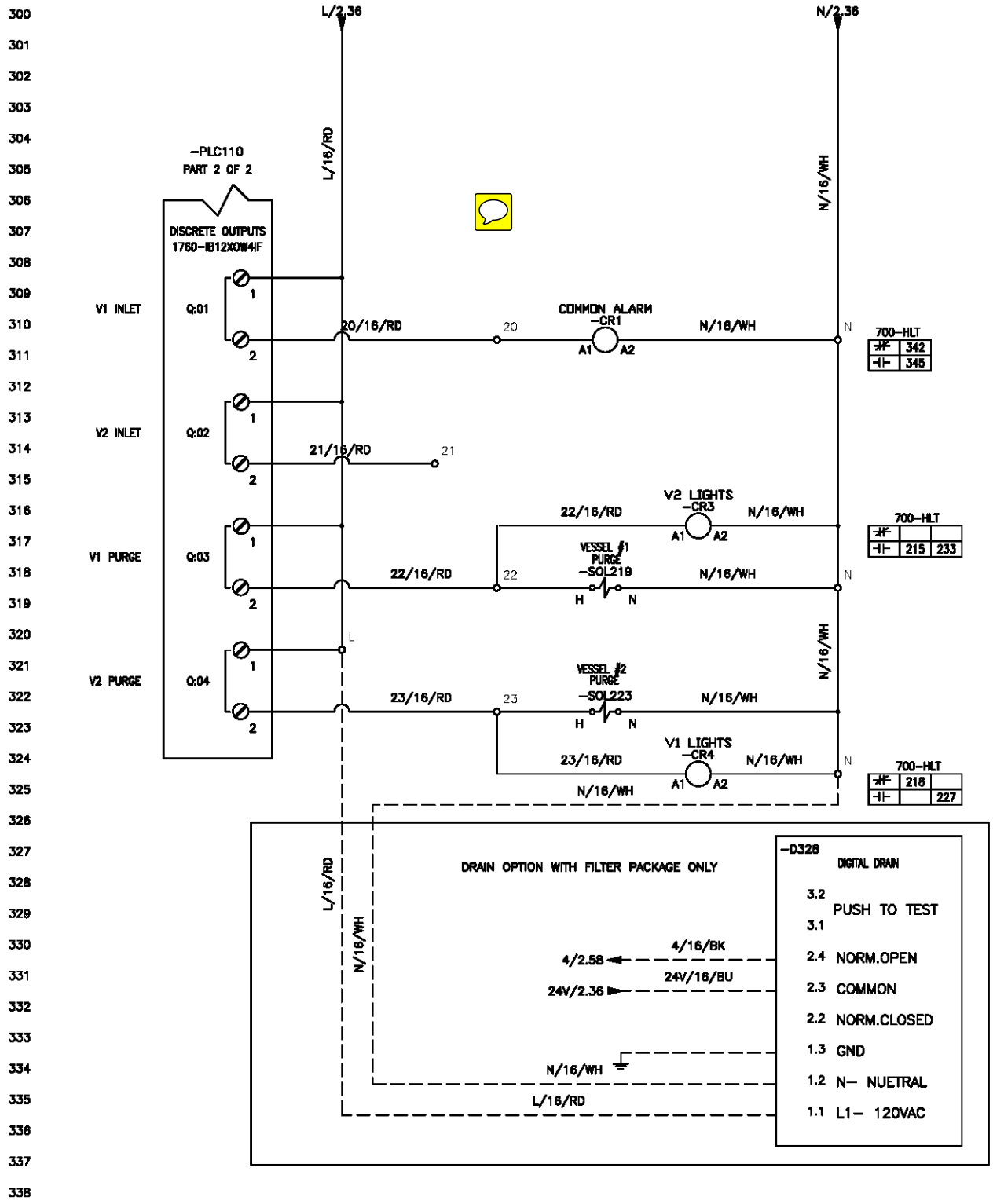
Electrical Drawings

Main Power & PLC Input: All CDP Models



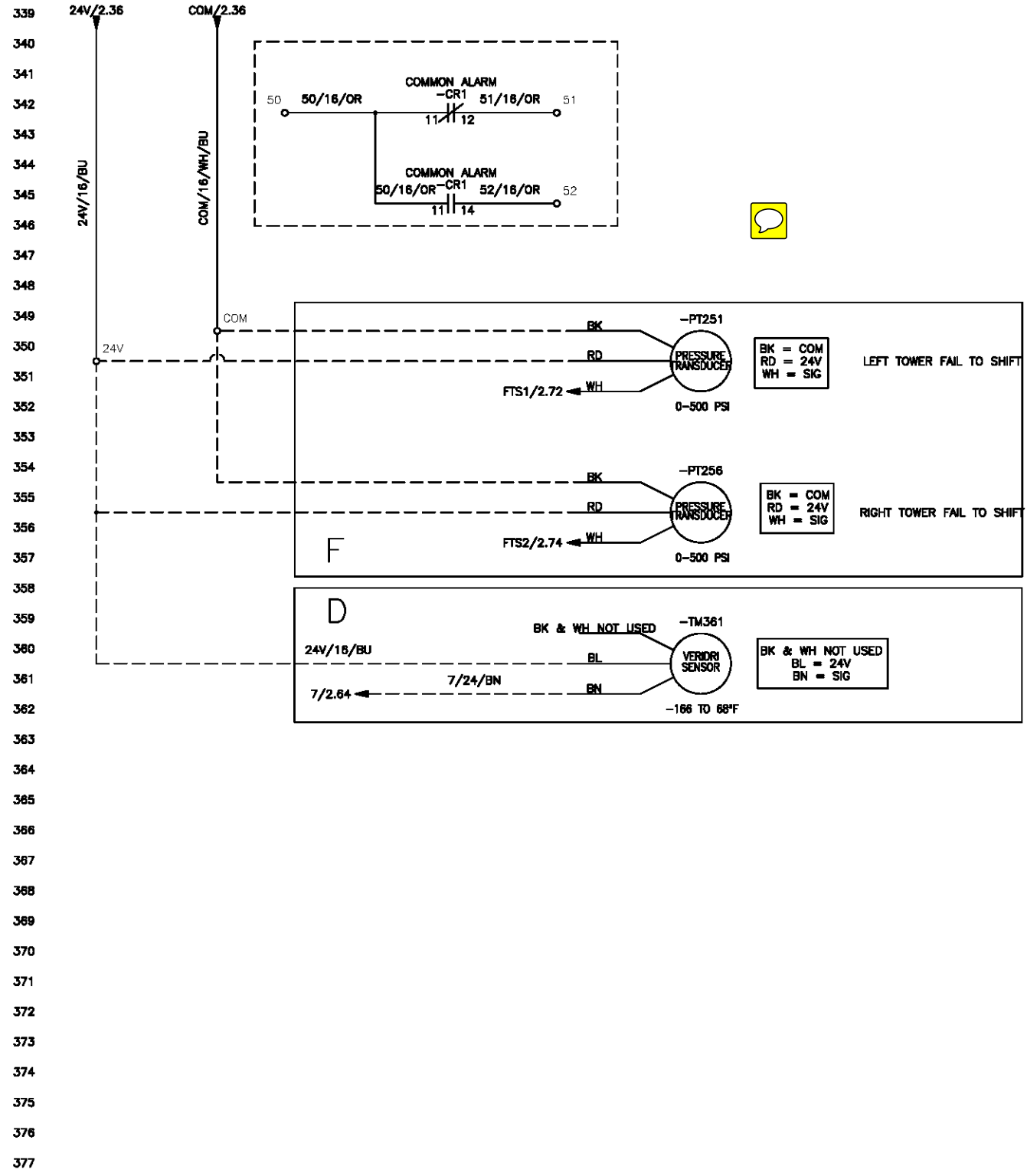
Electrical Drawings

PLC Output & Sensors: All CDP Models



Electrical Drawings

PLC Output & Sensors: **All CDP Models**



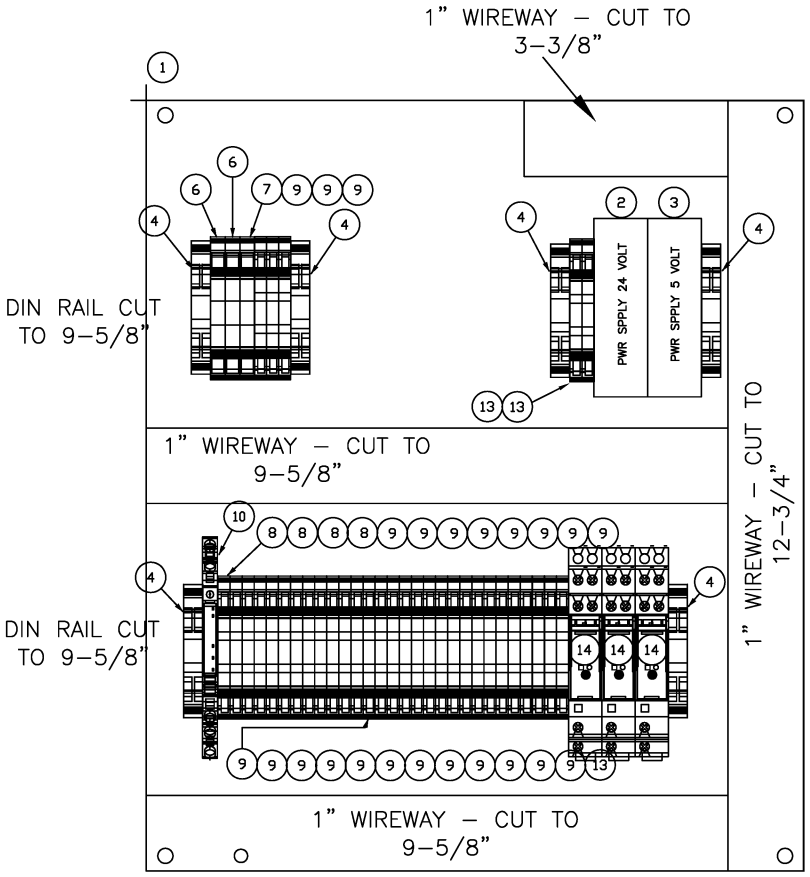
Electrical Drawings

Back Panel: All CDP Models

1	END ANCHOR
2	RELAY
2	RELAY
3	N
4	N
5	N
6	N
7	L
8	L
9	L
10	L
11	4
10	5
11	6
12	7
13	8
14	11
15	12
16	13
17	15
18	16
19	17
20	18
21	20
22	21
23	22
24	23
25	24V
26	24V
27	24V
28	24V
29	COM
30	COM
31	COM
32	GND
35	RELAY
36	RELAY
37	RELAY
38	END ANCHOR

1	END ANCHOR
2	L1
3	L2
4	GND
5	50
6	51
5	52
6	END ANCHOR

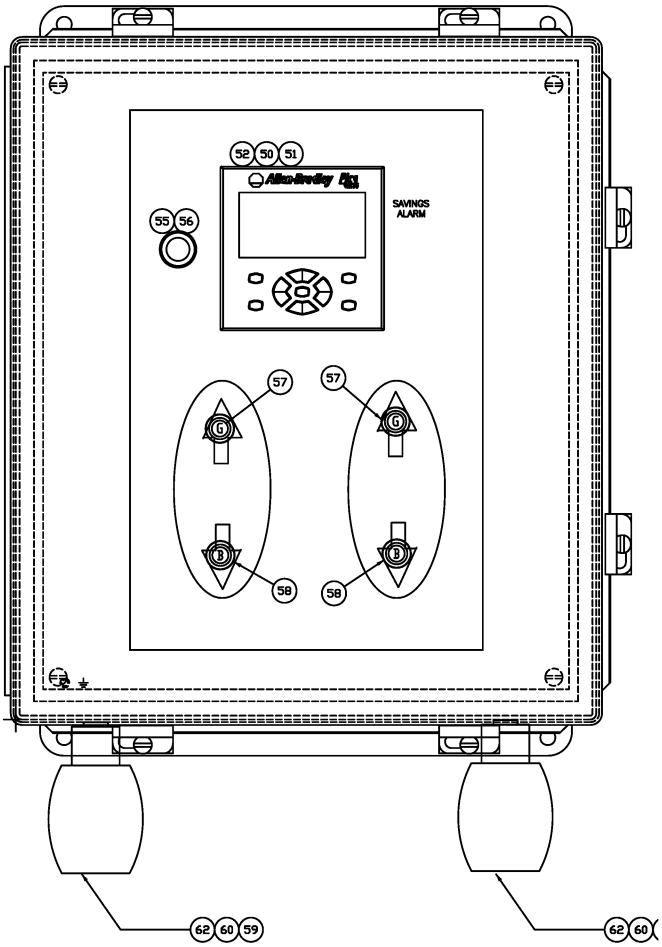
1	END ANCHOR
33	GND
34	GND
3	24V PWR SPLY
4	5V PWR SPLY
2	SPLITTER
5	END ANCHOR



QTY	PART NUMBER	DESCRIPTION	ITEM NUMBER
1	AG3197201	BACK PLATE FITS 14x12	1
1	AG3948924	POWER SUPPLY, 24VDC	2
1	AG3934769	POWER SUPPLY, 5VDC	3
6	AG3251901	ANCHOR, SCREW END, GRAY	4
2	AG3253101	TERMINAL BLOCK, GRAY 22-10 AWG	6
1	AG3253001	TERMINAL BLOCK, GREEN/YELLOW	7
4	AG3933672	TERMINAL BLOCK, BLU, FEED THRU	8
33	AG3933345	TERMINAL BLK,GRY,FEED THROUGH	9
2	AG3948856	RELAY, SCREW TYPE TERMINAL	10
4	AG3182201	DUCT, WHITE, NARROW SLOT, 1"X2"	11
4	AG3480590	COVER, WHITE DUCT, 1"	12
3	AG3933346	TERMINAL BLK, GRN/YEL GROUND T	13
3	AG3948855	RELAY, SCREW TYPE TERMINAL, DPDT	14
3.5	AG3182201	DUCT, WIRE, 1"x2", WHITE	15
3.5	AG3480590	COVER, DUCT, WHITE, 1"	16

Electrical Drawings

Enclosure Layout: All CDP Models



QTY	PART NUMBER	DESCRIPTION	ITEM NUMBER
1	AG3934778	EZD DISPLAY	50
1	AG3934775	EZD PROCESSOR	51
1	AG3934777	EZD I/O MODULE	52
1	AG3935996	ENCLOSURE, MODIFIED, 14x12	54
1	AG3935091	SWITCH, PUSHBUTTON, ROUND	55
1	AG3935094	CONTACT BLOCK FOR PUSHBUTTON	56
2	AG3935997	LIGHT, GREEN, 6MM	57
2	AG3935998	LIGHT, BLUE, 6MM	58
2	AG3288701	MYERS HUBS	59
2	AG3342801	1/2XCLOSE CONDUIT NIPPLES	60
2	AG3101501	VALVE, SOLENOID, 3 WAY, NEMA 4	62

Service Notes

Date	Service Performed	Notes

Service Notes

Date	Service Performed	Notes

Aircel Compressed Air & Gas Warranty

Aircel warrants that its Standard Refrigerated Air Dryers are free from defects in materials and workmanship for two years from the date of invoice. Warranty coverage for this time period will be parts and labor for the first year and parts only for the second. Custom engineered products, desiccant dryers, chillers and nitrogen generators are warranted to be free from defects in materials and workmanship for one year from date of invoice. Warranty coverage for this time period will be for parts and labor.

Aircel warranty excludes damages due to corrosion, lack of proper maintenance, incorrect installation, modification, or misapplication of equipment. Routine maintenance or adjustment required under normal operation as outlined in the Aircel operation and maintenance manuals are not covered under warranty.

Once Aircel has been given adequate opportunity to remedy any defects in material or workmanship in accordance with Aircel Warranty Policy and Procedures, Aircel retains the sole option to accept return of the goods, with freight paid by the purchaser, and to refund the purchase price for the goods after confirming the goods are returned undamaged and in usable condition. Such a refund will be the full extent of Aircel liability. Aircel shall not be liable for any other costs, expenses or damages whether direct, indirect, special, incidental, consequential or otherwise. The terms of this warranty may be modified only by a special warranty document signed by a CEO, General Manager or Vice President of Aircel.

There exist no other representations, warranties or guarantees except as stated in this paragraph and all other warranties, including merchantability and fitness for a particular purpose whether express or implied, are hereby expressly excluded and disclaimed.

Parts and Service

For genuine Aircel replacement parts, call:

800-767-4599

www.AircelDryers.com

For faster service, have unit's model and serial number, part number, description, and quantity available.

Aircel LLC.
323 Crisp Circle
Maryville, TN 37801
sales@AircelDryers.com
orderentry@AircelDryers.com

www.AircelDryers.com

Aircel LLC. is a leading designer and manufacturer of dryer systems and components.

© 2013 Aircel LLC.

Printed in USA
August 2013